Mental disorders in long-settled war refugees: a study conducted in former Yugoslavian refugees resettled in Germany, Italy and the United Kingdom

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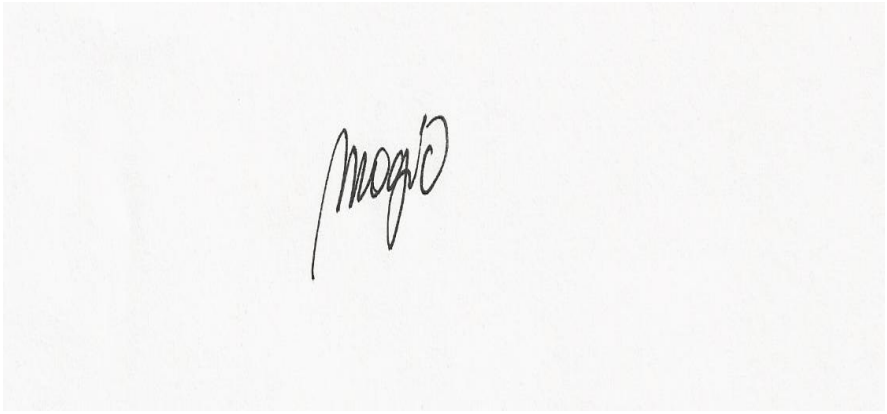
Parts of this thesis have been previously published while one portion is currently under peer review. Save for any express acknowledgements, references, and/or bibliographies cited in the work, I confirm that the intellectual content of the work is the result of my own efforts and of no other person.

Signed:



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Abstract

Worldwide there are several million war refugees, many of whom stay in the host countries for years. However, little is known about their long-term mental health.

The current thesis examined the prevalence, course, and predictors of mental disorders and subjective quality of life (SQOL) in 854 war refugees from former Yugoslavia who had resettled in Germany, Italy and the United Kingdom 9.3 years previously. 215 interviewees with Posttraumatic Stress Disorder (PTSD) at baseline were re-interviewed one-year later. The participants were additionally assessed for use of social and health care interventions during the one-year follow-up period.

Prevalence rates of mental disorders in the war refugees varied substantially across countries, with between 42.1% and 67.8% of refugees having a mental disorder. War-related factors explained most variance in rates of PTSD whereas post-migration factors explained most variance in mood, anxiety and substance use disorder rates. Risk factors for each disorder were consistent across host countries.

At the end of the one-year follow-up period, a third of the sample no longer met the criteria for PTSD. Recovery was positively associated with employment and negatively associated with severity of war exposure, baseline PTSD symptom severity and use of mental health services.

Despite the high rates of mental disorders, refugees felt reasonably satisfied with SQOL. Low SQOL was associated with poor post-migration living conditions and mental illness, but not with war trauma.

In conclusion, mental disorders appeared to be highly prevalent in war refugees many years after resettlement. This increased risk may result from exposure not only to wartime trauma but also to post-migration socio-economic adversity. Policies promoting community integration and employment may be more effective than existing psychiatric and psychological interventions in improving mental health and quality of life in war refugees.

Dedication

This thesis is dedicated to all people coming from the Balkans who participated in this study and made this thesis possible.

Home, bloody home by Miroslav Jancic

I felt at home everywhere
As long as I had my own
I wasn't intrigued by it at all, as
One isn't intrigued by air and water.

The entire world was mine, but
Since my home was wrested from
Me and disfigured, I am a stranger
Short of breath and thirsty everywhere.

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Thesis outline

As described in the abstract, the present thesis examined the prevalence, course, and predictors of mental disorders and SQOL in war refugees from the same region who have resettled in different countries several years previously. Whilst the main focus of the present thesis was mental health in long-settled war refugees, the author felt that it was important to also assess SQOL, a concept of well-being outside the often criticised concept of mental health.

The thesis is divided into six chapters. Chapter 1 provides the introduction of the thesis. It begins with an overview of the wars and armed conflicts in the modern world and briefly describes the scope of the refugee situation worldwide as well as the situation of refugees from former Yugoslavia residing in Germany, Italy and the United Kingdom (the UK). This is followed with a brief summary of research findings regarding patterns of psychological distress among refugees and discussion of trauma-focused and psychosocial approaches in addressing and understanding refugee mental health. The introduction closes with the rationale for the present study, the aims and the research questions.

Chapters 2 to 5 comprise the original research. The second chapter presents results of a systematic literature review of studies focusing on prevalence and predictors of mental disorders in long-settled war refugees.

Chapter 3 describes an investigation of prevalence of mental disorders and pre-migration and post-migration factors associated with these disorders in long-settled war refugees from former Yugoslavia who live in Germany, Italy and the UK.

Chapter 4 describes an investigation of SQOL and pre-migration, post-migration and clinical factors associated with SQOL in long-settled war refugees. Whilst Chapter 4 is presented as a separate study, it is based on the same cross-sectional data as the study described in Chapter 3.

Chapter 5 describes a longitudinal investigation of PTSD and identifies factors associated with PTSD recovery in this population.

Finally, Chapter 6 summarises and discusses the main findings and explores implications these findings may have for policy, clinical practice and for future research.

Chapter 1

Background

1.1. General introduction

Modern wars and refugees

Warfare affects millions of people in many countries every day. Over the past 25 years, about half of all countries in the world have been affected by wars (Marshall & Cole, 2009). In 2009, 20 countries were involved in warfare affecting several million people, most of whom are civilians (Ahlstrom, 1991; International Committee of the Red Cross (ICRC), 2010; Ager, 1999; Buseh, McElmurry, & Fox, 2000). According to the United Nations High Commissioner for Refugees (UNHCR), around 43.7 million people across the globe have been forced to leave their homes in search of shelter from organized violence, with the majority of the population staying internally displaced and around 16.2 million going abroad as refugees (UNHCR, 2011). Whilst the majority of refugees soon repatriate, many stay in the recipient countries for years or even decades. Refugees' mental health often presents a challenge to clinicians and policy makers of the recipient countries.

Mental health of long-settled war refugees

Although there is agreement that refugee populations experience high levels of mental health problems, much of the research has focused on individuals seeking treatment who may have more severe problems than the general population of refugees (Fernandez, et al., 2004; Hinton, Ba, Peou, & Um, 2000). In addition, research is frequently conducted while refugees are housed in refugee camps or within a short time after resettlement in a host country (Mollica, McInnes, Poole & Tor, 1998; Turner,

Bowie, Dunn, Shapo, & Yule, 2003; Weine, et al., 1995). Therefore, it is difficult to determine if the high levels of mental distress documented in these studies represents an acute condition that may spontaneously resolve over time or whether it reflects a chronic condition that may require psychosocial or psychiatric treatment (Marshall, Schell, Elliott, Berthold, & Chun, 2005).

Community studies on long-settled war refugees are rare and have reported raised prevalence rates of mental disorders, particularly PTSD, depression, and anxiety. Some evidence suggests that a higher level of exposure to both war-related traumatic events and post-migration stressors in the recipient country may be associated with raised rates of mental disorders over many years. Prevalence rates of mental disorders among refugees vary markedly across studies, with some studies reporting a gradual improvement in symptoms over a period of a decade, to the point where prevalence rates of mental disorders were lower than in the general population of the host country (Beiser & Hou, 2001; Silove, Steel, Bauman, Chey, & McFarlane, 2007), and other studies reporting prevalence rates substantially higher than those in the general population (Carlson & Rosser-Hogan, 1994; D'Avanzo & Barab, 1998; Marshall, et al., 2005). Such variation may partially be explained by methodological differences (Fazel, et al., 2005). It may also reflect substantial differences in sample characteristics and the context of the resettlement, which might interact so that the same sample characteristics are differentially linked to mental disorder rates in different host countries. To test whether the association of refugee characteristics with mental disorders varies across countries, similar groups, preferably from the same region, should be studied in different countries using the same assessment instruments.

Going beyond psychopathology in refugees

The effects of war trauma and migration may have wider implications than psychopathology but little attention has been devoted to the impact of such experiences on non-psychiatric forms of wellbeing, such as refugees' QOL (De Vries & Van Heck, 1994; Uba & Chung, 1991). QOL is affected by an interaction of various factors such as an individual's physical health, mental state, relationships, employment, social activities and spirituality. The specific combination of pre-migration and post-migration experiences, including poor mental health, may make refugees particularly vulnerable to an impaired QOL.

The few studies that have assessed QOL in refugees all indicate that refugees tend to have poorer QOL than the general population (Priebe, et al., 2009; Sundquist, Behmen-Vincevic, & Johansson, 1998; Young & Evans, The well-being of Salvadoran refugees, 1997), but the evidence on factors associated with poor QOL in refugees is conflicting (e.g. Cardozo, Talley, Burton, & Crawford, 2004; Laban, Komproe, Gernaat, & de Jong, 2008; Priebe, et al., 2009). Some studies report that those refugees with more severe war experiences and poor mental health (PTSD in particular) have particularly poor QOL (Priebe, et al., 2009). However, other studies have shown that the effect of war experience on QOL is largely confounded by mental health (Araya, Chotai, Komproe, & de Jong, 2007), whilst yet other studies suggest that the effect of mental health is also confounded by post-migration living conditions (Laban, et al., 2008).

Longitudinal course of PTSD after war and displacement

It is estimated that two-thirds of people suffering from PTSD will go on to recover in the absence of treatment (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Although this statistic highlights that a natural recovery process can take place, it also highlights that a staggering number of people around the world continue to suffer debilitating PTSD symptoms. It is unclear what factors, if any, may be helpful in recovery of this small sub-sample of individuals with unremitting PTSD. There is limited evidence on the course of PTSD once diagnosed in war refugees and even less is known about predictors of recovery versus persistence of PTSD.

There is a controversy in the literature about the most appropriate interventions for refugees suffering from war-related PTSD. Whilst there have been calls for increasing availability of mental health treatments, others have argued that social support is more important than treatments focusing on symptoms of mental disorders (Summerfield, 2001). So far there has been little research evidence to support either position.

The present chapter

This thesis examined the prevalence, course, and predictors of mental disorders and SQOL in war refugees from the same region who have resettled in different countries several years previously. Using quantitative methods, a series of studies investigated prevalence and factors associated with mental disorders, SQOL, and longitudinal course of PTSD, with specific focus on the effects of social and health care interventions in recovery. This chapter provides relevant background information for these studies. Specifically, the following section provides an overview of the current wars and armed

conflicts in the world and briefly describes the scope of the refugee situation worldwide as well as the situation of refugees from former Yugoslavia residing in Germany, Italy and the UK. Also included in this chapter are the results of a literature review that was conducted to provide background information on refugee mental health, including how experiences of pre-migration trauma and post-migration stressors may impact on the mental health of refugees. Moreover, the evidence on the impact of social and health care interventions in ameliorating effects of pre-migration and post-migration experiences on refugee mental health is also discussed. Finally, rationale, aims of the study and research questions are presented in the last section of this chapter.

1.2. Wars and armed conflicts in the modern world

More than 1.5 billion people live in countries affected by conflict (The World Bank, 2011).Traditionally wars were defined as mass armed conflicts between the military forces of two or more states. However, in recent wars it is increasingly difficult to distinguish conventional wars from other types of armed conflicts. Fighting between states is rather the exception than the rule, with nine out of ten wars being intra-state or civil wars (Themnér & Wallensteen, 2011). Consequently, there are various definitions of war and armed conflict, depending on whether government forces have to be involved, what classifies as an army and the number of battle-deaths per year necessary to classify for a war. The Uppsala Conflict Data Program (UCDP) defines an armed conflict as "a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year. If more than 1,000 battle-related deaths are recorded in one calendar year the conflict has reached the intensity of war" (Uppsala Conflict Data Program, 2009).

In the period 1946-2010, there were 246 armed conflicts active in 151 locations worldwide. During this period, the number of armed conflicts was steadily increasing reaching its peak of 53 conflicts in 1992, after which there has been a small decrease (Themnér & Wallensteen, 2011). In 2010 there were 30 ongoing armed conflicts, of which four reached the intensity of 'war' (wars in Afghanistan, Iraq, Pakistan, and Somalia) (Themnér & Wallensteen, 2011). All active conflicts in 2010 were internal, with nine of them defined as internationalized, meaning that they saw international involvement with troop support to one or both of the warring parties.

The wars in the world are not evenly distributed. In the period between 1989 and 1999 there were three major conflict zones, which included Central America and the northern part of South America with some single conflicts in Central South America; the second zone of conflicts were Eastern Europe (the Balkans), the Middle East, India, and Indonesia; and, finally, the third zone of conflicts was Africa. The great majority of the 2010 wars (87%) were located in Africa, Asia and in the Middle East (Themnér & Wallensteen, 2011). Since World War II, apart from the Balkan Wars in former Yugoslavia, no major conflicts were registered in the developed Western World.

Today's warfare is aimed at terrorising the civilian population, who are the majority of current war victims (Machel, 2001; Stockholm International Peace Research Institute [SIPRI], 2012). It is characterized by mass atrocities, such as systematic massacres, torture and rapes aimed to frighten and control civilian populations who do not belong to the 'chosen' group (for example, ethnic cleansing in Bosnia and Herzegovina). In recent decades, the proportion of civilian war casualties has increased dramatically from 5% to 90% more recently (Machel, 2001). Not only are large numbers of civilians killed and injured, but the entire fabric of their societies –including their homes, relationships, employment, health systems, religious institutions- are targeted and torn apart (Summerfield, 2000).

1.2.1. War in the Balkans, 1991-2002

The War in the Balkans was a series of violent conflicts in the territory of the former Socialist Federal Republic of Yugoslavia (SFRY) that took place between 1991 and 2002. The SFRY was a federation of six republics (Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, and Macedonia) and two autonomous provinces

(Kosovo and Vojvodina), each having its own regional government within the federal structure.

The conflicts within this thesis will be discussed in chronological order. The reasons why and how these conflicts arose are beyond the scope of the thesis and further information may be found in books such as those of Glenny (1996) or Nation (2003).

The conflicts within this area can be grouped into two sets of conflicts: conflicts that arose during the break-up of Yugoslavia, which include conflicts in Slovenia, Croatia and Bosnia and Herzegovina during the period between 1991 to 1995; and conflicts in Albanian populated areas, including Southern Serbia, Kosovo and Macedonia, covering the period between 1998 and 2002. They were characterized by ethnic conflicts, mainly between Serbs on one side and Croats, Bosniaks (previously referred to as 'Muslims') or Albanians on the other. Bosnia and Herzegovina has been a centre of co-existence of different nationalities and religions for centuries and its diversity was reflected in the complexity of the conflict in that area. It involved several sides: Bosniaks, Bosnian Serbs and Bosnian Croats, who were at different times and within different geographical areas fighting with or alongside each other.

Following a referendum in the spring of 1990, Slovenia and Croatia declared independence and moved toward secession from the federal state. In response the federal government ordered the federal Yugoslav People's Army (JNA) to secure border crossings in Slovenia and the first of the conflicts was initiated. The Ten-Day War, sometimes called the Slovenian War, was a brief military conflict between Slovenia and Yugoslavia, which resulted in low casualties due to the short duration and

low intensity of the war. It ended through negotiation and with the JNA completely withdrawing from Slovenia.

The second in this series of conflicts, the Croatian War of Independence, began in July 1991 when Serbs in Croatia announced their own secession from Croatia, which had previously declared secession from the SFRY. Shortly after that, in 1992, the conflict in Bosnia and Herzegovina engulfed the regions. The wars in Croatia and Bosnia and Herzegovina lasted until 1995. During this time over 100,000 people, mainly civilians, lost their lives and approximately 2.5 million people were displaced (Firket, 2001).

The conflicts in Kosovo, Southern and Central Serbia, and Macedonia were characterized by ethnic discord between Serbian and Macedonian governments and an Albanian ethnic minority which sought autonomy in the case of Macedonia and independence in the case of Serbia. Although ethnic tension and political demonstrations had characterised the Kosovo region since the early 1980's, the "full blown war" (the international definition) began in 1999. It ended the same year when the international North Atlantic Treaty Organization (NATO) intervened and launched massive air-raids on military targets in Serbia, adding an international dimension to the war in the Balkans and re-defining the war as an internationalized war. The conflicts in Southern Serbia (2001) and Macedonia (2001-2002) were low scale conflicts between state security forces and Albanian guerrillas. Overall casualties remained limited to several tens for either side.

Overall, the wars of Yugoslav secession resulted in suffering and destruction unprecedented in Europe since World War II. They were also the first conflicts since

World War II to be characterised by systematic violence against civilians (Spasojevic, Heffer, & Snyder, 2000). Although there are wide discrepancies in casualty figures reported, the most commonly cited figure in the literature is between 200,000 and 250,000 killed, 90% of which were civilian (Pupavac, 1998). During this war the term “ethnic cleansing’ was used to describe the mass exodus of entire non-Serb ethnic communities in order to create a supposedly ethnically "pure" society in what had formerly been a multi-ethnic society (Nation, 2003). Around four million people were forced to flee their homes, with the majority staying in the region but many fled to other countries outside the Balkans (UNHCR, 2001b).

1.3. Survivors of wars and armed conflicts as refugees

As previously mentioned, present-day conflicts intentionally involve civilian populations who are often the largest proportion of all war casualties (Ahlstrom, 1991; ICRC, 2010; Machel, 2001). As a result of widespread atrocities and 'ethnic cleansing' of civilians, many people are forced to flee the affected region in search of safety. The United Nations High Commissioner for Refugees (UNHCR, 2011) differentiates between refugees, asylum seekers, returned refugees, internally displaced people (IDP), and others, e.g. stateless persons. According to the 1951 Convention and Protocol Relating to the Status of Refugees, the UNHCR states that the term "refugee" shall apply to any person who "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership in a particular social group, or political opinion, is outside the country of his nationality, and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country" (UNHCR, 1951). Colloquially, however, those who flee from civil war or other armed conflicts in their countries are often considered refugees (Howard & Hodes, 2000).

The UNHCR recently reported that at the end of 2010 there were an estimated 43.7 million forcibly displaced people worldwide, including 15.4 million refugees, 837,500 asylum seekers and 27.5 million internally displaced persons (IDPs). Approximately 7.2 million refugees remained in protracted situations, i.e. have been in exile for five years or longer in any given asylum country, the highest figure since 2001 (UNHCR, 2011).

Refugee identity has changed over the years, moving away from the predominantly European refugees of World War II toward greater ethnic and national diversity. Vietnamese and other Southeast Asians dominated in the 1970s and 1980s. Bosnians

and individuals from the former Yugoslavia swelled refugee ranks in the 1990s. Today, Central Asian, Middle Eastern, and African refugees predominate. As most armed conflicts take place in developing countries, the majority of refugees originate from these countries. Afghani and Iraqi refugees accounted for a half of all refugees under UNHCR's responsibility worldwide at the end of 2010 (UNHCR, 2011).

While there is a general impression that the richer Western countries host the majority of the refuge population, the latest UNHCR report showed that the highest proportion of refugees is in fact resettled in developing countries. Four-fifths of the global refugee population reside in developing countries and three-fourths seek asylum in neighbouring countries (UNHCR, 2011). More than one-third (38%) of all refugees were residing in countries in Asia and the Pacific region, followed by one-fifth of all refugees (21%) in Sub-Saharan Africa, and somewhat less in the Middle East and North Africa region (18%). In 2010, Europe hosted 15% of all refugees worldwide, with Germany and the United Kingdom being the fourth (hosting 6% of all refugees) and the tenth (hosting 2% of all refugees) largest hosting countries worldwide, respectively. The Americas region hosted the smallest share of refugees (8%) globally (UNHCR, 2011).

Nonetheless, the number of refugees in the Western world increased nearly ten-fold between 1983 and 1992 (UNHCR, 2005). In 2005, Europe received almost 60% of all asylum applications worldwide, making it the primary destination for asylum seekers (UNHCR, 2011). The sharp rise in the early 1990s was accounted for by applications from Eastern Europe following the disintegration of the Soviet Union and the conflicts that followed the breakup of former Yugoslavia (UNHCR, 2005).

The unprecedented rise in the number of individuals seeking asylum in Western countries during the past 30 years and, particularly during the 1990s, had political repercussions (Ingleby, 2005). The reaction of most Western countries to this increase in asylum included the introduction of much more stringent procedures and restrictions to declare refugee status (Fazel & Silove, 2006; Silove, Steel, & Watters, 2000). Many governments concerned with prospects of uncontrolled migration and over-flow of 'needy' asylum seekers, have resorted to adopting deterrence policies (based on restrictions and deprivations) imposed on asylum seekers. In many countries decision on asylum seeking may take up to several years, during which time the asylum seeker may be detained; experience enforced displacement from the community; experience restrictions on movement, employment, housing and, in some cases, even basic health care. It is believed that such policies partially explain the decrease in the number of refugees in industrialized countries during the last few years (UNHCR, 2006).

1.3.1. War refugee experience

Migration is an integral part of human existence. Motives for the migration of people are varied, ranging from simple aspirations for better economic opportunities to more fundamental aspirations for personal safety. The focal distinction between refugees and other migrants is the forced nature of departure from their countries in search of personal safety due to war and persecution. They typically leave their homes with few material possessions, with little control over events and consequences, and often with no foreseeable option of return to their home country.

The refugee experience is usually conceptualized from a chronological perspective of the migration experience into three phases: pre-migration, migration and post-migration or resettlement (Ager, 1993; Fazel & Stein, 2002). The 'pre-migration phase' refers to the period in the country of origin prior to the flight to another region or country. This phase may last for an extended period during which refugees are often exposed to prolonged and repetitive war-related traumatic experiences, including experienced or witnessed violence (e.g. killing, combat, kidnapping, rape, torture, injury), disruption of basic needs (economic and social deprivation, including loss of income, lack of medical care, food sources, education), political persecution and ethnic cleansing. Table 1.1. illustrates the prevalence rates of exposure to different war-related potentially traumatic events of community refugee populations originating from Somalia, Cambodia, Vietnam, Guatemala, and Bosnia and Herzegovina. The table shows that whereas the distribution of different war events may be different between the groups, almost all survivors in each of the sample groups experienced at least one or more potentially traumatic war events.

The subsequent 'migration phase' refers to the flight from the war area to another region or country and the period spent waiting for resettlement. Many refugees face extremely harsh conditions during the flight itself, including continued limited resources such as food, education and medical care, danger of being captured by opposing forces, powerlessness in the hands of smugglers and hazardous border crossing. Many refugees that reach a safe haven are initially placed in refugee camps and many may reside in refugee camps for years (UNHCR, 2011). Conditions are often over-crowded and characterized by socio-economic deprivation. Research indicates that refugee camps breed violence and refugees are often victims of the violence perpetrated

by the government army, militias, and locals or even by other refugees within the camp (Mollica, et al., 1993; Rasmussen, et al., 2010; UNHCR, 2006).

Table 1.1. Prevalence rates of exposure to war events and persecution in community samples of refugees

Traumatic event	Somalian refugees[a] (N=180)	Cambodian refugees[b] (N=993)	Vietnamese refugees[c] (N=1161)	Guatemalan refugees[d] (N=170)	Bosnian refugees[e] (N=573)
Lack of food or water	62%	96%	20%	94%	28%
Forced separation from family	70%	83%	11%	47%	
Family member or friend murdered		54%	3%	53%	17%
Unnatural death of family or friend			7%	45%	
Feeling close to death	63%	63%	14%	56%	
Serious injury	20%	18%	8%	12%	
Poor health	78%				
Ill health without access to health care		87%			23%
Combat situation	88%	44%	6%	20%	35%
Shelling or bombardment		30%			83%
Lack of shelter					
Hiding from snipers					75%
Hiding in fear					
Imprisonment	20%	27%	13%	7%	
Have been in concentration camp					
Re-education or brainwashing		87%	7%	51%	
Forced labour or work camps		88%			
Forced isolation from others	56%	69%	2%		
Lost or kidnapped		28%			
Torture	22%	36%	1%	14%	
Raped or sexually violated	3%	17%	1%	4%	
Physical assault			3%		

[a] Bhui, et al. (2003), [b] Mollica, et al. (1993), [c] Steel, et al. (2002), [d] Sabin, Cardozo, Nackerud, Kaiser, & Varese, 2003, [e] (Mollica, McInnes, Sarajlic, Lavelle, Sarajlic, & Massagli, 1999)

The final phase involves the resettlement phase. For many refugees the post-migration period is associated with harsh living conditions, long periods of separation from family and general worries about the family members left behind, social isolation, culture shock, discrimination, poor housing, unemployment or under-employment, inadequate income, constant fear of forced repatriation and uncertainties regarding resettlement (Crowley, 2003; D'Avanzo & Barab, 1998; Gerritsen, et al., 2006; Mollica, et al., 1998; Phillimore, Ergün, Goodson, & Hennessy, 2007; Phillimore & Goodson, 2008). There are many reports that the initial reception to refugees by host government authorities and the general population are threatening, and that refugees assume the role of

helplessness and dependence (Doná & Berry, 1999). Refugees are often given temporary visas, with limited rights to move outside camps or administrative districts, to access education, employment, social security or health care. Refugee asylum application may take years to process. Some industrialized countries have introduced a mandatory detention for the duration of the asylum determination procedure. Even in the most ideal resettlement conditions, refugees must come to terms with beginning a new life in a new and foreign place. Adjusting to a new culture can lead to changes in gender and family roles, and consequently, it can create stress, family conflict and a sense of loss of control and power for refugees (Palmer & Ward, 2006; Papadopoulos, Lees, & Gebrehiwot, 2004). Men tend to experience more difficulties in adapting than women due to loss of status within the family (Palmer & Ward, 2006; Papadopoulos, et al., 2004). Greater financial independence of the woman from her husband (for example, due to available welfare benefits) and unemployment may mean the husband loses his role as the main breadwinner of the family (Samarasinghe & Arvidsson, 2002). Also, intergenerational clash of family roles and values has been described, with younger members of the family rejecting traditional values (Palmer & Ward, 2006; Papadopoulos, et al., 2004). Refugee children who often are more skilled in English may be asked to translate for their parents, causing shifts in family roles (Hsu, Davies, & Hansen, 2004). Several studies have also shown that younger refugees more readily acculturate to new environments as compared to older refugees (American Psychological Association, 2010; Porter & Haslam, 2005).

1.3.2. Refugees from former Yugoslavia in Western Europe

The UNHCR estimates that over four million people in the territory of former Yugoslavia were displaced because of the war. This represents one-fifth of the

population of the Yugoslav Federation in 1991. Whilst most affected people stayed within the conflict area, many fled to other countries outside the Balkans (UNHCR, 2001b). Almost 20 years later, an estimated 330,000 people from the region remain displaced (UNHCR, 2012). The largest concentrations are approximately 183,300 refugees in Serbia and over 60,000 refugees in both Bosnia and Herzegovina and Croatia. Significant internal displacement is still present in Bosnia and Herzegovina and in Serbia and Kosovo, where nearly 232,000 people remain in need of permanent solutions (UNHCR, 2012).

A large number of refugees from the former Yugoslavia sought residence in Western Europe. The number of asylum seekers in Western Europe increased from under 70,000 in 1983 to nearly 700,000 in 1992 and to over 400,000 in 2001 (EUROSTAT, 2004). In the decade 1990-1999 former Yugoslavia was the top source of refugees seeking asylum in Western Europe with over one million applicants (UNHCR, 2001a). The United Kingdom, Germany and Italy sheltered a great majority of these refugees and were the three countries with the highest numbers of immigrants in Western Europe in the 1990s (EUROSTAT, 2004).

In response to large numbers of applicants from former Yugoslavia, most of the refugees from the area were offered temporary protection (rather than refugee status), meaning that whilst the need for protection was recognized, they would be expected to return home once the conflict was over. It also meant that they were conferred fewer rights than those with a formal refugee status (e.g. in terms of family reunion, travel rights, employment rights). There was a great disparity between European countries in the provisions offered to the refugees (Duke, Sales, & Gregory, 1999). For example, some countries offered welfare benefits in cash (e.g. Sweden), many introduced benefits

in kind (e.g. Germany, the UK), and still others made limited provisions (e.g. in Italy for 45 days only) or none at all (e.g. Greece). Following cessation of conflicts, in most countries refugees have not been forced to repatriate (with the exception of Germany) and have been transferred to a more permanent residential status (Koser & Black, 1999).

Refugees in the United Kingdom

As a signatory to the 1951 Geneva Convention, the UK has offered asylum to those fleeing from persecution and violence in former Yugoslavia. According to the Home Office statistics between 1991 and 2000 over 40,000 people from former Yugoslavia resettled in the United Kingdom (Home Office Statistical Bulletin, 2001). Refugees from former Yugoslavia had been arriving in the UK in growing numbers throughout the 1990s, but there were two peak periods - the first peak was in 1992 and reflected intensifying conflict in Bosnia; the second peak was in 1999, when over 11,000 applications (almost one in six of all the applications for asylum in the UK) came from the Socialist Federal Republic of Yugoslavia (SFRY), most of which can be assumed to have been from Kosovo (Smart, 2004). While most refugees came independently to the UK, a large number came via UNHCR coordinated programs aimed at supporting the most vulnerable refugees. There were two such programs. The first one was the Bosnia Evacuation Project initiated in 1992, which evacuated 3500 Bosnians, mainly medical evacuees and concentration camp survivors, with their families. Around 14,000 Bosnians applied for asylum independently after the war in Bosnia broke out. A number of agencies were subcontracted by the Home Office to fulfil settlement tasks, including the British Red Cross, the British Refugee Council, Refugee Action, and the Scottish Refugee Council. The second program was the Kosovar Evacuation Program, which

was initiated in 1999 and airlifted and resettled over 4300 Kosovar Albanians from camps on the Macedonia-Kosovo border. Evacuees were chosen on the basis of vulnerability or having existing family in the UK. The evacuees were granted one year Temporary Protection status and issued with different documentation to those spontaneous arrivals who had applied for asylum and been granted Exceptional Leave To Remain (ELR). Most were dispersed to reception centres in areas with existing ethnically diverse populations, but away from London. A wide range of services was provided, including medical care, language classes, information services, family tracing, social events, advice on finding employment or continuing education, and assistance with return, and evacuees could access social security benefits (Smart, 2004). As with Bosnians, the majority of Kosovar Albanians in the UK arrived independently. In terms of welfare and work entitlements, recognized refugees and individuals with temporary protection were broadly similar. The main difference between the categories related to the right to family reunion – unlike recognized refugees, those with temporary protection had no right to family reunion (Zetter, Griffiths, Sigona, & Hauser, 2002).

At the time the study was being conducted, most of the people from the former Yugoslavia who applied for asylum during the time of the Balkan conflicts had either received Indefinite Leave to Remain in the UK or British Citizenship. However, large numbers of people coming from Kosovo who did not return to Kosovo at the end of the crisis period and who applied for an extension of Exceptional Leave to Remain (ELR) are being refused their stay. More recent spontaneous arrivals from Kosovo are more likely to receive a negative decision on their asylum applications, although applicants have experienced delays in processing of their asylum claims. Serbia and Montenegro has been added to the Home Office's 'White List' of countries which are considered

safe and any asylum applications from such countries are assumed to be without foundation unless there is compelling evidence to the contrary.

It is noteworthy to mention that over the decade during which the Balkan wars occurred, the UK has seen a significant rise in asylum applications, from 38,200 in 1990 to 85,900 in 2002 (EUROSTAT, 2004). As a way of coping with the influx of refugees into the UK, the government introduced a number of asylum and immigration legislative policies (in 1993, 1996, 1999, 2002, 2004, and 2006). These legislations have allowed detention of asylum seekers whilst their claim is being decided; deportation of those entering the country illegally (unless they presented themselves to the authorities without delay); removal of all asylum seekers from the welfare benefit system and introduction of a system whereby asylum seekers are supported by vouchers and dispersed around the country on a no-choice basis; and application of work restrictions during the asylum decision procedure. It has been suggested that the last two decades have also seen a significant shift in public opinion towards refugees in the UK from positive and empathetic to a more negative and hostile attitude (Gibney, 1999; Sales, 2002). These negative attitudes have increased further in the aftermath of recent terrorist attacks. Hostile and misleading media coverage, frequently exacerbated by the actions of leading politicians addressing 'political refugees' as 'exploitative' and 'bogus asylum seekers' (Bloch & Schuster, 2002, p. 398) encouraged public antagonism towards refugees and asylum seekers and perception of refugees and asylum seekers as being a 'burden' to society (Gibney, 1999; Sales, 2002). In October 1998, for example, one local newspaper in the UK went so far as to describe asylum seekers as 'human sewage' (*Dover Express*, 1 October 1998). This change in the legislative and public 'climate' has created a fundamentally new environment for asylum seekers and has seen drastic reduction in asylum applications, with numbers falling to 25,400 in 2011 (Home Office, 2012) - over 70% fewer than in 2002.

Refugees in Germany

Germany hosted the largest numbers of refugees from the region, with over 520,000 asylum applicants in the period from 1990 to 1999 (UNHCR, 2001a). The majority originated from Bosnia and Herzegovina (350,000) and Kosovo (180,000) (UNHCR, 2001a; USCRI, 2000). As in the UK, the majority of refugees arrived to Germany independently. Others came to Germany through sponsorships provided by relatives, friends, non-governmental organisations, churches and other community groups. Additionally, some 14,600 mostly Kosovar Albanians, had been evacuated in 1999 from Macedonia under the UNHCR/IOM Humanitarian Evacuation Programme (HEP) (USCRI, 2000).

A large proportion of the people fleeing the conflicts in the former Yugoslavia were subsumed under the temporary protection arrangements and very few received political asylum or had been given refugee status under the terms of the 1951 Geneva Convention. The overwhelming majority were given the relatively weak status of "tolerated" (*Duldung*) (section 55 of the Aliens Act), which temporarily suspended their deportation but did not grant them any legal standing in the country (USCRI, 2000). This suspension of deportation was granted for six months periods and was repeatedly extended until return was possible. The HEP evacuees and spontaneously arriving asylum seekers from Kosovo were mostly given three month residence permits in accordance with Section 32a of the Aliens Act (Residence Title for Exceptional Purposes, *Aufenthaltsbefugnis*). Following two three-month extensions, the individual

was granted *Duldung* and expected to leave the country once the war ended (Zetter, et al., 2002).

Provisions offered to refugees or *de facto* refugees varied considerably depending on the legal status of the individual as well as the Federal State of residence and the community in which the individual resided. Generally speaking, individuals with a temporary status (i.e. asylum seekers, holders of short-term residence permits and toleration permits) were granted fewer rights than those with a formal refugee status. For example, asylum seekers and others with temporary status resided mostly in reception centres and were restricted to collective accommodation while they waited for the final decision regarding their asylum or deportation. Most were given social assistance in kind in the reception centres, with limited access to health and educational services, and had geographical restriction on movement (usually only within the administrative districts in which they were located). They were not entitled to work during the first year in Germany; thereafter they could work if no German or EU national could be found to take the job in question.

Repatriation plans began for Bosnian refugees with the ending of the war in October 1996. Since then, more than 250,000 Bosnians have repatriated from Germany. Although most repatriated voluntarily, German authorities also forcibly repatriated some 7,300 (3%) of Bosnian refugees. Since the end of the Bosnian war, another 40,000 Bosnian nationals have left Germany to resettle in third countries (USCRI, 2000). According to UNHCR, about 53,000 Bosnians remained in Germany at the end of 1999, mostly Muslims originating from the Republika Srpska, Bosnia's Serb controlled region. According to figures from the German Federal Government, between 1999 and 31 August 2009 a total of 114,092 people returned from Germany to Kosovo. Most of these were registered as voluntary returnees, while 21,852 (19%) people had been

forcibly repatriated. While voluntary returnees were in the majority from 1999 to 2001, in each subsequent year, with the exception of 2003, they have been outnumbered by deportees (Knaus & Widmann, 2010). At the same time, UNICEF Kosovo and the German Committee for UNICEF report that an estimated 12,000 Kosovar Roma, Ashkali, and Egyptians, who escaped the Yugoslav wars, currently live in Germany under the "'toleration'" status and are under constant threat of deportation (Knaus & Widmann, 2010).

Refugees in Italy

In response to the large influx of people fleeing war-torn Yugoslavia, the Italian Government opted for granting temporary protection and assistance (in accordance with Law 390, 24 September 1992 and President of the Council of Ministers Decree of 12 May 1999) to those displaced, rather than firmer status of an asylum seeker or refugee (Vincenzi, 2000). The status was renewable on a yearly basis. According to the Italian Interior Minister, about 80,000 people were granted temporary protection during 1991-1996 period and another 20,000, mostly Kosovar Albanians, in 1999 (Vincenzi, 2000). Additionally, some 10,000 people from the former Yugoslavia applied formally for political asylum in the period 1991-1999 (UNHCR, 2001a). The vast majority of these individuals arrived spontaneously and some 6,000 Kosovar Albanians arrived under the Humanitarian Evacuation Programme in 1999 (European Council on Refugees and Exiles (ECRE), 1999).

Provisions for displaced people from the former Yugoslavia were dependent on the legal status awarded to them. Individuals with Convention refugee status and humanitarian permission to remain had full access to a range of services with minor differences in entitlements. Asylum seekers could not work during the asylum

procedure and had no access to subsidised health care, except in emergencies. Beneficiaries of temporary protection, unlike asylum applicants, were not given any financial allowance but were granted the immediate right to work and study without any lengthy determination procedure associated with the Convention asylum claims (European Council on Refugees and Exiles [ECRE], 1999; Korac, 2009). Non-governmental organizations (NGOs) and church organizations played a key role in the reception, settlement and integration of refugees. These organisations offered emergency accommodation, free meals, help with job finding and language courses (Korac, 2009). These *ad hoc* measures were put in place in response to the lack of a national reception system for asylum seekers and refugees. However, the vast majority received no assistance to settle in Italy and, instead, had to turn to their own resources in the form of social networks, which served as an alternative self-help 'reception system' (Korac, 2009).

At the end of the emergency in the countries of former Yugoslavia, refugees were not returned to their home country. In 1998, a decree proclaimed the cessation of temporary humanitarian protection and people who wanted to stay in Italy were given option to obtain a different form of residence permit, such as a refugee status under the terms of the 1951 Geneva Convention, an immigration permit valid for two years on condition of showing evidence of a job offer, or a permit on humanitarian grounds based on aliens laws n. 40/98 for persons unable to work for personal, health or age reasons (Hein, 2000). There was no forcible return from Italy.

1.4. Psychological consequences of war and migration

A growing body of literature has shown that exposure to prolonged or chronic traumatic experiences related to organized mass violence, such as war, is associated with increased rates of mental disorders and psychological symptoms in those affected (e.g. de Jong, et al., 2001; Fazel, et al., 2005; Tempany, 2009). War refugees are a particularly vulnerable population at risk of mental health problems due to additional social and economic stresses associated with displacement from their homes (Hunt & Gakenyi, 2004; Porter & Haslam, 2001; Porter & Haslam, 2005). For example, in their meta-analysis comparing refugees with non-refugees from former Yugoslavia, Porter and Haslam (2001) demonstrated that the general stress of war had a significant impact on everyone; however, refugees suffered significantly more mental health problems than their non-refugee counterparts.

Much research has investigated mental health consequences of war in refugees in terms of mental disorders as distinct categories defined by diagnostic manuals, whilst other studies have assessed symptoms on continuous scales. Increased rates of psychiatric disorders such as PTSD, depression, and anxiety have been reported in various community studies of war-affected refugees (Fazel, et al., 2005; Tempany, 2009). Similarly, increased numbers of multiple somatic complaints, psychotic symptoms as well as other symptoms of specific and non-specific mental distress are common in this population, either in combination with posttraumatic stress or on their own (Bhui, et al., 2003; Proroković, Cavka, & Cubela Adorić, 2005; Westermeyer, Bouafuely, Neider, & Callies, 1989).

1.4.1. Concept of PTSD

Historical overview

Pathological reactions to traumatic experiences have been recognized throughout the centuries by such varied names as shell shock, battle fatigue, irritable heart of soldiers, accident neurosis, traumatic neurosis and post-rape syndrome (Turnbull, 1998; van der Kolk, 2007). These syndromes embodied many, if not all, current PTSD symptoms (van der Kolk, 2007).

PTSD was first recognized as a psychiatric disorder in the third edition of the American Psychiatric Association's (APA) *Diagnostic and Statistical Manual of Mental Health Disorders* (DSM-III) (American Psychiatric Association [APA], 1980). Several authors suggested that PTSD is the result of political climate and anti-war psychiatrists' campaigns in a post-Vietnam America, caused to some extent by observations of severe distress being manifested by Vietnam War veterans (Bracken, 2001; Summerfield, 1999). Research interest in PTSD has shown almost 10-fold growth since its official definition in the DSM-III in 1980 (Blashfield & Intoccia, 2000). Although initially PTSD was framed to apply only to extremely stressful situations that one would not expect to experience every day, it has increasingly become associated with "low impact" traumas that are fairly common occurrence (e.g. marital disruption, failed adoption plans, mugging, accidents, miscarriage) (Summerfield, 1999). According to some authors, in Western societies pathological response (in the form of PTSD) arising in traumatic circumstances has become the norm (Pupavac, 2001) and the concept of "trauma" has almost become synonymous with PTSD in both popular and scientific

thought (Pedersen, 2002). Andreasen (1995) commented that it was rare to find a psychiatric disorder that anyone liked to have but posttraumatic stress disorder was one of them. With aetiology placed externally PTSD has avoided the stigma attached to other mental disorders as there can be no reason for blaming a sufferer (Rechtman, 2004).

Classification and current definition of PTSD

Since it was first introduced in DSM-III in 1980, the classification of PTSD has been modified in subsequent editions, the DSM-III-R (American Psychiatric Association [APA], 1987), DSM-IV (American Psychiatric Association [APA], 1994) and its text revision DSM-IV-TR (American Psychiatric Association [APA], 2000).

According to the DSM-IV (American Psychiatric Association [APA], 1994) definition, the diagnosis of PTSD requires: "exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death or injury experienced by a family member or other close associate (Criterion A1). The person's response to the event must involve intense fear, helplessness, or horror (Criterion A2)." (American Psychiatric Association [APA], 1994, p. 424). The three clusters of symptoms resulting from the exposure to the extreme trauma include: repeated re-experience of the trauma (Criterion B); persistent avoidance of activities and stimuli reminiscent of the trauma and emotional numbing (Criterion C); and persistent symptoms of heightened arousal (Criterion D). The full symptom picture must be present for at least 1 month (Criterion E) and the disturbance

must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion F) (American Psychiatric Association [APA], 1994). PTSD is classified as an anxiety disorder.

The DSM-IV also lists a set of associated features, such as guilt and shame feelings, feelings of ineffectiveness, despair, loss of previously sustained beliefs, social withdrawal, hostility, and change from the individual's previous personality characteristics. These features are most commonly found in the aftermath of prolonged, repeated manmade trauma.

In comparison to the DSM-IV, PTSD was introduced into the psychiatric nomenclature of the International Classification of Diseases (ICD) relatively late, in 1992 (World Health Organization [WHO], 1992). In ICD-10, PTSD is classified among the reactions to severe stress and adjustment disorders that are primarily caused by stressful events. The underlying concept of PTSD is similar in DSM-IV and ICD-10 i.e., both diagnostic systems agree on the core symptoms of PTSD - re-experiencing, avoidance, emotional numbing, and hyperarousal. However, the key difference between the two systems concerning PTSD diagnosis regards the definition of the traumatic event itself. While DSM-IV places greater emphasis on the subjective experience of the event (Criteria A2 and F), in ICD-10 the emphasis is on the event itself, i.e. the assumption is that certain events, such as being in a war zone, would automatically satisfy the criteria. These differences between DSM-IV and ICD-10 criteria have usually led to a prevalence of PTSD twice as high when ICD-10 criteria are applied as compared to DSM-IV (Peters, Slade, & Andrews, 1999; Rosner & Powell, 2009).

Accordingly, an Australian epidemiological study (Peters, et al., 1999) found the 12-month prevalence of PTSD based on ICD-10 was 7%, compared to 3% based on DSM-IV. Discrepancies between the systems were mainly accounted for by the additional criterion in DSM-IV requiring significant subjective distress or impairment. Similar discrepancy between the two systems was observed by Rosner and Powell (2009) who looked at a comparison of PTSD using data on war exposed civilians in Bosnia and Herzegovina. Prevalence of PTSD was 52% when based on ICD-10 criteria and 30% when based on DSM-IV criteria. The authors noted that the event criterion contributed most to the difference in prevalence. They concluded that DSM-IV seems more able to portray "the current theoretical constructs of PTSD".

For the purposes of this thesis, DSM-IV criteria have been therefore adopted.

Traumatic events and situations associated with PTSD

As PTSD is fundamentally related to a traumatic event (criterion A1 in DSM-IV), the question of what constitutes a traumatic event is of obvious importance. The DSM-IV defines a traumatic event as one that involves direct personal experience of an event that involves death, injury or a threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate (American Psychiatric Association [APA], 1994). Potentially traumatic events that may lead to pathological reactions in people are various including e.g. torture, rape, sexual abuse, knifing or axing, man-made or natural disaster, murder of a family member or a friend, combat situations, forced evacuation under dangerous conditions, shelling or grenade attacks,

imprisonment, being lost or kidnapped, serious accidents, death of a loved one, serious illness without access to medical care; and witnessing experiences like murder, torture, rape, knifing or axing.

Various epidemiological studies have demonstrated a high percent of exposure to single or multiple potentially traumatic events in the general population, with lifetime rates of exposure ranging from 60% to 90% (Breslau, Kessler, Chilcoat, Schultz, Davis, & Andreski, 1998; Darves-Bornoz, et al., 2008; Frans, Rimmo, Aberg, & Fredrikson, 2005; Kessler, et al., 1995; Stein, Walker, Hazen, & Forde, 1997). Presumably, the variability of this exposure depends on the type of traumatic event and socio-demographic characteristics of the population observed. For example, the evidence suggests that men in comparison to women tend to experience higher rates of traumatic events (Breslau, et al., 1998; Kessler, et al., 1995; Stein, et al., 1997). However, certain types of traumatic experiences are more common amongst women (rape, sexual molestation, childhood physical abuse or parental neglect) and certain other types are significantly more common amongst men (non-sexual physical assault, combat experience, being threatened with a weapon, held captive or kidnapped) (Breslau, et al., 1998; Kessler, et al., 1995; Stein, et al., 1997).

Beyond the necessity of the traumatic quality attached to events in predicting a posttraumatic response, research has shown that differentiation among various types of traumatic events, as far as their nature, duration, intentionality and the severity, is relevant to the prediction of PTSD. For example, trauma type was found to independently explain 16.7% of variance of risk of PTSD, while trauma frequency and intensity (irrespective of trauma type) accounted for 23.3% of the variance, indicating the importance of trauma type, frequency and perceived stress in determining PTSD (Frans, et al., 2005). Epidemiological studies report higher rates of PTSD among those

who are exposed to interpersonal violence in comparison to those affected by natural disaster or accidents (Breslau, et al., 1998; Frans, et al., 2005; Kessler, et al., 1995). For example, Kessler, et al. (1995) report that 65% of men and 46% of women who had been raped met PTSD criteria; whereas only 3.7% of men and 5.4% of women exposed to natural disaster with fire met PTSD criteria.

Although many people experience a traumatic event (criterion A1) during their lifetime, not all of them perceive such an event as traumatic or life threatening. To take into account inter-individual variability in response to potentially traumatic events, the authors of DSM-IV included the person's subjective experience of the event as an additional criterion (Criterion A2), requiring that the person's response to the event must involve intense fear, helplessness, or horror in adults and disorganized or agitated behaviour in children (American Psychiatric Association [APA], 1994). Studies focusing on concordance between the objective (Criterion A1) and subjective (Criterion A2) components of trauma, and variation in this concordance across types of potentially traumatic events, have reported varying results. Some types of trauma events, such as non-combat interpersonal violence, are generally found to be more likely to meet criterion A2, in comparison to natural disasters and accident. For example, in their meta-analysis, Ozer, Best, Lipsey, and Weiss (2003) found that perceived life threat during trauma was associated with higher levels of PTSD symptoms or higher rates of current PTSD. Perceived life threat during the traumatic event was more strongly associated with PTSD when more time elapsed between the traumatic event and the assessment of PTSD; or when the traumatic experience was non-combat interpersonal violence than when the traumatic experience was an accident.

Previous research indicates that experiencing a greater number of traumas results in a greater vulnerability to pathological reactions, such as PTSD (e.g. Mollica, et al., 1998; Neuner, Schauer, Karunakara, Klaschik, Robert, & Elbert, 2004; Rasmussen, et al., 2007; Steel, et al., 2002). This dose-effect relationship of trauma to PTSD is essential to the stressor criterion for PTSD, confirming the position that the pathological reactions originate from the trauma event.

Epidemiology of PTSD in Western societies

In the United States, epidemiological studies among general populations have reported lifetime prevalence rates of PTSD between 6.8% and 9.2%, with women being almost two-fold more at risk for developing PTSD than men (Breslau, et al., 1998; Kessler, et al., 1995; Ozer, et al., 2003). In Europe, a large epidemiological study conducted in a random sample of six European countries, reported a considerably lower lifetime PTSD prevalence rate of 1.9% (0.9% for men and 2.9% for women) (ESEMeD/MHEDEA 2000 Investigators, 2004). Similar rates were observed among a young German cohort with PTSD lifetime prevalence of 1.3% and a 12-month prevalence of 0.7% (Perkonigg, Kessler, Storz, & Wittchen, 2000). It has been suggested that this difference between the two continents might be due to lower general level of violence and fewer people participating in recent wars (Perkonigg, et al., 2000).

Although studies on populations at risk indicate substantially variable prevalence rates of PTSD, these rates tend to be higher than those reported for general population. Epidemiological studies of Vietnam veterans reported lifetime prevalence ranging between 10% and 16.8% and current PTSD rates between 2.2% and 30.9% (Richardson, Frueh, & Acierno, 2010). The prevalence of PTSD in personnel deployed to the 2003 Iraq War varied between 1.4% and 31% (Sundin, Fear, Iversen, Rona, &

Wessely, 2010). Studies of the course of posttraumatic stress reactions among war prisoners (POW) indicate that PTSD is prevalent and persistent over many years. For example, Engdahl, Dikel, Eberly, and Blank (1997) reported a lifetime PTSD rate of 53% and a current PTSD rate of 29%, even 50 years after the trauma. Bramsen and Van der Ploeg (1999) reported a current PTSD rate of 4.6% among a community sample of WWII survivors, with a statistically significant relationship between exposure to traumatic war events and current PTSD.

1.4.2. Critique of the construct of PTSD and its application to refugee populations

As already noted, the popularity of PTSD as the main descriptor in conceptualisation and assessment of distress and suffering caused by war trauma has been continuously rising (Friedman & Jaranson, 1994; Pedersen, 2002). Ahearn commented that "trauma and, in particular PTSD, is perhaps the most popular descriptor of refugee health or lack of health today" (Ahearn, 2000, p. 10).

Concurrently, the universality of the PTSD concept and its application to refugee populations has come under close scrutiny and criticism (Bracken, Giller, & Summerfield, 1995; Kienzler, 2008; Pedersen, 2002; Pedersen, Tremblay, Errázuriz, & Gamarra, 2008; Summerfield, 1996, 1999; Watters, 2001). It has been argued that PTSD was as much a socio-political response as a medical response to the problems of a particular group at a particular point in time i.e. USA veterans in post-Vietnam war America (Summerfield, 1999). As such, some authors deem the concept of PTSD as a useful but restrictive medical category when applied across different populations and cultures, given the diversity of ways individuals and societies live through massive

trauma, express their distress and suffering, and assign meaning to the human experience (e.g. Pedersen, et al., 2008; Summerfield, 1996, 1999).

One of the concerns among critics is the exclusive focus on diagnosis of PTSD as the only predicament experienced by war refugees. Several authors suggest that such an approach minimises an often complex combination of social, psychological, political and economic concerns experienced by refugees to a simple matter of individual psychopathology and, thus, medicalizes distress that is essentially a socio-economic consequence of war and displacement (Summerfield, 1996; 1999; Waters, 2001). Summerfield notes that "'trauma' may now have displaced hunger as the first thing the Western general public thinks about when a war or other emergency is in the news" (Summerfield, 2005, p. 76), replacing more urgent issues like restoring employment. This has resulted in scarce attention to the social, political and economic factors that play a fundamental role in a refugee's experience (Waters, 2001). Refugees themselves identify trauma largely as "something that has happened in their social worlds, not in the space between their ears" (Summerfield, 2003, p. 267). Summerfield points out that typically, when asked what would help their situation, most refugees point to social and economic factors rather than psychological help (Summerfield, 2001). Taking this argument further, Silove (2005) suggests that the immediate therapy for acute stress is a social response, including provision of safety, reuniting families, provision of opportunities for productive roles such as employment, creating systems of justice, and re-establishing systems of meaning. However, the author notes, those suffering from chronic traumatic stress reactions should be offered state-of-the-art interventions.

Furthermore, application of the PTSD model may lead to re-labelling normal response to distress as a psychological disturbance which may increase refugee's sense of

themselves as passive victims rather than active survivors (Summerfield, 2000). Taking on a passive role may decrease the likelihood of positive post-migration outcomes (Colic-Peisker & Tilbury, 2003).

The conception of normality and deviance within the PTSD diagnosis is also accompanied by criticism since these concepts are very culturally and context specific (Parker, 1996). Pathological reactions, such as PTSD, to a severe traumatic experience are based on the experience of an acute psychologically distressing event that is more characteristic of people living in Western, developed countries (e.g. car accident, physical injury, etc.). However, traumatic experiences during war are for the most part chronic, prolonged and repetitive. It is not clear how to interpret distressing events that are outside the range of usual human experience among populations where exposure to continuous life-threatening situations, such as shelling, rape or ethnic cleansing, are the norm (Parker, 1996). Furthermore, in such situations core elements of PTSD may be adaptive responses to horrific situations (Parker, 1996; Jones, 2005). For example, not being hypervigilant during shelling may in fact indicate a psychological disturbance.

Additionally, there is a concern that a particular focus on PTSD may obscure the wider range of mental disorders and psychological symptoms associated with war trauma and migration, indicating a need for researchers to broaden the scope of studies to include outcomes such as depression, anxiety and substance use disorders (Fazel, et al., 2005; Silove, 1999).

It has been argued that mental health consequences of prolonged, multiple and repeated stressful experiences, such as those occurring in war, may not be well captured by the current definition of PTSD and that the concepts of complex PTSD or Disorders of

Extreme Stress Not Otherwise Specified (DESNOS) (Herman, 1992; Hinton, Rasmussen, Nou, Pollack, & Good, 2009; Roth, Newman, Pelcovitz, & van der Kolk, 1997; Silove, et al., 2009) or complicated grief (Craig, Sossou, Schnak & Essex, 2008; Momartin, Silove, Manicavasagar & Steel, 2004) may be more appropriate.

Some authors have also criticised ethnocentricity of Western derived psychiatric diagnoses such as PTSD and trauma-focused clinical treatments such as counselling and their application to refugee populations that are predominantly non-Western (Friedman & Jaranson, 1994; Bracken, et al., 1995; Silove, 1999). The biomedical model of Western societies that underpins PTSD tends to focus on individual suffering rather than that of the group or society as a whole, which is typically the focus in non-Western societies. For example, an investigation undertaken in a post-war Angolan village suggested that traditional communities regard grief and stress as shared, normative experiences, that indigenous counselling approaches are effective in dealing with such problems, and that therapies introduced by outsiders would be regarded as alien and intrusive (Eyber & Ager, 2002).

The application of Western based concepts to non-Western populations may perpetuate the "category fallacy", with culture-bound syndromes overlooked and Western nosological categories imposed where they have no cultural validity (Kleinman, 1987). Although similar symptoms may exist in different cultures they do not necessarily have the same conceptual or functional equivalence (Kleinman, 1987). For example, in some cultures dreams of the dead are perceived as positive and comforting, experiencing anger or sadness is seen as harmful, and expression of grief is only permitted during a nine-day funeral ritual (Zur, 1996). Similarly, cultures vary in their understanding of what constitutes ''normal'' emotional expression (Kirmayer, 1996). Kirmayer (1996) suggests that somatisation is often seen as a ''normal'' or ''adaptive'' response to

trauma. In addition, somatic symptoms may often be the primary presentation but do not necessarily denote a lack of psychological insights on the part of the refugee. The presentation of somatic symptoms instead, however, may reflect a traditional mode of help seeking (Lin, Carter, & Kleinman, 1985). Existence of avoidant symptoms may represent protective psychological responses to extreme trauma, used by survivors to combat the disabling re-experiencing symptoms (McFarlane, 1992). Mollica et al. (1998) suggests that this coping strategy may be culturally-based, at least in Cambodian culture.

Eisenbruch (1991) cautioned against the application of Western diagnostic categories to describe refugee distress "which may be a normal, even constructive, existential response rather than a psychological illness …" (Eisenbruch, 1991: p. 673). Instead, the author proposed the concept of cultural bereavement as a diagnosis that would give meaning to the refugees' distress by mapping their subjective experiences. It identifies what the trauma meant to refugees, their cultural recipes for signalling distress, their cultural interpretation of psychological and somatic responses, together with indigenous therapeutic strategies. It is argued that cultural bereavement may identify those people who have PTSD but whose condition is a sign of normal or even constructive rehabilitation from devastatingly traumatic experiences (Eisenbruch, 1991). Burnett & Peel (2001) concurred, suggesting that while psychological distress is common amongst refugees, it could be more accurate to describe this as a behavioural reaction to abnormal experience, rather than as symptomatology of mental illness.

In response to these criticisms, research shows that symptoms of PTSD may be a "normal" human reaction soon after a trauma in a large proportion of trauma survivors. However, in a small subgroup of traumatised individuals the symptoms persist beyond what is considered to be a normal time course for traumatic reaction, after which the

reaction is considered a psychiatric disorder (Friedman & Jaranson, 1994; Kessler, et al., 1995).

The idea that cultural values may play an important role in the development and presentation of PTSD is not unique to the concept of PTSD, but is applicable to all Western diagnostic concepts (Thakker & Ward, 1998). Whilst the question of the universality of PTSD remains a controversial topic, the majority of authors do recognize that the concept is applicable to refugees, but advocate that wider cultural practices and beliefs should always be explored (Bhugra & Mastrogianni, 2004; Friedman & Jaranson, 1994). There is growing evidence that the clinical pattern can be identified across ethnic groups, such as the Bosnians (Mollica, et al., 1999). North et al. (2005) compared mental health in populations directly exposed to terrorist bombing attacks on two continents, North America and Africa, and concluded that post-disaster psychopathology has many similarities in the two cultures; however, coping responses and treatment were quite different.

Friedman and Jaranson (1994) argue that syndromes like cultural bereavement are complementary but are not an appropriate substitute for PTSD. They conclude that the PTSD concept is indeed useful, but requires further broadening to incorporate "ethnocultural differences" in the expression of traumatic stress. Terheggen, Stroebe, & Kleber (2001) suggested that Western conceptualisations of trauma and distress provide a useful basis for starting investigations in non-Western cultures.

The PTSD concept was applied in the study presented in this thesis as a measure of the psychological sequel of war related trauma. Some of the valid criticisms mentioned above were considered when designing the study.

1.4.3. Epidemiology and risk factors for PTSD and other mental disorders among war refugees

Evidence from community studies amongst recently resettled refugees suggests that refugees have higher rates of mental disorders, in particular depression, post-traumatic stress disorder (PTSD) and anxiety disorders, than those usually found in the non-war affected general population (Fazel, Wheeler, & Danesh, 2005; Tempany, 2009; Thulesius & Hakansson, 1999), military personnel (Sundin, et al., 2010), war-affected general populations (Porter & Haslam, 2001; Porter & Haslam, 2005) or other migrant groups (Lindert, Ehrenstein, Priebe, Mielck, & Brähler, 2009).

Five previous systematic literature reviews and meta-analyses (Fazel, et al., 2005; Lindert, et al., 2009; Porter & Haslam, 2001; Porter & Haslam, 2005; Steel, Chey, Silove, Marnane, Bryant, & van Ommeren, 2009) and a series of qualitative reviews have been undertaken in the field (e.g., Murthy & Lakshminarayana, 2006; Karam & Ghosn, 2003; Tempany, 2009; Johnson & Thompson, 2008). A meta-analysis focusing specifically on surveys of adult refugees resettled in Western countries (Fazel, et al., 2005) has provided evidence suggesting that one in ten refugees has PTSD, one in twenty has depression and one in twenty-five has generalized anxiety disorder. Additionally, co-morbidity between depression and PTSD was high (71% of people diagnosed with depression were also diagnosed with PTSD and 44% of those diagnosed with PTSD were also diagnosed with depression). The review was restricted to studies that used structured clinical interviews.

Lindert at al. (2008) meta-analysed surveys of refugees worldwide and included studies that used either clinical interviews or self-administered questionnaires to establish a diagnosis. The authors reported that 44% of refugees were diagnosed as having depression, 40% anxiety and 36% PTSD.

The most recent meta-analysis had a broader focus on post-conflict surveys, including 181 epidemiological surveys assessing the association of torture and other potentially traumatic events with PTSD and depression in refugees and other conflict-affected populations (Steel, et al., 2009). Prevalence of PTSD was 30.6% and depression 38.2%.

The reviews demonstrated substantial heterogeneity in prevalence rates, with more methodologically rigorous studies generally finding lower prevalence rates of mental disorders. The prevalence rates were also influenced by pre-migration refugee characteristics- including level of reported exposure to torture and other traumatic experiences and level of political violence in a source country (Steel, et al., 2009), and post-migration factors - including restricted economic opportunity, insecure housing and location of residence (Porter & Haslam, 2005; Porter, 2007).

A qualitative review focusing on the development and maintenance of PTSD in civilian survivors of war trauma and torture has been provided by Johnson and Thompson (2008). As with the earlier reviews, studies that were carried out with more methodological rigor tended to report lower prevalence rates. There was good evidence of a dose-response relationship between cumulative war trauma and torture and development and maintenance of PTSD. The review additionally identified a number of protective factors against PTSD, which included preparedness for torture, social and family support, and religious beliefs.

Studies of refugees from former Yugoslavia re-iterate the results of those undertaken elsewhere in that they indicate that refugees are more likely to experience mental health problems than the general population (Ai, Peterson, & Ubelhor, 2002; Proroković, et al., 2005; Turner, et al., 2003). For example, Thulesius and Hakansson (1999) reported the 'probable' presence of PTSD prevalence in 18-33% and depression in 21% of Bosnian refugees in Sweden. In a sample of Kosovar Albanian refugees in reception centres in the UK (Turner, et al., 2003) the corresponding rates were 39% for PTSD and 16% for depression. Somewhat higher rates of PTSD (61%) were reported in a study of Kosovo Albanian refugees in the USA (Ai, et al., 2002). In a study of Bosnian refugees resettled in Australia 23% of the sample had pure PTSD and 46% exhibited comorbid PTSD and depression (Momartin, et al., 2004).

Studies by Mollica et al. (1999, 2001) indicate that refugee populations affected by conflict are not only affected by mental health problems, but have associated dysfunction, which can last many years after the conflict.

Mental health of refugees over time

Several longitudinal studies amongst recently resettled refugees have indicated that post-traumatic stress reactions may persist and even increase over time (Lie, 2002; Roth, Ekblad, & Agren, 2006), at least during the immediate period after war trauma and resettlement. For example, in a study of 402 Kosovo Albanian refugees resettled in Sweden, 37% had PSTD at 3-month follow-up and as many as 80% had PTSD 1.5 years later (Roth, et al., 2006). In a study of Bosnian refugees in Norway, anxiety and

depression symptom levels remained unchanged over a three year follow-up period, whilst the level of posttraumatic stress symptoms increased (Lie, 2002).

Several other studies, however, have reported gradual improvement in PTSD symptoms over time (Hauff & Vaglum, 1994; Mollica, et al., 2001; Vojvoda, Weine, McGlashan, Becker, & Southwick, 2008; Weine, Vojvoda, et al., 1998). For example, 56% Vietnamese refugees in Norway (Hauff & Vaglum, 1994) did not have PTSD three years later. After originally finding a PTSD prevalence of 76% among a small sample of 34 Bosnian refugees in the immediate aftermath of resettlement in the USA, Vojvoda et al. (2008) found that 33% of the original group still suffered from PTSD one year later, and 24% even after three years in resettlement.

The evidence on mental health of refugees beyond the initial phase of resettlement is sparse and the few community studies that have assessed the longer term mental health of war refugees have reported highly variable prevalence rates of mental disorders. Overall, these studies have shown up to 40-fold variation in prevalence rates. For example, prevalence rates of depression have ranged from 2.3% (Besier & Hou, 2001) to 80% (Carlson & Rosser-Hogan, 1994) and those of PTSD from 4.4% (Steel, et al. 2002) to 86% (Carlson & Rosser-Hogan, 1994). Substantial between-study variability may be partially explained by methodological differences between the studies (Fazel, et al., 2005; Hollifield, 2002; Steel, et al., 2009; Porter & Haslam, 2005), but it may also reflect the function of diverse pre-migration experiences of refugee populations resettling in countries with widely different resettlement policies; however, this relationship is not known. Most of the research on mental health of long-term settled refugees has studied refugees of different backgrounds resettled in countries with varying resettlement policies, making it difficult to disentangle the relative impact of

pre-migration experiences and the post-migration context. Moreover, most of the studies in this area are limited by cross-sectional designs, and are thus unable to capture trends or changes in posttraumatic stress severity.

1.4.4. Factors associated with mental health of refugees

The increased vulnerability to poor mental health in refugees has been linked to both pre-migration experiences, in particular exposure to war trauma (e.g. Johnson & Thompson, 2008; Steel, et al., 2009), and the post-migration conditions and stressors refugees often face in a new country, including separation from family, difficulties with asylum procedures or even detention, unemployment, and issues related to acculturation (Porter & Haslam, 2005; Robjant, Hassan, & Katona, 2009; Steel, et al., 2009).

In addition, some socio-demographic factors appear to influence mental health of refugees (Porter & Haslam, 2005). Yet, studies of age and gender effects on refugees' mental health have yielded varying results. For example, in a community sample of Southeast Asian refugees in the USA women had higher levels of psychological distress than their male counterparts and older age was a risk factor in both genders (Chung, Bemak, & Kagawa-Singer, 1998). At the same time, depression symptoms were more severe among Darfuri refugee men than women (Rasmussen, et al., 2010) whereas younger age was found to be a risk factor for posttraumatic symptoms among Tamil refugees in Australia (Steel, Silove, Bird, McGorry, & Mohan, 1999). In their meta-analysis, Porter and Haslam (2005), found that older, more educated, and female refugees had worse mental health. Johnson and Thompson (2008) also concluded in their review that there is some evidence that female gender and older age are risk factors in the development of PTSD. Ekblad, Prochazka, and Roth (2002) suggests

females are more likely to develop PTSD as they may be exposed to higher risks of traumatic events, such as the psychological consequences of rape, the violent loss of spouse and children, and of becoming a single parent or widow. In contrast, a study conducted by Thulesius and Hakannson (1999) of 206 Bosnian refugees resettled in Sweden, showed no gender differences in rates of PTSD or depression. After adjusting for methodological factors, the most recent meta-analysis in the field (Steel, et al., 2009) failed to find a relationship between gender and either depression or PTSD.

Trauma-focused and psychosocial approaches to understanding and addressing mental health needs of refugees

As knowledge about the psychological sequelae of refugee trauma has increased, debate has intensified regarding the optimal approaches to understanding and addressing the mental health needs of war refugees (Miller & Rasmussen, 2010). The two main viewpoints in the debate come from advocates of trauma-focused and psychosocial approaches. These two approaches fundamentally differ in their assumptions regarding the factors that most influence mental health in refugees. For advocates of the prevailing trauma-focused model the critical factor is exposure to war-related traumatic experiences. In contrast, for psychosocial advocates attention is focused primarily on the stressful social and material conditions in the post-migratory environment (Miller & Rasmussen, 2010).

Trauma-focused approach: Pre-migration experiences and mental health

Unlike many other persons suffering from post-traumatic stress usually as a consequence of a single traumatic event, refugees are generally exposed to prolonged,

multiple and repeated war-related traumatic events that are intentionally caused by another human being. According to Herman (1992), exposure to chronic or multiple traumas intentionally caused by other humans, including all kinds of organized violence, tend to lead to more severe posttraumatic stress reactions than other kinds of single-event traumatic experiences. These reactions include not only posttraumatic stress symptoms, but also other symptoms such as dissociation, relationship difficulties, revictimisation, somatisation, affect dysregulation and disruptions in identity (Herman, 1992).

The dose-response relationship between cumulative war trauma and adverse mental health in refugees has been well documented (Johnson & Thompson, 2008; Steel, et al., 2009). For example, studying a community sample of 993 Cambodian refugees who had fled the Pol Pot regime, Mollica et al. (1998) confirmed a clear linear relationship between the number of traumatic events and symptoms of PTSD, depression and anxiety. In a community sample of 1413 adult Vietnamese refugees resettled in Australia, the risk of having an ICD-10 mental illness increased from two-fold for those who had been exposed to one or two traumatic events to eight-fold for those exposed to three or more traumatic events (Steel, Silove, Phan, & Bauman, 2002). Other studies with refugee populations confirm these findings (e.g. Ai, et al., 2002; Shrestha, et al., 1998; Silove, Sinnerbrink, Field, Manicavasagar, & Steel, 1997). In the most recent meta-analysis of surveys of war-affected populations (including refugees), number of traumatic events was the strongest predictor of depression and was also associated with PTSD, for which torture was the strongest predictor (Steel, et al., 2009). Some studies have indicated that any individual could develop PTSD regardless of other risk-factors once the cumulative exposure to traumatic events reaches a certain threshold (Neuner, Schauer, Karunakara al., 2004).

Refugees may be subjected to very different types of stressful and potentially traumatic war experiences, including human rights violations, losses, threat to life and other dimensions of suffering. Existing studies suggest that a range of experiences, including confinement in concentration camps (Hinton, et al., 1998; Momartin, et al., 2003), threat to life (Silove, Momartin, Marnane, Steel & Manicavasagar, 2010), torture (de Jong, et al., 2001; Jaranson, et al., 2004; Silove, Steel, McGorry, Miles & Drobny, 2002; Steel, et al., 2009), and traumatic loss (Blair, 2000; Silove, et al., 2010), are more likely to lead to mental disorders than are other general war experiences. Several studies have indicated that exposure to human rights violations, especially physical abuse and torture, may particularly increase the risk for subsequent mental disorders (de Jong, et al., 2001; Jaranson, et al., 2004; Shrestha et al., 1998; Silove et al., 2002; Steel et al., 2009). In a recent meta-analysis of surveys on war-affected populations, torture emerged as the strongest factor associated with PTSD and was also associated with depression (Steel, et al., 2009).

It has been argued that findings on mental health in veterans may not be generalised to civilian populations (Basoglu, et al., 1997). For example, soldiers' military training and their belief in protecting country and family may help them to cope with traumatic events (Basoglu, et al., 1997), while civilians exposed to combat can have their assumptions about safety destroyed. As a result, civilians may experience a higher frequency of intrusive recollections and less emotional numbing.

Psychosocial approach: Post-migration experiences and mental health

As previously described (see section 1.3.1.), in addition to war trauma itself, refugees often face several stressors upon arrival in the host country which they may not be fully prepared to manage. In a study of the experience of Bosnian refugees living in the USA, Keyes and Kane (2004) presented a phenomenological account of the lived experiences of Bosnian refugees. The results of their qualitative study showed that Bosnian refugees experienced culture shock, loneliness, and feelings of dejection, humiliation, and inferiority as well as psychic numbness, grief, nostalgia, and feeling as if they belonged nowhere. This pattern was also evident in the narratives of Bosnian refugees in Chicago, who were interviewed as part of an ethnographic study (Miller, Worthington, Muzurovic, Tipping, & Goldman, 2002). Participants described a stark contrast between their highly active, socially rich lives in Bosnia, and their current experience of social isolation, the loss of community, separation from family members, and lack of purpose and meaning in their daily lives.

Another common problem that refugees often face is the prolonged uncertainty of a temporary residence status coupled with the risk of forced repatriation. Uncertainty about their future in the UK was found to influence Bosnian refugees' perspective on integration and their participation in the host country's life, where the interviewed refugees felt "their status was very unsettling and prevented them from getting on with their lives" (Gawlinski & Graessle, 1996, p. 36). A review of studies on the mental health of Sudanese refugees by Tempany (2009) found that people themselves were often more concerned with the impact of current stressors than prior traumas. Similarly, a qualitative study of refugees residing in Sweden reported that post-migration stressors

can be as difficult as or more difficult to cope with than traumas experienced prior to migration (Samarasinghe & Arvidsson, 2002).

A growing number of empirical studies suggest that what happens to refugees after they leave their country of origin (i.e. the stresses encountered in exile) may contribute significantly to the high rates of observed distress (e.g. Beiser & Hou, 2001; Gorst-Unsworth & Goldenberg, 1998; Miller, Weine, et al., 2002; Steel, et al., 1999). These studies have reported that increased psychopathology is associated with increased post-migration stress (Gerritsen, et al., 2006; Laban, et al., 2004; Steel, et al., 1999), separation from and worry about family members (Lie, 2002; Matheson, et al., 2008); stressors related to asylum processes and decision wait times (Laban, et al., 2004; Silove, et al., 1997; Steel, et al., 1999; Steel, et al., 2006), detention (Robjant, et al., 2009), discrimination, racism, and xenophobia (Samarasinghe & Arvidsson, 2002), lack of receptivity or acceptance by members of the host country (Samarasinghe & Arvidsson, 2002), poor socio-economic living conditions, particularly unemployment and poor housing conditions (Beiser & Hou, 2001; Laban, et al., 2004; Porter & Haslam, 2005; Silove, et al., 1997), lack of recognition of skills or educational achievements (Simich, Hamilton, & Baya, 2006), lack of social support (Miller, Weine, et al., 2002b; Schweitzer, Melville, Steel, & Lacherez, 2006) and difficulties accessing medical care and welfare services (Silove, Steel, McGorry, & Drobny, 1999).

Although there is considerable evidence in support of a trauma-focused model (e.g. Mollica, et al., 1998; Steel, et al., 2009), several studies have reported that post-migration factors have an equal or even stronger relationship with psychological morbidity than exposure to traumatic events (Porter & Haslam, 2005; Gorst-Unsworth & Goldenberg, 1998; Laban, et al., 2004; Lie, 2002). Previous meta-analyses conducted

to explore differences in mental health of war-affected refugees and non-refugees (Porter & Haslam, 2001; Porter & Haslam, 2005) showed that refugees suffer significantly more mental health dysfunction in comparison to non-refugees, but that the psychological consequences of forced displacement vary significantly as a function of chronic stressors. This is particularly the case for depression (Steel, et al., 2009). These findings indicate that the experience of exile may make refugees more prone to experiencing mental health problems than similarly traumatized war survivors who remain in their home countries. At the same time, Silove et al. (1998) compared levels of PTSD among Tamil asylum seekers and refugees with immigrants and found that both refugee groups presented with higher symptom levels than their immigrant compatriots. These findings indicate that amalgamation of pre-migration and post-migration experiences may make the refugee group particularly vulnerable to poor mental health.

A study of 84 Iraqi refugee men in the UK reported that post-migration social factors, particularly perceived level of affective social support, accounted for 25% of the variance of overall psychological morbidity, whilst no significant associations were found between trauma factors and overall morbidity. The study also reported a strong association between post-migration social factors and depression and PTSD; in fact, perceived level of affective social support was a stronger predictor of depression in this sample than was level of exposure to war-related events, while the opposite was true for PTSD (Gorst-Unsworth & Goldenberg, 1998). Their finding is supported by Miller, Weine, et al. (2002) who found that in a sample of Bosnian refugees in the USA, levels of PTSD symptoms were significantly predicted by the extent of exposure to war-related experiences, and in particular to war experiences characterized primarily by violence, while social isolation was the strongest predictor of depression. Post-

migration stressors have been consistently stronger predictors than war exposure for depression, while war exposure has tended to be more strongly related than post-migration stressors to PTSD (Gorst-Unsworth & Goldenberg, 1998; Miller, Weine, et al., 2002; Montgomery, 2008; Steel, et al., 1999). These findings suggest differential effects of post-migration problems depending on the type of mental health problem.

Mental health problems themselves may reduce adaptation abilities and further intensify migration stressors and, consequently, further obstruct recovery or worsen symptoms (Besier & Hou, 2001; Kivling-Boden & Sundbom, 2002; Miller, Weine, et al., 2002). For example, avoidance and social withdrawal associated with PTSD can cause isolation which in turn can further jeopardize mental health. Kivling-Boden and Sundbom (2002) carried out a study on the relationship between post-traumatic symptoms and life in exile in refugees from former Yugoslavia and suggested integrated rehabilitation efforts to break a vicious circle of high posttraumatic symptom levels and a poor life situation reflected in open unemployment, social isolation and high dependence on social welfare.

Integration of trauma-focused and psychosocial approaches

Recent studies examining the ways in which war exposure and post-migration stressors might contribute to mental health status of refugees suggest that both types of stressors significantly contribute to the explanatory power of models predicting psychiatric symptomatology. For example, Steel at al. (1999) reported that both pre-migration trauma (in particular torture) and post-migration living difficulties (adaptation difficulties, loss of culture and support) had independent effects on the mental health of refugees, accounting for 20% and 14% of the variance of posttraumatic stress, respectively. Lie (2002) conducted a 3-year follow-up study of psychosocial

functioning and general symptoms in refugees. Post-migration stressful events such as unemployment and lack of social contacts predicted the severity both of post-traumatic stress disorder and depressive reactions, particularly when combined with a severe level of traumatic exposures, such as torture and life-threatening events.

There is also some evidence that post-migration stressors may moderate the relationship of war-related traumatic experience to mental health status among refugees. Rasmussen et al. (2010) tested the role of refugee camp-related daily stressors in confounding the relationship of prior war exposure to mental health among Darfuri refugees in neighbouring Chad. Despite the high level of extreme violence to which the refugees had been exposed, daily stressors related to a lack of basic needs and a lack of safety in the camps were better predictors of PTSD than war exposure; in fact, daily stressors fully confounded the relationship of war exposure to PTSD. Both war exposure and daily stressors predicted levels of depression, while current levels of perceived safety confounded the relationship of war exposure to functional impairment. Daily stressors significantly enhanced the overall explanatory power for all mental health outcomes.

Several other authors (Beiser & Hou, 2001; Rumbaut, 1991) suggest a dynamic nature of resettlement and psychological adjustment of refugees and changes in the salience of pre-migration and post-migration risk and protective factors during this process. These authors have shown that while pre-migration traumatic experience is a salient risk factor immediately after arrival, the effects of post-migration experience tend to increase over time (Beiser & Hou, 2001; Chung & Kagawa-Singer, 1993; Rumbaut, 1991). For example, during the initial period of resettlement, English language proficiency had no effect on depression or on employment of Southeast Asian refugees in Canada (Hou & Beiser, 2001). However, by the end of the first decade in Canada, English language

proficiency was a significant predictor of depression and employment, particularly among refugee women and among people who did not become engaged in the labour market during the earliest years of resettlement. Language and employment had a bi-directional relationship over time, whereby language proficiency helped ensure job advancement in non-ethnic settings which reciprocally predicted language acquisition. And, in turn, both language acquisition and employment promoted long-term mental health (Hou & Beiser, 2001). According to Rumbaut (1991), refugees' past losses seem to be overcome with time and are superseded by the demands and challenges of present life, so that over time "*refugees* become more like *immigrants"* (p. 77). These findings highlight the importance of the post-migration environment in the successful resettlement of refugees.

Impact of social and health care interventions on mental health of refugees

In most people affected by posttraumatic stress, symptoms improve, given time, without any specific treatment (Yehuda, 2002; Kessler, et al., 1995). For example, studies on the prognosis of PTSD following events other than war suggest that most affected people recover within the first 4-6 years post trauma after which the condition is more likely to become chronic and unremitting (Breslau, et al., 1998; Kessler, et al., 1995; Perkonigg, et al., 2005). These studies have also indicated that the remission time tends to be shorter for those who sought professional help compared to those who did not (Kessler, et al., 1995). A growing body of literature suggests that specific evidence-based medical interventions, in particular trauma-focused psychological therapies, can be effective in alleviating symptoms of PTSD, depression and anxiety (Bisson, et al., 2007; Ehlers, et al., 2010).

There is a debate in the literature about the most appropriate interventions for refugees suffering from war-related posttraumatic stress, who are additionally exposed to a plethora of displacement stressors (Silove, 1999; Summerfield, 1999). As already discussed, most research on refugee mental health has focused on the high levels of distress and mental disorders, in particular PTSD, and it has typically emphasized the refugees' past trauma as the main cause of these problems. As a result, assistance provided to refugees has mainly focused on trauma-focused clinical interventions.

The current evidence for clinical treatment for traumatised refugees is limited and mixed. Some studies have indicated improvement in posttraumatic stress symptoms after treatment with psychotherapy, e.g., support therapy, testimony therapy, and/or psychopharmacological treatment, cognitive behavioural therapy or combinations of these (d' Ardenne, Ruaro, Cestari, Fakhoury, & Priebe, 2007; Hinton, et al., 2005; Kruse, Joksimovic, Cavka, Wöller, & Schmitz, 2009; Schulz, Resick, Huber, & Griffin, 2006; Weine, Kulenovic, Pavkovic, & Gibbons, 1998). Yet, other studies have shown no improvement even several years after being in treatment (Carlsson, Mortensen, & Kastrup, 2005; Kivling-Boden & Sundbom, 2001; Morina, Rushiti, Salihu, & Ford, 2010).

Several authors have argued against focusing on past trauma in improving refugees' well-being. As previously noted, recent research has demonstrated that the high levels of distress and increased rates of mental disorders among refugees are also related to the stressors refugees experience in exile, such as lack of social support, unemployment, and residence status. Although some refugees may not be diagnosed with any psychiatric illness, they may still require emotional, social and practical support

(Crowley, 2003). Whilst trauma-focused interventions may be helpful in alleviating mental distress caused by past trauma, their capacity in improving the exile-related stressors may be limited (Miller, 1999). It has been suggested that complementing such interventions with community-based interventions specifically targeted at improving the refugee exile situation may be most helpful (Miller, 1999). Proponents of such approaches argue that social interventions, such as employment, provision of suitable accommodation, social support, and material assistance, may be of a greater benefit and be a more preferred type of help for the population concerned (Burnett & Peel, 2001; Summerfield, 1999).

Hume and Summerfield (1994) showed that while war-injured ex-soldiers in Nicaragua presented with symptoms that could be construed as PTSD, ex-soldiers' main concerns were with training and jobs. Following their findings on the association between the maintenance of posttraumatic stress and poor living conditions, Kivling-Boden and Sundbom (2001) recommended that interventions should include strategies to facilitate entry to the labour market, more individualised teaching methods in the host language, and more effective psychiatric treatment. As Porter and Haslam (2005) suggest, humanitarian efforts to improve the post-migration social and material experiences of refugees would likely have a positive influence on mental health outcomes.

A single study that qualitatively compared the impact of health care and social interventions among two matching cohorts of Bosnian refugees in Sweden found that those provided with temporary jobs fared better than those offered psychological services but no work (Eastmond, Ralphsson, & Alinder, 1994). Another study of the Hmong refugees in the United States assessed the effectiveness of a community-based intervention consisting of advocacy, which involved advocating for and transferring the

advocacy skills to refugees to increase their access to resources in their communities, and a learning intervention, which involved cultural exchange and one-on-one learning opportunities for refugees. The results indicated that both advocacy and learning interventions not only improved refugees' English proficiency, citizenship knowledge and satisfaction with resources, but they also improved their QOL and levels of psychological distress (Goodkind, 2005). One of the largest studies assessing the impact of social and health care interventions on PTSD recovery was conducted with war-affected population in Croatia (Francisković, et al., 2008). Although limited by the retrospective design and a long recall period, the study findings suggested that improvement in the living conditions, particularly improvement in the housing situation, could greatly facilitate the recovery from traumatisation (Francisković, et al., 2008). Mental health interventions had no association with PTSD recovery (Francisković, et al., 2008).

An earlier systematic review of intervention strategies for promoting refugee integration (Schibel, Fazel, Robb, & Garner, 2002) also failed to locate any large-scale longitudinal cohort studies relating to any kind of intervention designed to enhance health and welfare among refugee populations. The review located only seven intervention studies that met their criteria, of which only two studied refugees (Fox, Cowell, Montgomery, & Willgerodt, 1998; Pfeffer, 1997). Schibel et al. (2002) concluded that although there is a large body of literature that focuses on refugee policies and health status, there are very few studies that report on systematic, methodologically rigorous interventions employing health, welfare and resettlement strategies. Identifying the relative impact of different health care and social interventions on the long-term mental health of refugees is of great relevance for health and social policies, but there is no systematic empirical evidence addressing this issue.

1.5. Rationale, aims of the study and research questions

In the present section the rationale and the aims of the study will be presented, followed by the research questions addressed.

1.5.1. Rationale and aims of the study

The previous sections described the current scope of wars and the refugee situation worldwide and reviewed research evidence on mental health in this population. In summary, it has been illustrated that worldwide there are several million war refugees, many of whom stay in the recipient countries for years. Although there is agreement that recently resettled refugees experience high levels of mental health problems (Fazel, et al., 2005; Tempany, 2009), which may persist or even worsen during the immediate period after war trauma and resettlement (Lie, 2002; Mollica, et al., 2001; Roth, et al., 2006), it is unclear whether the refugees' increased risk of adverse mental health persists after the initial period of resettlement.

Studies on mental health of long-settled war refugees are rare and the existing few have reported widely varying rates of mental disorders. Such variation across studies may be partially explained by methodological differences (Porter & Haslam, 2005; Fazel, et al. 2005; Steel, et al., 2009). It may also reflect substantial differences in sample characteristics and the context of the resettlement, which might interact so that the same sample characteristics are differentially linked to mental disorder rates in different host countries; however, this relationship is not known.

War experiences and forced migration can have a negative impact on mental health but also damaging effects on other aspects of people's lives. The specific combination of pre-migration and post-migration experiences, including poor mental health, may make refugees particularly vulnerable to an impaired QOL. However, the effects of war trauma and forced migration on QOL in refugees have been studied less.

Evidence is required on how best to help the large number of refugees suffering from posttraumatic stress. In most people affected by posttraumatic stress, symptoms improve with and without specific treatment. Yet, particularly after exposure to recurring and on-going stressful events as in a war, a significant number of people develop persistent symptoms that can last for decades. There is little evidence on what factors can positively influence posttraumatic stress in those people who still suffer from symptoms after many years. The direct and indirect costs for the care of these people are supposed to be high and they pose a significant public health challenge. It has been argued that provision of psychological or psychiatric interventions may be less important for this group; instead, services focusing on improving social and material conditions may be of a greater benefit (e.g. Summerfield, 1999). This debate is of great relevance for health and social policies, but there is no systematic empirical evidence addressing the question of the relative contribution of specific groups of services in recovery from trauma. Moreover, there is little information on what services refugees actually use and, most importantly, what services are perceived as the most useful by refugees themselves. Such information and a comparative analysis would be invaluable to develop best practice models for care of refugees with persistent posttraumatic stress.

Against this background, the present thesis aimed to address the above-mentioned gaps in research in this field and provide empirical evidence on prevalence, course, and

predictors of mental health and SQOL in long-settled war refugees. The thesis is based on data from both a cross-sectional and a longitudinal study that assessed mental health and SQOL in war refugees from the same region who have resettled in different countries several years previously. The thesis had three main aims and was accordingly carried out in three related parts. These are listed below.

(1) To use a systematic approach to review, explore and synthesise the results of published available data as to shed light on the overall prevalence of mental disorders in long-settled war refugees, as well as to identify pre-migration and post-migration factors associated with mental disorders.

(2) The cross-sectional study in this thesis aimed to develop models for predicting mental disorders and SQOL in long-settled refugee populations, which were aimed at helping to understand and anticipate service needs and long-term outcomes in future refugee populations. This is highly relevant for EU countries which are likely to host further refugee groups in the future. The study also aimed to compare levels of psychopathology and predictors of mental health outcomes in refugee populations in three European countries. The comparison of the models between countries aimed to determine how stable outcomes and the predictive value of baseline features and post-migration factors are across different contexts.

(3) The longitudinal part of the thesis aimed to establish PTSD recovery rater and identify factors and interventions that might be associated with positive change even with refugees who so far had been suffering from chronic PTSD. One year after the initial assessment, a subset of participants with persistent PTSD was re-interviewed and information about symptom change, life events, changed social circumstances,

utilisation of social and health care interventions within the observation period and treatment satisfaction were obtained. The model for predicting long-term posttraumatic stress aimed to identify the relative contribution of using health care and other interventions to improvement over time. It also aimed to cast light on the users' perspective on interventions. Thus, the study aimed to identify what interventions have been particularly helpful in the users' view. This part of the thesis aimed to test the repeatedly stated, but rarely empirically substantiated hypothesis that users prefer community based interventions providing material and social support to various forms of medical care. The findings were aimed to inform future intervention studies which might experimentally vary health care and social interventions to identify the most effective – and cost-effective – ways to help those concerned.

1.5.2. Research questions

In order to fill the research gaps and cover the research aims illustrated above, the present study addressed the three research questions listed below. The first research question was partially answered by the existing literature in the form of a systematic literature review and subgroup analysis. However an original research study was put forward to provide a more reliable answer. To answer the research questions 2 and 3, literature gaps were assessed and original research studies were conducted to fill those gaps. The research questions were as follows:

1. What participant characteristics and experiences are associated with mental disorders in war refugees from the same region who have resettled in different countries several years previously?

a. What socio-demographic characteristics, war experiences and post-migration factors are associated with mental disorders in war refugees from the same region who have resettled in different countries several years previously?
b. What is the relative impact of each group of factors on mental disorders and what is the confounding effect of post-migration factors in explaining the relationship between war exposure and mental disorders?
c. Are the factors associated with mental disorders stable across the resettlement countries?

2. What pre-war, war, post-migration and clinical factors are associated with subjective quality of life (SQOL)? What is the relative impact of each group of factors on SQOL and what is the confounding effect of post-migration factors and mental disorders in explaining the relationship between war exposure and SQOL?
3. What is the recovery rate and symptom change in refugees with PTSD during a one-year follow-up and what socio-demographic, trauma-related, clinical factors and received health care and social interventions predict PTSD recovery?

Given the heterogeneity of the findings in the existing literature in terms of the prevalence and predictors of mental disorders in long-settled war refugees, as well as the lack of evidence on factors affecting SQOL and PTSD recovery in this population, the present study was exploratory and therefore not driven by a priori hypotheses.

Chapter 2

Long-term mental health of war-refugees: a systematic literature review

This chapter presents results of a new systematic literature review on prevalence of mental disorders in long-settled war refugees. Because of a high clinical and statistical heterogeneity between studies, overall estimates of mental disorders were not discussed. Instead, prevalence rates were reviewed narratively and possible sources of heterogeneity between studies were investigated both by subgroup analysis and narratively. A descriptive analysis examined pre-migration and post-migration factors associated with mental disorders in this population. A short introduction on the rationale for the review will be first presented, followed by the methods, the results and the discussion of the review findings.

2.1. Introduction

Worldwide there are over 16 million refugees, most of whom were displaced because of war and other organized violence (UNHCR, 2011). Whilst the majority of refugees soon repatriate, many stay in the recipient countries for years or even decades. Refugees' mental health often presents a challenge to clinicians and policy makers of the recipient countries.

As already discussed in Chapter 1, evidence from community studies amongst recently resettled refugees suggests that refugees have higher rates of mental disorders, in particular depression, PTSD and other anxiety disorders, than those usually found in the non-war affected general population (Fazel, et al., 2005; Tempany, 2009). Several longitudinal studies amongst recently resettled refugees have indicated that post-traumatic stress reactions may persist and even increase over time (Lie, 2002; Mollica, et al., 2001; Roth, et al., 2006), at least during the immediate period after war trauma and resettlement.

This increased vulnerability has been linked to both pre-migration experiences, in particular exposure to war trauma (Johnson & Thompson, 2008; Steel, et al., 2009), and post-migration conditions and stressors refugees often face in a new country, including separation from family, difficulties with asylum procedure or even detention, unemployment, inadequate housing, and issues related to acculturation (Porter & Haslam, 2005; Robjant, et al., 2009).

Whether the refugees' increased risk of adverse mental health persists after the initial period of resettlement is unclear since there is a paucity of comparable data for long-settled refugees and the few studies that have been undertaken present an inconsistent picture. Whilst some studies reported a gradual improvement in symptoms over a period of a decade, to the point where prevalence rates of mental disorders were lower than in the general population of the host country (Beiser & Hou, 2001; Silove, et al., 2007), other studies found prevalence rates substantially higher than those in the general population (Carlson & Rosser-Hogan, 1994; D'Avanzo & Barab, 1998; Marshall, et al., 2005).

Previous systematic reviews and meta-analyses evaluating mental health of refugees (including those recently resettled) have all indicated a reduction in risk for mental disorders as the length of time since displacement increases (Fazel, et al., 2005; Porter & Haslam, 2005; Steel, et al., 2009). However, these reviews did not specifically report findings for refugees with a longer duration of displacement (Lindert, et al., 2009; Porter, 2007; Porter & Haslam, 2005; Steel, et al., 2009), mostly assessed studies of recently resettled refugees (Porter, 2007; Porter & Haslam, 2005) where rates would be expected to be higher, focused only on refugees in Western countries (Fazel, et al., 2005), and confined their findings to PTSD, depression or a generic effect size index of

psychological distress derived from heterogeneous outcome measures across studies (Porter, 2007; Porter & Haslam, 2005; Steel, et al., 2009). Thus, a systematic review focusing specifically on long-term mental health outcomes of war refugees worldwide is warranted. Understanding the long-term mental health of refugees is essential for guiding the health policies of recipient countries aimed at promoting long-term mental health of refugees (Marshall, et al., 2005; Thoms & Ron, 2007).

The current review investigated whether mental disorders in war refugees persist beyond the immediate period after war trauma and resettlement by focussing on studies assessing mental disorders and factors associated with these disorders among long-settled war refugees, including those residing outside Western countries. The specific aims of the present review were to:

i) assess the prevalence of depression and anxiety disorders among community samples of adult war refugees five years or longer after displacement;
ii) assess the influence of methodological and contextual factors on the prevalence rates found in the studies; and
iii) identify pre-migration and post-migration factors associated with the prevalence of these disorders.

2.2. Methods

2.2.1. Search strategy

Five electronic databases (CINAHL, PsychINFO, EMBASE, Medline and PILOTS) were searched from their inception to November 2011, using a combination of keywords “refugee”, “mental health”, “depression”, “PTSD”, “anxiety”, “long-term” and various synonyms as search terms. Key search terms are presented in Table 2.1.

Articles with refugees were identified using MeSH and text keywords for “refugees”, whilst “mental health” content in articles was identified using MeSH and text keywords for “mental health” and specifically for “depression”, “anxiety”, and “PTSD”. In order to focus the search terms on the studies with long-settled refugees, the search strategy also included the term “long-term”. Text keywords were used to identify articles indexed by “long-term”. These terms were adapted for each database. For example, terms for Medline were: "((((stateless adj person) .ti,ab.) OR ((((asylum adj seeker) .ti,ab.) OR ((((conflict adj survivor) .ti,ab.) OR (((((((((((displaced adj person) OR ((displaced adj person) .ti,ab.) OR (((refugee.ti,ab.) OR (refugees#.w..de.)) .ti,ab.)) .ti,ab.) OR ((war adj victim) .ti,ab.)) .ti,ab.) OR (exile.ti,ab.)) .ti,ab.) OR (uprooted.ti,ab.)) .ti,ab.) OR ((war adj survivor) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.) AND (((((anxiety#.w..de. or anxiety-disorders#.de.) OR (anxiety.ti,ab.) OR (((ptsd.ti,ab.) OR (((stress-disorders-post-traumatic#.de.) OR ((posttraumatic adj stress) .ti,ab.) OR (((distress.ti,ab.) OR (stress-psychological#.de.) OR ((((((adjustment adj problem) .ti,ab.) OR (adaptation-psychological#.de. OR adjustment-disorders#.de.) OR (((((quality-of-life#.de.) OR ((well adj being) .ti,ab.) OR (((((psychiatric OR

psychological) adj outcome) .ti,ab.) OR ((((clinical adj outcome) .ti,ab.) OR (((psychopathology.ti,ab.) OR (psychopathology#.w..de.) OR (((depression.ti,ab.) OR (depressive-disorder-major#.de. OR depression#.w..de. OR depressive-disorder#.de.) OR ((((((mental adj illness) .ti,ab.) OR ((((mental adj health) .ti,ab.) OR (mental-disorders#.de. OR mental-health#.de.)) .ti,ab.)) .ti,ab.) OR ((psychiatric adj symptom) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.) OR (((psychiatric OR psychological) adj reactions) .ti,ab.)) .ti,ab.)) .ti,ab.) OR ((psychiatric adj morbidity) .ti,ab.) OR (((psychiatric OR psychological) adj disability) .ti,ab.) OR (mental-disorders#.de.)) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.) OR ((traumatic adj reaction) .ti,ab.)) .ti,ab.) and (((((ongoing.ti,ab.) OR ((((prolonged OR persist$) .ti,ab.) OR (((enduring.ti,ab.) OR (((chronic.ti,ab.) OR ((((long adj term) .ti,ab.) OR (longitudinal.ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.)) .ti,ab.) OR (durable.ti,ab.)) .ti,ab.)".

Table 2.1. Key search terms and combination operators

Key search terms
Refugee: *refugee, displaced persons, asylum seeker, stateless person, war survivor, conflict survivor, war victim, exile, OR uprooted person*
Mental health: *mental health, mental disorders, mental illness, psychiatric symptom, well-being, psychopathology, clinical or psychiatric or psychological outcome, psychiatric morbidity or disability, psychological morbidity or disability, adjustment problem, distress, psychological stress, posttraumatic stress, stress, PTSD, anxiety, depression, depressive disorder, traumatic reaction, psychological reactions OR psychiatric reactions*
Long-term: *chronic, enduring, prolonged, persistent, ongoing, continuing, longitudinal OR durable*
Combination operators
Long-term refugee mental health: Refugee (all terms) AND mental health (all terms) AND long-term (all terms)

The references of included articles were then screened to identify any further relevant papers, as were the contents of systematic reviews identified through searches (Fazel, et al., 2005; Johnson & Thompson, 2008; Lindert, et al., 2009; Murthy & Lakshminarayana, 2006; Porter, 2007; Porter & Haslam, 2005; Steel, et al., 2009; Tempany, 2009). In addition, data from unpublished studies or articles in press were sought by informally contacting experts in the field (PhD candidate contacted the experts).

2.2.2. Inclusion and exclusion criteria

Studies were included in the review if they: i) investigated a community adult sample of war refugees five years or longer after displacement; ii) had a sample larger than 30 participants; and iii) reported quantitative estimates of depression, PTSD, and/or anxiety or reported on their associative factors. There were no restrictions regarding the language. Populations were identified as being war refugees if they migrated from a country subjected to armed conflict. A minimum sample size of 30 was chosen to achieve a representative distribution in line with the central limit theorem (Bowling, 2002). To exclude the effects of age-differential vulnerabilities for trauma-related disorders, studies were excluded if the majority of the sample were younger than 12 years at the time of the last war-related traumatic event (de Jong, et al., 2001; Maercker, Michael, Fehm, Becker, & Margraf, 2004; Perkonigg, et al., 2000). Case reports, qualitative studies or studies assessing clinical samples were excluded. When different population groups than those of interest (e.g. immigrants) were included in a study, studies were included only if refugee data were reported separately. Where multiple publications presented identical data from the same study, the most informative

publication of the study was included and the other related articles were consulted for additional information.

2.2.3. Data extraction

Following a fixed protocol two reviewers (the doctoral candidate and A.N.) independently assessed all citations for possible inclusion in the review. For every eligible study, information was extracted on study characteristics (e.g. methods, publication year), participant characteristics (e.g. socio-demographic data, trauma history), and statistical outcome information (prevalence rates and associated factors). Any discrepancies between researchers were resolved by discussion. The doctoral candidate contacted eleven study authors to obtain additional data, of which ten responded and five provided the information.

2.2.4. Assessment of methodological quality

Currently there is no consensus on how to assess either the quality of observational studies or the impact of the study quality on the meta-analysis (Sanderson, Tatt, & Higgins, 2007; Shamliyan, Kane, & Dickinson, 2010). The assessment of the methodological quality of individual studies included in the review was guided by key quality criteria identified in previous reviews (Fazel, et al., 2005; Porter & Haslam, 2005; Steel, et al., 2009). The criteria developed were as follows:

1. The sampling
    a. The use of random or inclusive sampling (non-random = 0, random or inclusive = 1)
    b. The sample size if non-random sampling (<200 = 0, ≥200 = 1);

2. The sample representativeness i.e. was the sample frame a true or close representation of the target population (not representative=0, representative=1);
3. The response rate (<60% = 0, ≥60% = 1);
4. The use of validated and reliable measurements (valid and reliable measure not used = 0, valid and reliable measure used = 1);
5. The interview was conducted in the interviewees' native language, as opposed to through an interpreter (through interpreter = 0, native language = 1).

A cumulative score was calculated for each study. The resulting quality scores ranged from 0 to 5, with lower quality studies receiving a score of 0-3 and high quality studies receiving a score of 4-5.

2.2.5. Data synthesis and analysis

The prevalence estimates of mental disorders were calculated with 95% confidence intervals (CIs) in each study and in the pooled data. Prevalence rates were for current diagnoses with the exception of studies reporting one-year prevalence as assessed by the Composite International Diagnostic Interview (CIDI; The World Health Organization [WHO], 1997). For longitudinal studies (Beiser & Hou, 2001; Westermeyer, 1988), only the last assessment point prevalence was extracted for inclusion in the analyses to insure independence between studies. Of note, the earlier assessment points of the included longitudinal studies were outside the required inclusion criteria of five years or longer after the displacement.

For anxiety disorders, the findings were reported separately for each disorder i.e. PTSD, Generalized Anxiety Disorder (GAD), Social Phobia, Panic Disorder, Obsessive Compulsive Disorder (OCD) and Agoraphobia. Additionally, findings were reported

also separately for studies that used self-reported screening assessment tools, mostly the HSCL-25 anxiety subscale, to assess the presence of anxiety symptoms. While these tools do not provide a diagnosis, they are used to identify possible clinical cases of unspecified anxiety disorder based on the established cut-off score. The symptoms assessed with this scale most closely refer to GAD (e.g. Lhewa, Banu, Rosenfeld, & Keller, 2007; Thapa & Hauff, 2005), but are also highly concordant with other anxiety disorders (e.g., Sandanger, 1998; Ventevogel, et al., 2007) i.e. it is a nonspecifc measure that overlaps with many anxiety disorders. Therefore, those identified as potential clinical cases may include individuals suffering from one or more different types of anxiety disorders. Because of the large overlap with different anxiety disorders, it was decided to assess unspecified anxiety disorder as a separate mental health outcome representing those potentially symptomatic of any anxiety disorder.

Estimates of mental disorders reported in the included studies were first described narratively.

Heterogeneity is common in meta-analysis of epidemiologic data and probably should be viewed as the expectation rather than the exception (Berlin, 1995; Thompson, 1994). Researchers (e.g., Bennett & Emberson, 2009) distinguish between clinical heterogeneity (differences in the characteristics of study participants, such as age), methodological heterogeneity (differences in the characteristics of the studies, such as their designs), and statistical heterogeneity (differences in true effects being evaluated in different studies and may be detected if variation in the results of the studies is above that expected by chance). Statistical heterogeneity is a consequence of clinical or methodological heterogeneity, or both, among the studies (e.g., Thompson, 1994). In the presence of high statistical heterogeneity, simply combining the results into one

overall estimate may be misleading and, instead, the main focus of the meta-analysis should be on trying to understand clinical and methodological sources of heterogeneity (Blettner, Sauerbrei, Schlehofer, Scheuchenpflug, & Friedenreich, 1999; Ioannidis, Patsopoulos, & Rothstein, 2008; Petitti, 2001; Stroup, et al., 2000; Thompson, 1994).

In the current review, the prevalence of depression and anxiety disorders was assessed across studies and the overall between-studies heterogeneity was assessed to determine if a meta-analysis providing a single summary prevalence estimate was appropriate. Due to inherent clinical and methodological differences between the studies assessed, a random effects model was planned as this assumes that the study and participant characteristics are not identical across studies, and that prevalence rates may vary accordingly. The model assumes therefore that there is a distribution of "true" effect sizes rather than a single true effect, and aims to estimate the mean of this distribution of true effect sizes (Borenstein, Hedges, Higgins, & Rothstein, 2009). The degree of statistical heterogeneity between studies was explored using the Q and I^2 statistics. The Q statistic tests the null hypothesis that all studies share a common effect size with a minimal dispersion of the effect sizes across studies. The I^2 statistic quantifies the amount of dispersion across the effect sizes and displays the percentage of observed variance between studies that is due to real differences in effect sizes. Unlike the Q statistic, it is not sensitive to the number of studies considered (Borenstein, et al., 2009; Higgins & Thompson, 2002). I^2 values range from 0 to 100%, with values of 25%, 50%, and 75% tentatively suggested as indicating low, medium, and high heterogeneity, respectively (Higgins, Thompson, Deeks, & Altman, 2003).

Possible sources of heterogeneity between studies were investigated by subgroup analysis (Bennett & Emberson, 2009; Higgins, et al., 2003; Thompson & Higgins,

2002). When fewer than five primary studies were available, an overall statistical heterogeneity index was reported, while no further analyses were conducted. Where studies numbered five or greater, limited subgroup analyses were conducted. Several potential sources of heterogeneity were pre-specified in the protocol, and these included: region of origin, host country region, gender, displacement duration, time since resettlement, sample size, sampling method, diagnostic method, interviewer language, study quality and publication date. The degree of heterogeneity between the subgroups was assessed using the $Q_{between}$ statistic within a random effects model. Forest plots were used to visualize the extent of heterogeneity among studies.

The possibility of publication bias was assessed using the Begg-Mazumdar adjusted rank correlation test and Egger's linear regression method. All subgroup analyses were performed using Comprehensive Meta Analysis Version 2.0 (Biostat; Englewood, New Jersey, USA). The doctoral candidate alone conducted quantitative and narrative data synthesis and analysis.

2.2.6. Narrative synthesis of factors associated with mental disorders

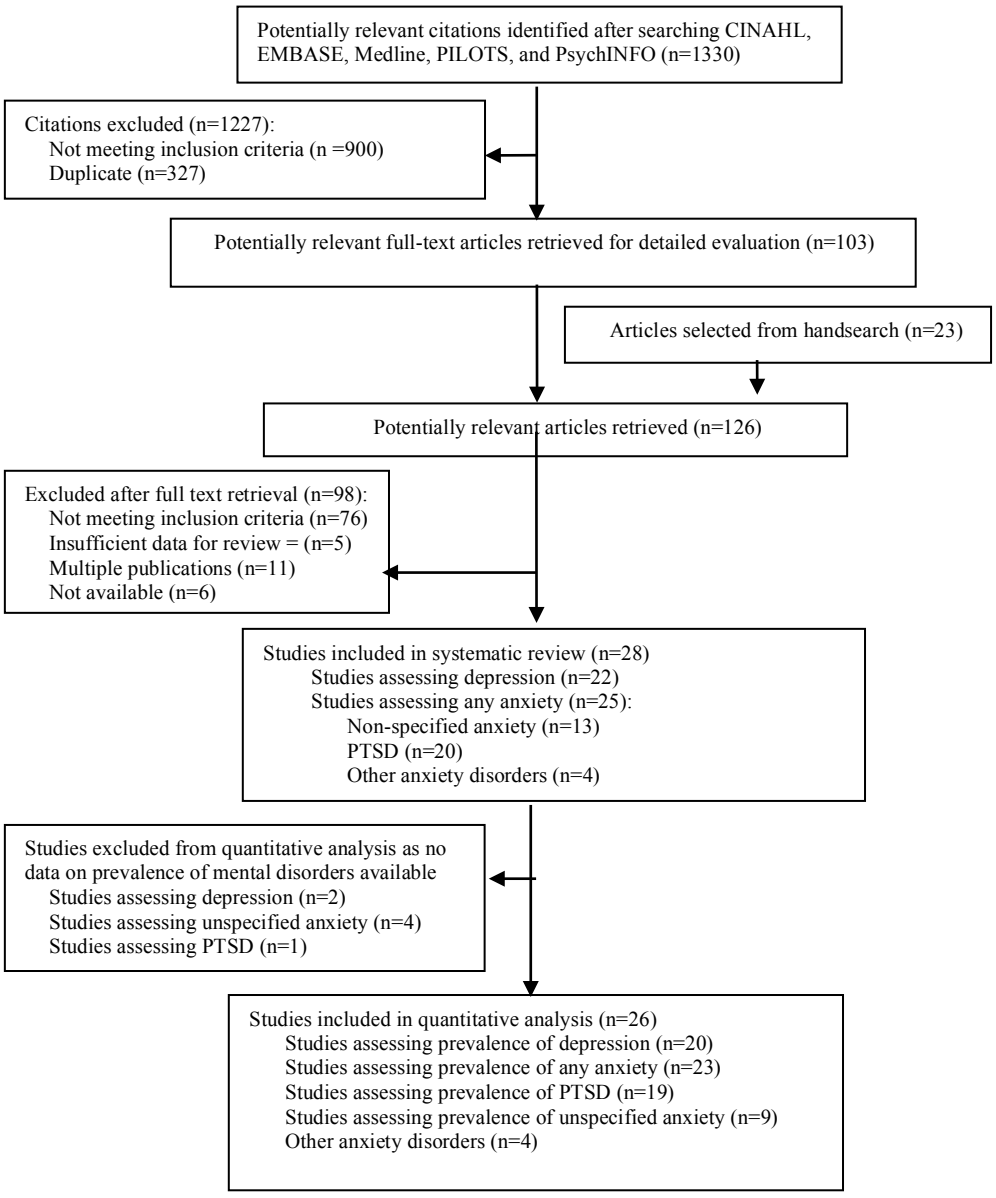
The doctoral candidate and another researcher (A.N.) independently extracted statistical data on all risk factors considered for univariate or multivariate analyses in each study. Owing to a limited number of studies reporting on comparable sets of risk factors (i.e. many risk factors were examined only by a single study) and the heterogeneity in reported effects, a formal meta-regression analysis was deemed inappropriate (Borenstein, et al., 2009). Instead, a method of vote-counting was used to determine the number of statistically significant (positive/negative) and non-significant associations for each factor across studies (Sallis, Prochaska & Taylor, 2000; Ramo, Liu &

Prochaska, 2012). An association between a factor and a mental disorder was considered as significant if the statistical significance level was $p<0.05$. Based on the percent of findings supporting the association (i.e. number of studies supporting the expected association divided by the total number of associations for the given factor), the factor was classified as: no association (0%-33%); indeterminate/inconsistent (34%-59%); and positive association or negative association (60%-100%) (Sallis, et al., 2000; Ramo, et al., 2012). In order to exclude incidental findings from single studies, for each of the outcomes (depression, PTSD, and unspecified anxiety) a risk factor was included in the narrative synthesis only if it had been studied in at least three studies for that disorder. The findings were described narratively. The doctoral candidate performed narrative synthesis of data.

2.3. Results

The systematic review process is shown in Figure 2.1. Twenty-eight studies met the inclusion criteria, including 22 studies assessing depression and 25 assessing anxiety. Only one eligible study published in a language other than English was identified, but another publication of the same study in the English language was already included in the review (Gerritsen, Bramsen, Deville, van Willigen, Hovens, & van der Ploeg, 2006). Thus, all articles included in the review were published in English.

Figure 2.1. Flowchart of study selection



2.3.1. Study and baseline characteristics

Study characteristics are shown in Table 2.2. (see the end of this chapter). In total, the 28 studies assessed 15156 adult war refugees (depression n=11308, anxiety n=10888). One study reported on unspecified anxiety and depression as a single factor since the two were highly correlated (i.e. no person had anxiety or depressive disorder without having the other) (Bhui, et al., 2003). The findings from this study are reported for both depression and unspecified anxiety disorders. Four studies assessed single gender refugee samples (Buseh, McElmurry, & Fox, 2000; D'Avanzo & Barab, 1998; Delic-Ovcina, 2011; Hinton, et al., 1998). Across the remaining 24 studies there were slightly higher numbers of women (5606) than men (5286) in the sample. Studies were predominantly published in 2000s (N=21). Refugee samples were from five main regions: Southeast Asia (68% of refugees), Sub-Saharan Africa (22%), Europe (6%), Middle East (<2%) and Central America (<2%). Fifteen studies were undertaken in the United States, six in Europe, four in other Western countries and four in refugee camps in non-Western countries. Studies varied in the time between leaving home and assessment, with the assessment being completed between five and twenty-two years after displacement (median=9 years). Most studies were conducted within the first 10 years of the resettlement in the study country (N=21; median=8.7 years).

Twelve studies were determined to be of higher quality (Bhui, et al., 2003; Caspi, Poole, Mollica, & Frankel, 1998; Chung & Kagawa-Singer, 1993; Gerritsen, et al., 2006; Hinton, et al., 1998; Jaranson, et al., 2004; Marshall, et al., 2005; Mollica, et al., 1998; Onyut, Neuner, Ert, Schauer, Odenwald, & Elbert, 2009; Sabin, et al., 2003; Steel, et al., 2002; Westermeyer, 1988) and the remaining 16 of lower methodological quality. Just over half of the studies applied probability sampling methods, although the sampling

frame from which the samples were drawn varied: three drew their sample randomly from national refugee census data (Caspi, et al., 1998; Chung & Kagawa-Singer; Gerritsen, et al., 2006), three used multi-cluster random selection (Marshall, et al., 2005; Mollica, et al., 1998; Steel, et al., 2002), three conducted a household survey in refugee camps (Kolassa, Ertl, Eckart, Onyut, Kolassa, & Elbert, 2010; Onyut, et al., 2009; Sabin, et al., 2003) with one study also employing a single-cluster random selection (Onyut, et al., 2009), two studies used a community panel database (Bhui, et al., 2003; Carlson & Rosser-Hogan, 1994), one used health screening records (Blair, 2000), one drew its sample from a telephone directory book (Hinton, et al., 1998), one included the entire refugee sample in a given geographical area (Westermeyer, 1988) and for one study the sampling frame was unclear (Craig, et al., 2008). Of these, only three studies reported response rates below 60% (Bhui, et al., 2003; Craig, et al., 2008; Gerritsen, et al., 2006) and two did not report response rate (Chung & Kagawa-Singer, 1993; Kolassa, et al., 2010). Other studies drew their sample using non-random sampling methods or a combination of random and non-random methods.

In five studies diagnoses were made using structured clinical interviews (Blair, 2000; Marshall, et al., 2005; Steel, et al., 2002; von Lersner, et al., 2008; Westermeyer, 1988), but in most studies diagnoses were based solely on self-report questionnaires, with the Hopkins Symptom Checklist-25 (HSCL-25) (Mollica, Wyshak, de Marneffe, Khuon, & Lavelle, 1987) being the most frequently used for the assessment of depression or unspecified anxiety and the Harvard Trauma Questionnaire (HTQ) (Mollica, Caspi-Yavin, Bollini, Truong, Tor, & Lavelle, 1992) for PTSD. Other anxiety disorders were assessed with a structured clinical interview, including the National Institute of Mental Health Diagnostic Interview Schedule (NIMH DIS) (Regier, et al., 1984), the CIDI (The

World Health Organization [WHO], 1997), and the Mini International Neuropsychiatric Interview (MINI) (Sheehan et al., 1998).

Although most of the instruments had been previously validated among various cultures, only nine studies used instruments that had been validated specifically in the refugee culture being observed (Birman & Tran, 2008; Caspi, et al., 1998; Carlson & Rosser-Hogan, 1994; D'Avanzo & Barab, 1998; Hinton, et al., 1998; Hollifield, et al., 2006; Mollica, et al., 1998; Nicholson, 1997; Steel, et al., 2002).

2.3.2. Data synthesis of prevalence rates of depression and anxiety disorders

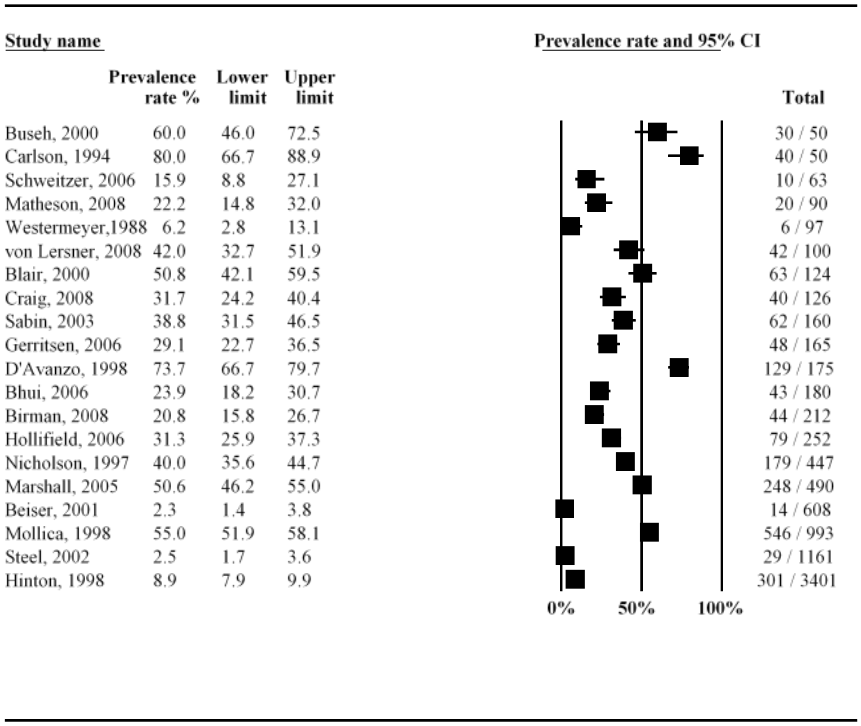
Of the 28 studies identified for the review, 26 reported on prevalence rates of depression and/or anxiety disorders and were, therefore, included in data synthesis of prevalence rates. Prevalence rates of mental disorders reported in individual studies varied widely. The overall heterogeneity between studies was very high for each disorder (I^2>90%). Therefore, it was decided that the data was not amenable to a meta-analysis. Instead, the following data syntheses and analyses focus on investigating sources of heterogeneity both quantitatively (subgroup analysis) and narratively.

Depression

Twenty studies (8944 refugees; median time since displacement 9.0 years) reported on prevalence of depression. A graphical summary of individual study prevalence rates is presented in Figure 2.2. As can be seen in the forest plot, there was substantial

heterogeneity in depression prevalence between studies ranging from a low 2.3% among Southeast Asian refugees in Canada (Beiser & Hou, 2001) to a high 80% among Cambodian refugees in the USA (Carlson & Rosser-Hogan, 1994), with 75% of the studies reporting prevalence higher than 20%. Accordingly, the overall statistical heterogeneity between studies was very high (Q=1582.9, d.f.=19, p<0.0001, I^2=98.8%).

Figure 2.2. Forest plot of prevalence rates (%, with 95% CI) of depression in long-settled war refugees in individual studies. For each study, only the name of the first author is shown.



Heterogeneity between studies remained high (I^2>90%) after stratifying for clinical and methodological characteristics of the studies. The subgroup analysis indicated that heterogeneity was partly explained by displacement duration (p=0.017), host region (p=0.009) and the language of the interviewer (p=0.047). Reported rates of depression also showed gradual decline with increasing time since resettlement in a study country, although the difference was only approaching statistical significance (p=0.095). Similarly, there were differences, although only approaching statistical significance, between studies with small and large sample sizes (p=0.097). Prevalence rates of

depression stratified by clinical and methodological characteristics are displayed with forest plots in Figure 2.3. to Figure 2.5.

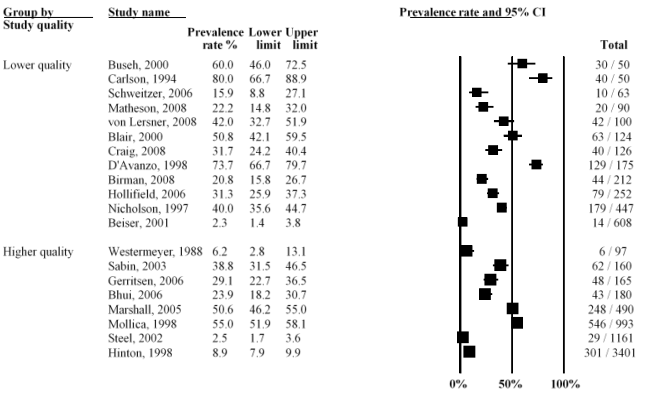
The following descriptive differences between subgroups were also observed, although they did not reach statistical significance. Whilst heterogeneity remained high in both subgroups, the group of higher methodological quality tended to report slightly lower rates of depression (2.5% to 55%; depression prevalence <25% in 50% of the studies) compared to the group of lower quality (range 2.3% to 80%; depression prevalence <25% in 33% of the studies) (Figure 2.3.). The majority of the higher quality studies were conducted in Western countries and those that were conducted in refugee camps in developing countries (Mollica, et al., 1998; Sabin, et al., 2003) tended to report the highest prevalence in this group (38.8% to 55%).

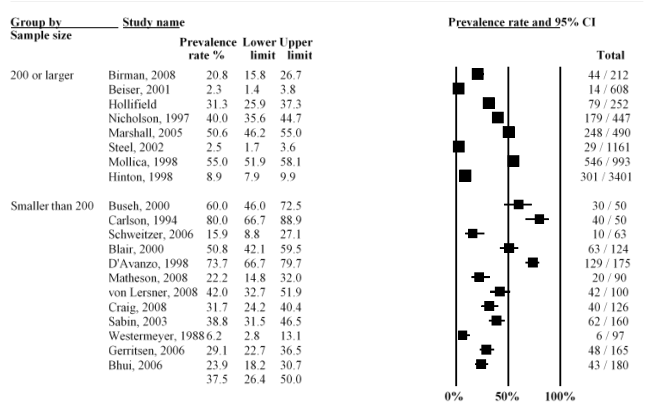
Heterogeneity was higher in studies with smaller sample sizes (range 6.2% to 80%; depression prevalence >40% in 58% of the studies) compared to those with larger sample sizes (2.3% to 55%; depression prevalence >40% in 25% of the studies) (Figure 2.3.). The smaller studies included studies that differed widely in the origin of the samples as well as the host region, and included studies that used non-native language interviewers. In fact, the studies with the highest prevalence were mostly conducted in non-native language (22.2% to 80%; depression prevalence >40% in 75% of the studies compared to 31% of studies conducted in native language) (Figure 2.4.). The larger studies, on the other hand, mainly included samples from Southeast Asia who had been displaced for longer periods in the North America or Australia. The largest prevalence in this group was observed in a study conducted in a refugee camp in a developing country (55%; Mollica, et al., 1998). With the exception of one outlier (50.6%; Marshall, et al., 2005),

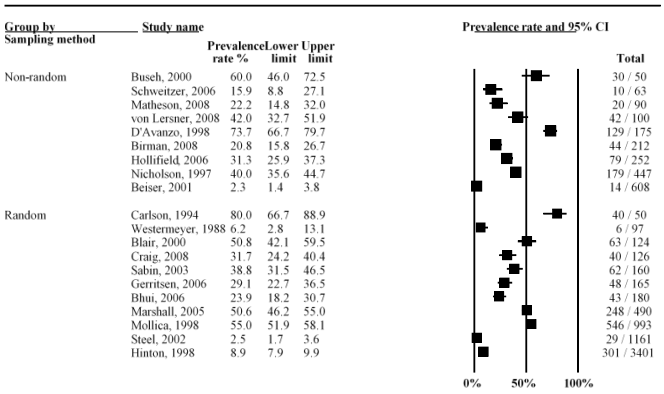
the remaining large studies that were conducted in Western countries tended to report lower prevalence of depression (range 2.3% to 40%).

There was very high heterogeneity in the prevalence of depression in studies conducted across different population origins (Figure 2.4.). With the exception of one study that assessed Liberian men (Buseh, et al., 2000), studies conducted with refugees originating from Middle East or Sub-Saharan Africa tended to report the lowest prevalence (16% to 29.1%). Refugees originating from former Yugoslavia tended to have somewhat higher rates of depression (31.7% to 42%). Southeast Asian refugees as a group showed a very high variability in the prevalence of depression (2.3% to 80%). However, there were some notable differences in the prevalence depending on the exact country of conflict that the refugees originated from. The highest rates tended to be for Cambodian refugees (50.6% to 80%) and substantially lower for those originating from Vietnam or Lao (2.3% to 20.8%). This would suggest that, overall, refugees from Vietnam or Lao had the lowest rates and those from Cambodia the highest rates of depression.

Figure 2.3. Prevalence rates (%, with 95% CI) of depression in long-settled war refugees stratified by study characteristics: study quality, sample size, sampling and diagnostic method







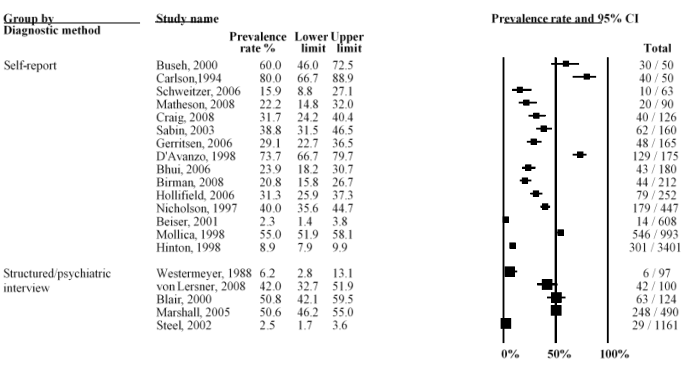
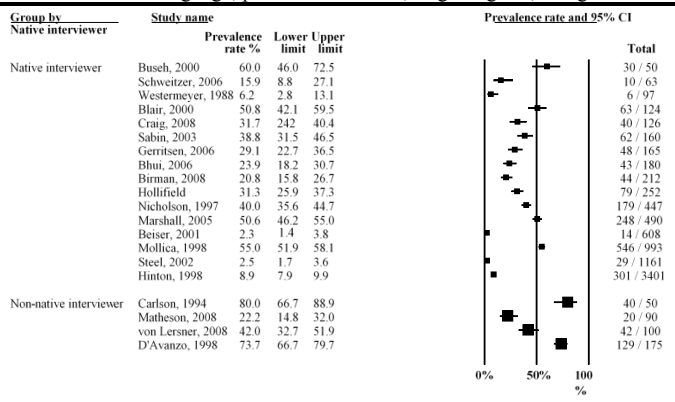
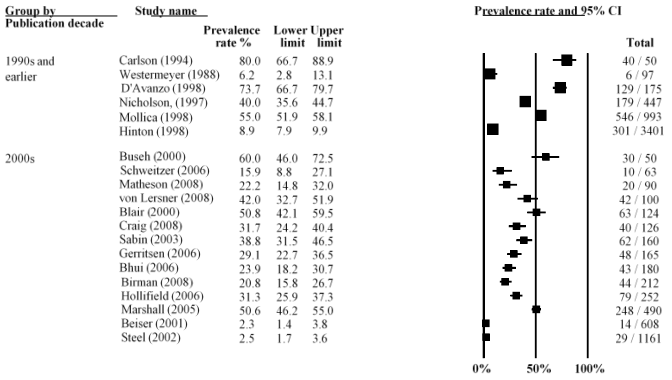
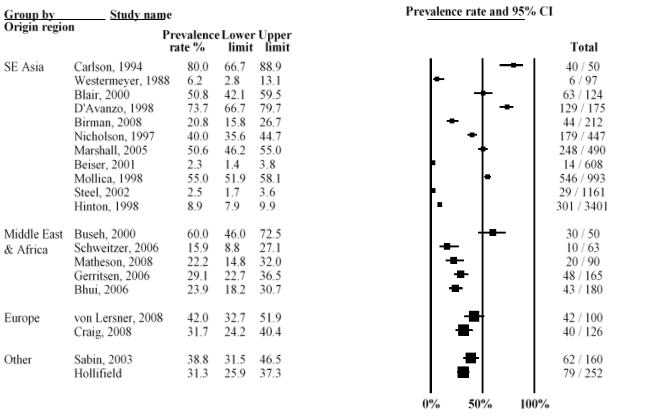
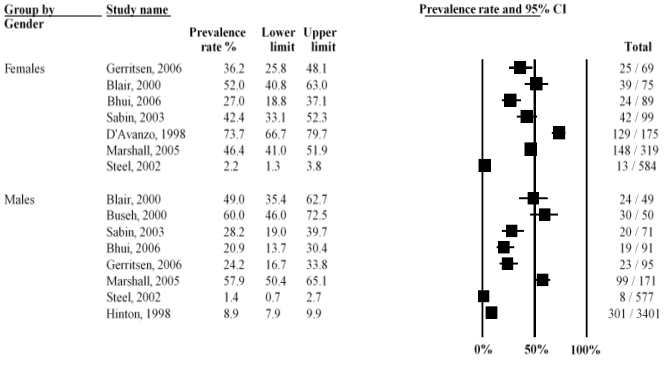


Figure 2.4. Prevalence rates (%, with 95% CI) of depression in long-settled war refugees stratified by study and refugee characteristics: interview language, publication decade, origin region[a], and gender









[a] 'Europe' includes former Yugoslavia. 'Middle East & Africa' includes Liberia, Somalia, and Sudan. 'Southeast Asia' includes Cambodia, Laos, and Vietnam. 'Other' includes Guatemala and mixed country of origin samples.

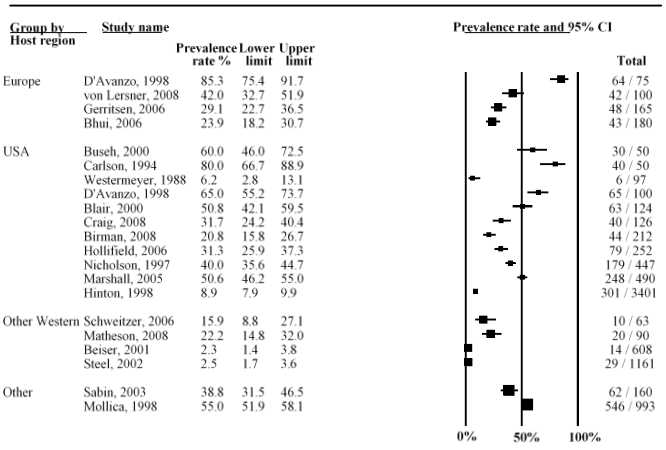
In terms of the host region, studies conducted in Australia and Canada tended to report the lowest prevalence of depression (Australia, 2.5% to 15.9%; Canada, 2.3% to 22.2%) (Figure 2.5.). Studies conducted with refugees in Europe tended to report somewhat higher prevalence rates, depression was present in about a third of the sample (23.9% to 42%). This excludes the study by D'Avanzo & Barab (1998), which is an outlier with a prevalence rate of 85.3%. This is also the only study that included only women in their sample. Again, the two studies with the highest prevalence rates were also of a lower methodological quality and both used an interpreter at the interview (D'Avanzo & Barab, 1998; von Lersner, et., 2008).

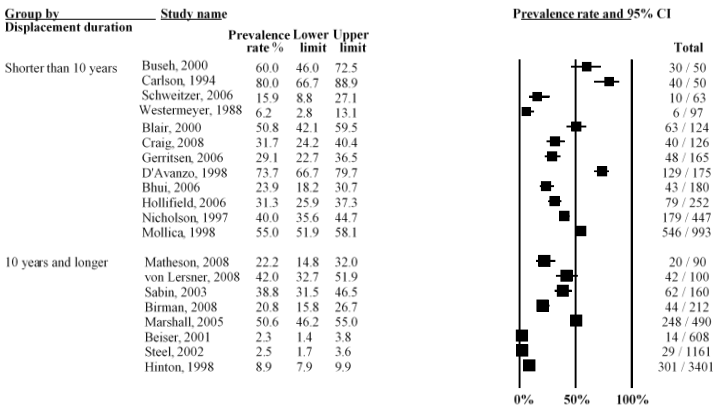
Studies conducted in the USA indicated generally the highest rates of depression in refugees; however, there was very high variability in the rates reported (6.2% to 80%). This group included mostly studies of lower methodological quality. Contrary to the finding of the trend for the highest rates in the USA, the study by D'Avanzo & Barab (1998) indicated that Cambodian refugee women residing in France were significantly more likely to show symptoms indicative of depression than Cambodian refugee women residing in the USA (85.3% vs. 65%, respectively). The authors suggested social factors of the new environment as an explanation, rather than differences in pre-migration experiences. However, none of the potential confounders (age, education, traumatic history, employment) were adjusted for in the analysis. Studies conducted in refugee camps reported rates from 38.8% to 55%.

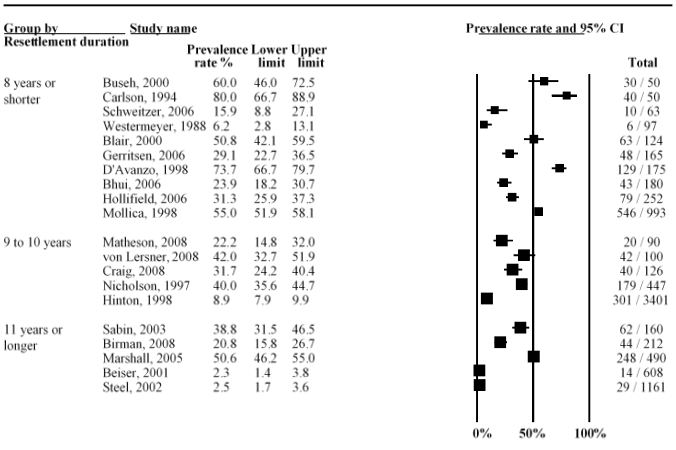
Only two studies included in the review assessed the prevalence of depression longitudinally (Beiser & Hou, 2001; Westermeyer, 1988). Both studies followed Southeast Asian refugees during their 10-year resettlement period in North America and

found that depression level scores improved substantially during this period. Although initial levels of depression were low (6.5%), Besier and Hou (2001) recorded further reduction in depressive symptoms over time with the rates falling to below that of the host population by the end of the 10-year period (2.3%). Data from the cross-sectional studies that were taken at different time points in the refugee displacement also suggest that longer-displaced refugees (10 years or longer in resettlement) tended to report lower rates of depression (2.3% to 50.6%; in 70% of the studies prevalence below 25%) compared to those with shorter displacement duration (6.2% to 80%; 23% of the studies below 25%) (Figure 2.5.).

Forest plot 2.5. Prevalence rates (%, with 95% CI) of depression in long-settled war refugees stratified by refugee characteristics: host region[a], displacement and resettlement duration







[a]'Europe' includes France, Germany, Italy, Netherlands, and United Kingdom. 'Other Western' includes Canada and Australia. 'Other' includes refugee camps in Mexico and on Thailand-Cambodia border.

Anxiety disorders

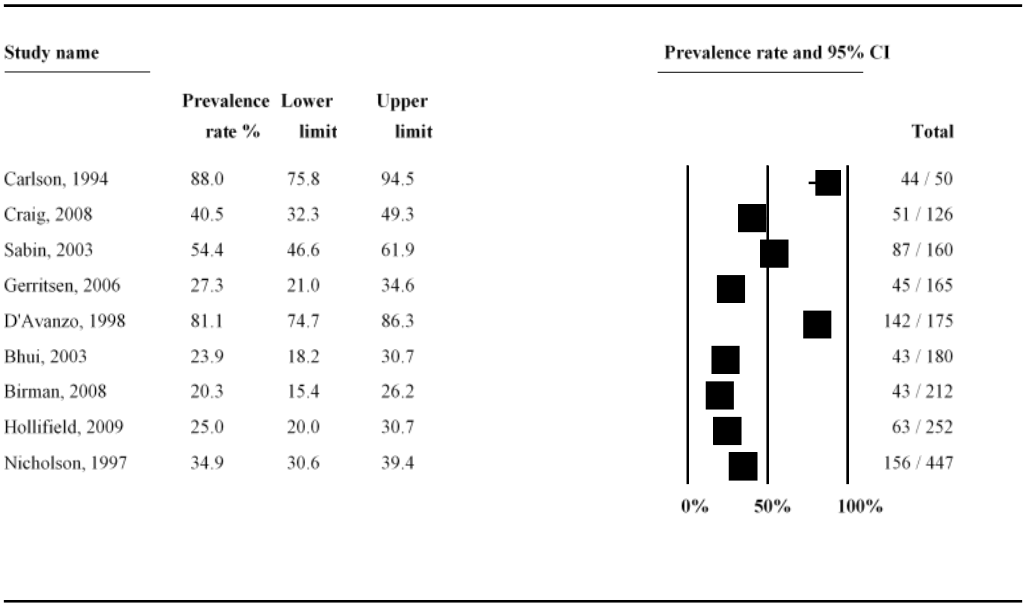
Prevalence rates of anxiety disorders were reported in 23 studies (8547 refugees; median time since displacement 9.0 years). Of these, nine studies used a screening questionnaire (of which eight used the HSCL-25 anxiety subscale) that did not specify the type of anxiety disorder (Bhui, et al., 2003; Birman & Tran, 2008; Carlson & Rosser-Hogan, 1994; Craig, et al., 2008; D'Avanzo & Barab, 1998; Gerritsen, et al., 2006; Hollifield, et al., 2006; Nicholson, 1997; Sabin, et al., 2003). Of those that assessed a specific anxiety disorder, 19 studies reported on prevalence of PTSD, four reported on Generalized Anxiety Disorder (GAD) (Blair, 2000; Steel, et al., 2002; von Lersner, et al., 2008; Westermeyer, 1988), three each on Panic Disorder (Blair, 2000; Steel, et al., 2002; von et al., 2008), Social Phobia (Blair, 2000; Steel, et al., 2002; von Lersner, et al., 2008), and Obsessive-Compulsive Disorder (OCD) (Steel, et al., 2002; von Lersner, et al., 2008; Westermeyer, 1988), and one reported on prevalence of Agoraphobia (von Lersner, et al., 2008). The findings of the studies are reported separately for each group of disorders i.e. unspecified anxiety, PTSD, GAD, Panic Disorder, Social Phobia, OCD, and Agoraphobia.

Unspecified anxiety

A graphical summary of the study prevalence rates for unspecified anxiety is presented in Figure 2.6. There was substantial heterogeneity in anxiety prevalence between studies ranging from a low 20.3% (Birman & Tran, 2008) to a high 88% (Carlson & Rosser-Hogan, 1994) among Southeast Asian refugees in the USA. Accordingly, the

overall statistical heterogeneity between studies was very high (Q=219.8, d.f.=8, p<0.0001, I^2=96.4%).

Figure 2.6. Forest plot of prevalence rates (%, with 95% CI) of unspecified anxiety in long-settled war refugees in individual studies

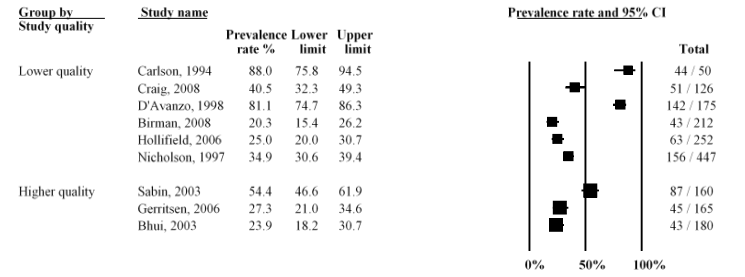


Heterogeneity in the prevalence of unspecified anxiety remained very high (I^2>88%) even after the studies were stratified by clinical and methodological characteristics. Prevalence rates stratified by study and sample characteristics are shown in Figure 2.7. to Figure 2.9.

Subgroup analysis indicated that the between-study heterogeneity was partly explained by differences between studies with small and large sample sizes (p=0.02) and studies in which interviews were done by native and non-native speakers (p<0.001), although the latter finding is limited as only two studies used non-native speaking interviewers. There was also a marginally significant statistical difference between studies that were published before 2000 and those published after (p=0.06).

The following descriptive differences between subgroups were also observed, although they did not reach statistical significance. Heterogeneity in prevalence was somewhat lower in studies of higher methodological quality (range 23.9% to 54.4%) compared to the studies of lower quality (20.3% to 88%) (Figure 2.7.). Two of the higher quality studies were conducted in Europe with refugees coming from the Middle East or Sub-Saharan Africa and both reported similar rates (23.9% and 27.3%), whereas the third one was conducted with Guatemalan refugees in a refugee camp in Mexico and reported substantially higher rates (54.4%). Studies of lower methodological quality included refugees of various origin and host region. In this group, the highest prevalence rates were reported in studies conducted with Cambodian refugees (81.1% to 88%) and the lowest in Vietnamese refugees (20.3%). Smaller studies and those conducted in a non-native language reported the highest rates of unspecified anxiety (Figure 2.7.).

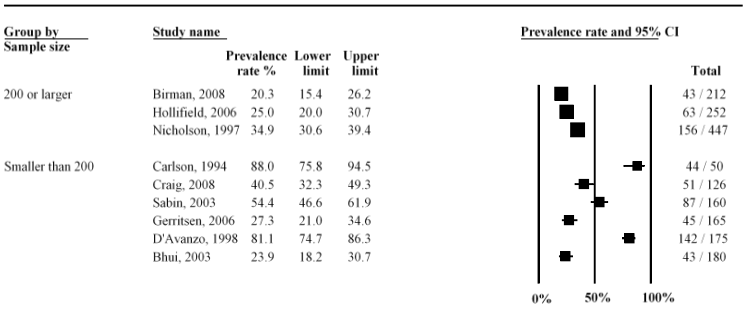
Figure 2.7. Prevalence rates (%, with 95% CI) of unspecified anxiety in long-settled war refugees stratified by study characteristics: study quality, sample size, sampling method, and interview language



Group by Study quality	Study name	Prevalence rate %	Lower limit	Upper limit	Total
Lower quality	Carlson, 1994	88.0	75.8	94.5	44 / 50
	Craig, 2008	40.5	32.3	49.3	51 / 126
	D'Avanzo, 1998	81.1	74.7	86.3	142 / 175
	Birman, 2008	20.3	15.4	26.2	43 / 212
	Hollifield, 2006	25.0	20.0	30.7	63 / 252
	Nicholson, 1997	34.9	30.6	39.4	156 / 447
Higher quality	Sabin, 2003	54.4	46.6	61.9	87 / 160
	Gerritsen, 2006	27.3	21.0	34.6	45 / 165
	Bhui, 2003	23.9	18.2	30.7	43 / 180

Prevalence rate and 95% CI

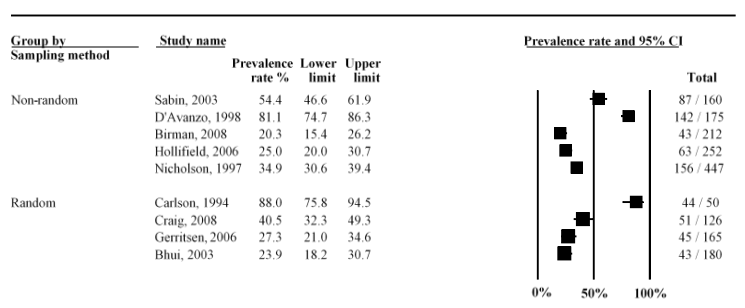
0% 50% 100%



Group by Sample size	Study name	Prevalence rate %	Lower limit	Upper limit	Total
200 or larger	Birman, 2008	20.3	15.4	26.2	43 / 212
	Hollifield, 2006	25.0	20.0	30.7	63 / 252
	Nicholson, 1997	34.9	30.6	39.4	156 / 447
Smaller than 200	Carlson, 1994	88.0	75.8	94.5	44 / 50
	Craig, 2008	40.5	32.3	49.3	51 / 126
	Sabin, 2003	54.4	46.6	61.9	87 / 160
	Gerritsen, 2006	27.3	21.0	34.6	45 / 165
	D'Avanzo, 1998	81.1	74.7	86.3	142 / 175
	Bhui, 2003	23.9	18.2	30.7	43 / 180

Prevalence rate and 95% CI

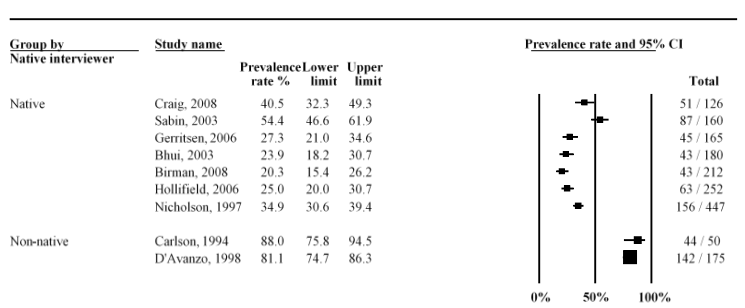
0% 50% 100%



Group by Sampling method	Study name	Prevalence rate %	Lower limit	Upper limit	Total
Non-random	Sabin, 2003	54.4	46.6	61.9	87 / 160
	D'Avanzo, 1998	81.1	74.7	86.3	142 / 175
	Birman, 2008	20.3	15.4	26.2	43 / 212
	Hollifield, 2006	25.0	20.0	30.7	63 / 252
	Nicholson, 1997	34.9	30.6	39.4	156 / 447
Random	Carlson, 1994	88.0	75.8	94.5	44 / 50
	Craig, 2008	40.5	32.3	49.3	51 / 126
	Gerritsen, 2006	27.3	21.0	34.6	45 / 165
	Bhui, 2003	23.9	18.2	30.7	43 / 180

Prevalence rate and 95% CI

0% 50% 100%



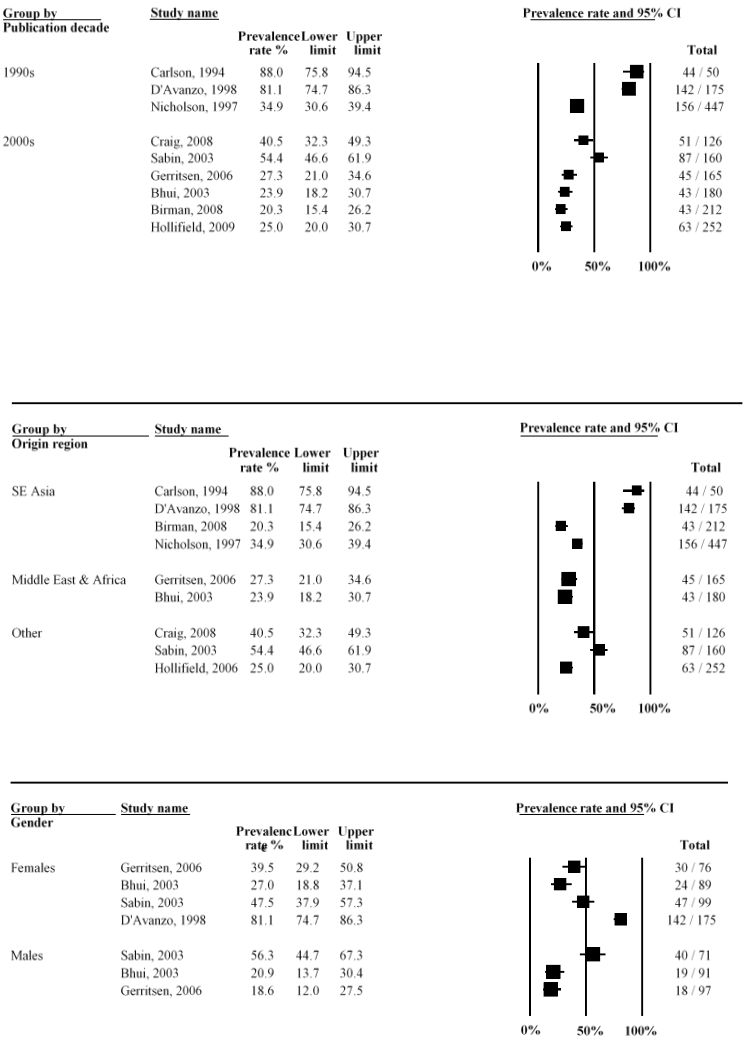
Group by Native interviewer	Study name	Prevalence rate %	Lower limit	Upper limit	Total
Native	Craig, 2008	40.5	32.3	49.3	51 / 126
	Sabin, 2003	54.4	46.6	61.9	87 / 160
	Gerritsen, 2006	27.3	21.0	34.6	45 / 165
	Bhui, 2003	23.9	18.2	30.7	43 / 180
	Birman, 2008	20.3	15.4	26.2	43 / 212
	Hollifield, 2006	25.0	20.0	30.7	63 / 252
	Nicholson, 1997	34.9	30.6	39.4	156 / 447
Non-native	Carlson, 1994	88.0	75.8	94.5	44 / 50
	D'Avanzo, 1998	81.1	74.7	86.3	142 / 175

Prevalence rate and 95% CI

0% 50% 100%

There was some evidence for lower rates of unspecified anxiety to be reported for males (18.6% to 56.3%) compared to females (27% to 81.1%) (Figure 2.8.). With the exception of the study by Sabin et al. (2003), the studies that reported on prevalence in males and females separately reported higher rates of unspecified anxiety in females.

Figure 2.8. Prevalence rates (%, with 95% CI) of unspecified anxiety in long-settled war refugees stratified by study and refugee characteristics: publication decade, origin region[a] and gender

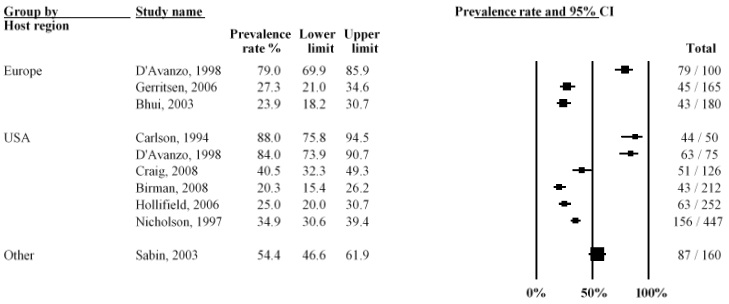


[a] 'Southeast Asia' includes Cambodia, Laos, Sri Lanka, and Vietnam. 'Middle East & Africa' includes Afghanistan, Iran, Somalia, and Sudan. 'Other' includes Guatemala, Bosnia, and mixed country of origin samples.

In terms of the host country, the highest rates were reported in studies conducted in the USA; however the heterogeneity between these studies was substantial (20.3% to 88%)

(Figure 2.9.). These studies were also all rated as of lower methodological quality. With the exception of a study of Cambodian females (D'Avanzo & Barab, 1998), studies conducted in Europe tended to report the lowest rates (23.9% to 27.3%).

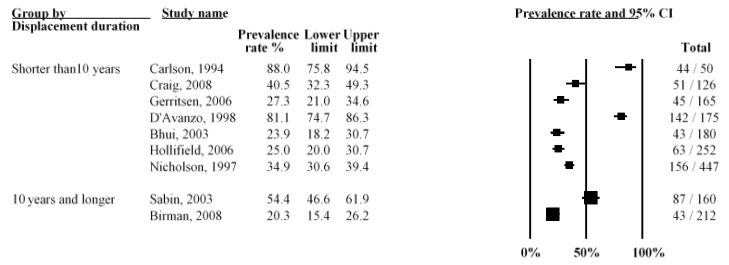
Figure 2.9. Prevalence rates (%, with 95% CI) of unspecified anxiety in long-settled war refugees stratified by refugee characteristics: host region[a], displacement and resettlement duration



Group by Host region	Study name	Prevalence rate %	Lower limit	Upper limit	Total
Europe	D'Avanzo, 1998	79.0	69.9	85.9	79 / 100
	Gerritsen, 2006	27.3	21.0	34.6	45 / 165
	Bhui, 2003	23.9	18.2	30.7	43 / 180
USA	Carlson, 1994	88.0	75.8	94.5	44 / 50
	D'Avanzo, 1998	84.0	73.9	90.7	63 / 75
	Craig, 2008	40.5	32.3	49.3	51 / 126
	Birman, 2008	20.3	15.4	26.2	43 / 212
	Hollifield, 2006	25.0	20.0	30.7	63 / 252
	Nicholson, 1997	34.9	30.6	39.4	156 / 447
Other	Sabin, 2003	54.4	46.6	61.9	87 / 160

Prevalence rate and 95% CI

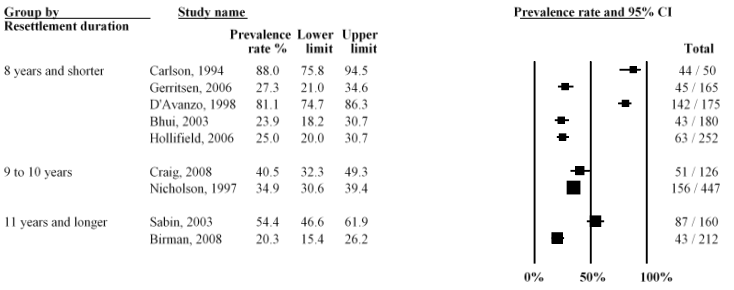
0% 50% 100%



Group by Displacement duration	Study name	Prevalence rate %	Lower limit	Upper limit	Total
Shorter than10 years	Carlson, 1994	88.0	75.8	94.5	44 / 50
	Craig, 2008	40.5	32.3	49.3	51 / 126
	Gerritsen, 2006	27.3	21.0	34.6	45 / 165
	D'Avanzo, 1998	81.1	74.7	86.3	142 / 175
	Bhui, 2003	23.9	18.2	30.7	43 / 180
	Hollifield, 2006	25.0	20.0	30.7	63 / 252
	Nicholson, 1997	34.9	30.6	39.4	156 / 447
10 years and longer	Sabin, 2003	54.4	46.6	61.9	87 / 160
	Birman, 2008	20.3	15.4	26.2	43 / 212

Prevalence rate and 95% CI

0% 50% 100%



Group by Resettlement duration	Study name	Prevalence rate %	Lower limit	Upper limit	Total
8 years and shorter	Carlson, 1994	88.0	75.8	94.5	44 / 50
	Gerritsen, 2006	27.3	21.0	34.6	45 / 165
	D'Avanzo, 1998	81.1	74.7	86.3	142 / 175
	Bhui, 2003	23.9	18.2	30.7	43 / 180
	Hollifield, 2006	25.0	20.0	30.7	63 / 252
9 to 10 years	Craig, 2008	40.5	32.3	49.3	51 / 126
	Nicholson, 1997	34.9	30.6	39.4	156 / 447
11 years and longer	Sabin, 2003	54.4	46.6	61.9	87 / 160
	Birman, 2008	20.3	15.4	26.2	43 / 212

Prevalence rate and 95% CI

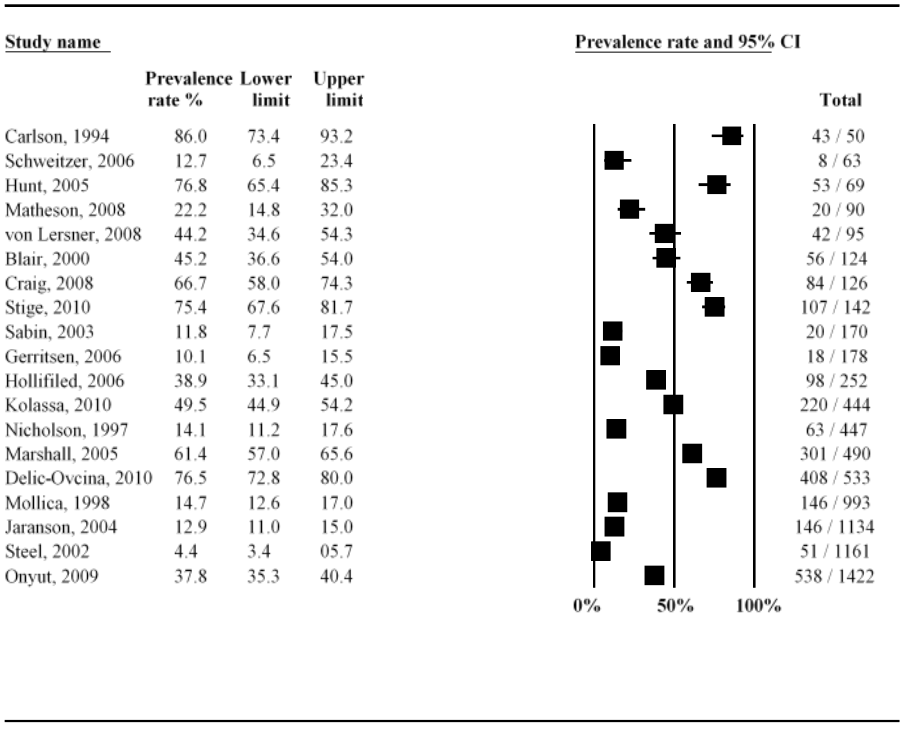
0% 50% 100%

[a] 'Europe' includes France, The Netherlands, and United Kingdom. 'Other' includes Mexico.

Posttraumatic Stress Disorder (PTSD)

Nineteen studies (7983 refugees; median time since displacement 9.0 years) reported on PTSD prevalence. A graphical summary of study prevalence rates is presented in Figure 2.10. There was substantial heterogeneity in prevalence rates of PTSD across studies, with prevalence ranging from 4.4% (Steel, et al., 2002) to 86% (Carlson & Rosser-Hogan, 1994). Over two thirds of studies reported PTSD prevalence higher than 20%. The overall statistical heterogeneity between studies was very high (Q=1545.4, d.f.=18, p<0.0001, I^2=98.8%).

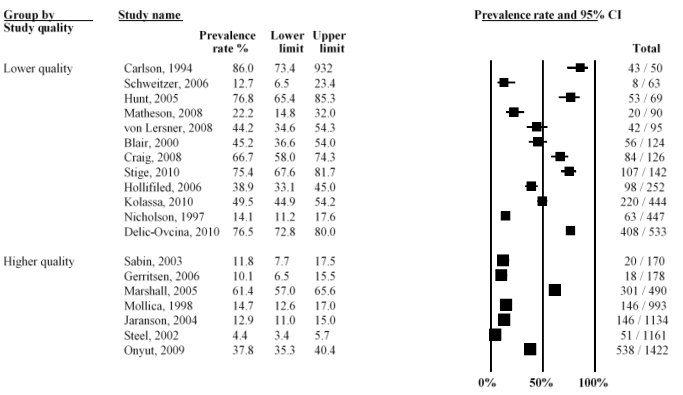
Figure 2.10. Forest plot of prevalence rates (%, with 95% CI) of PTSD in long-settled war refugees in individual studies. For each study, only the name of the first author is shown.

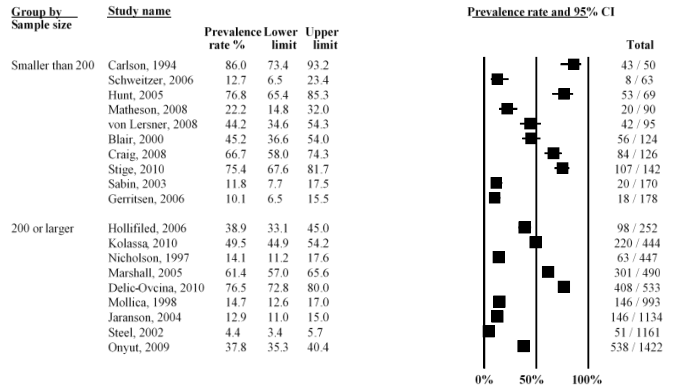


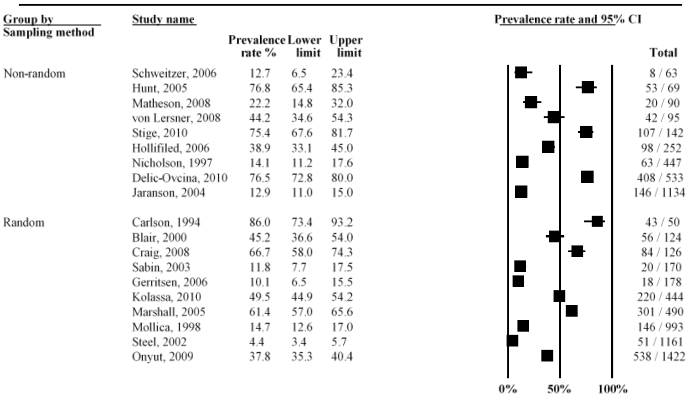
Subgroup analysis indicated that this heterogeneity was partly due to the differences between studies of higher and lower quality (p=0.003) and between studies conducted in the USA, Europe, other Western regions and those done elsewhere (p=0.046). There was a marginally significant statistical difference between studies depending on whether interviews were conducted by native speaker or not (p=0.071) and between studies with samples originating from Europe (former Yugoslavia), SE Asia, Middle East and Africa and other regions (p=0.058). The heterogeneity remained very high even after the studies were stratified by methodological and clinical characteristics (I^2>90%). PTSD prevalence rates stratified by study and sample characteristics are displayed with forest plots in Figure 2.11. to Figure 2.13.

As noted above, prevalence of PTSD was the highest (12.7% to 86%) in studies of lower methodological quality, with more than two thirds reporting rates higher than 40% (Figure 2.11.). Five studies with the highest rates of PTSD (66.7% to 86%) were all of lower methodological quality. Lower quality studies that used postal questionnaires (Hunt & Gakenyi, 2005; Stige & Sveaas, 2010) or non-native interviewer (Carlson & Rosser-Hogan, 1994; Stige & Sveaas, 2010) tended to report the highest PTSD rates. Studies of higher quality tended to report lower and less variable rates (4.4% to 61.4%). For example, the three studies with the lowest rates of PTSD (4.4% to 11.8%) were all of a higher quality. With the exception of Marshall et al. (2005), reported rates were below 40% and over two thirds reported rates below 15%.

Figure 2.11. Prevalence rates (%, with 95% CI) of PTSD in long-settled war refugees stratified by study characteristics: study quality, sample size, sampling and diagnostic method







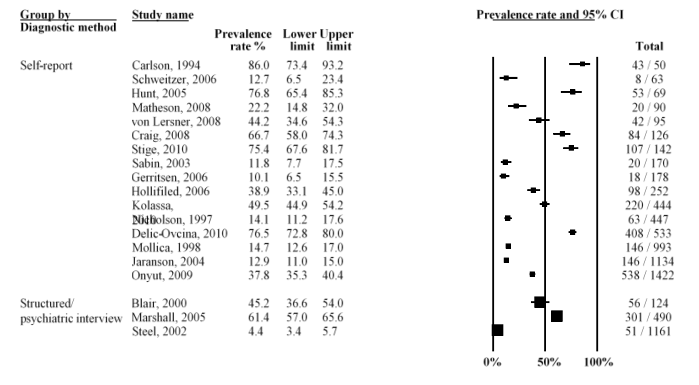
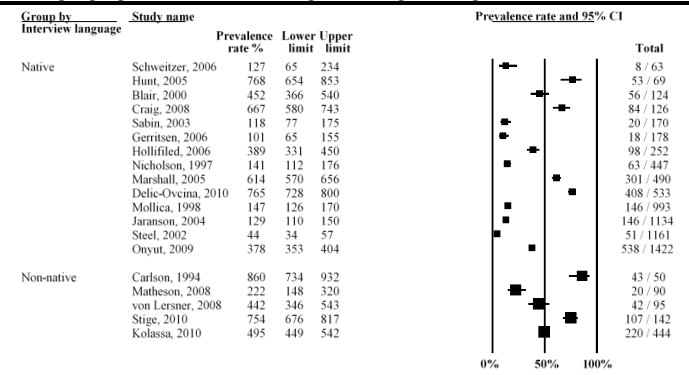
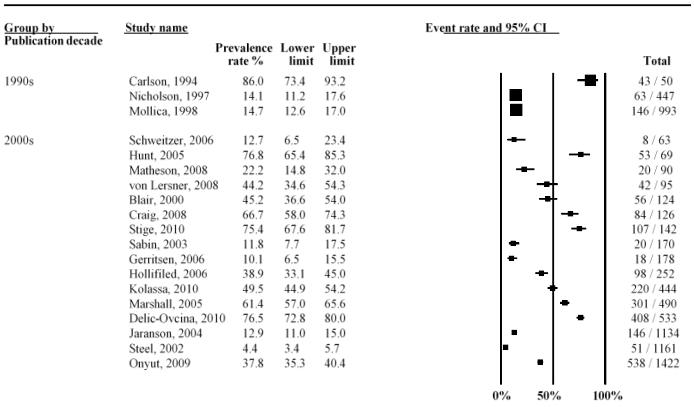
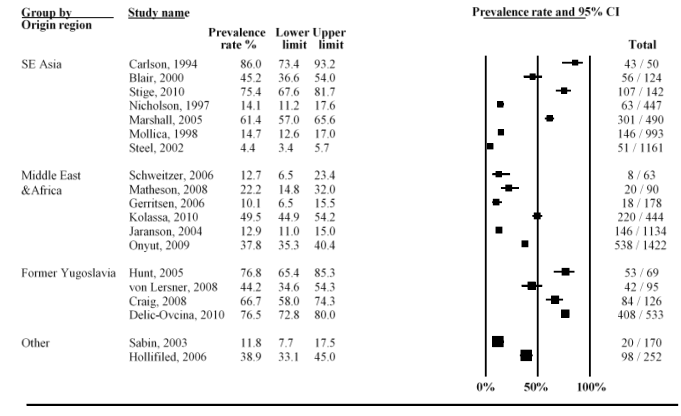
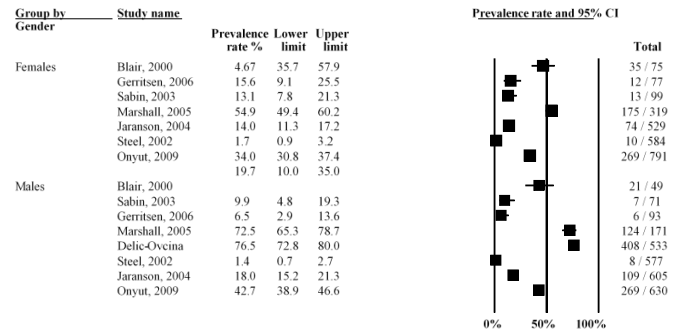


Figure 2.12. Prevalence rates (%, with 95% CI) of PTSD in long-settled war refugees stratified by study and refugee characteristics: interview language, publication decade, region of origin, and gender





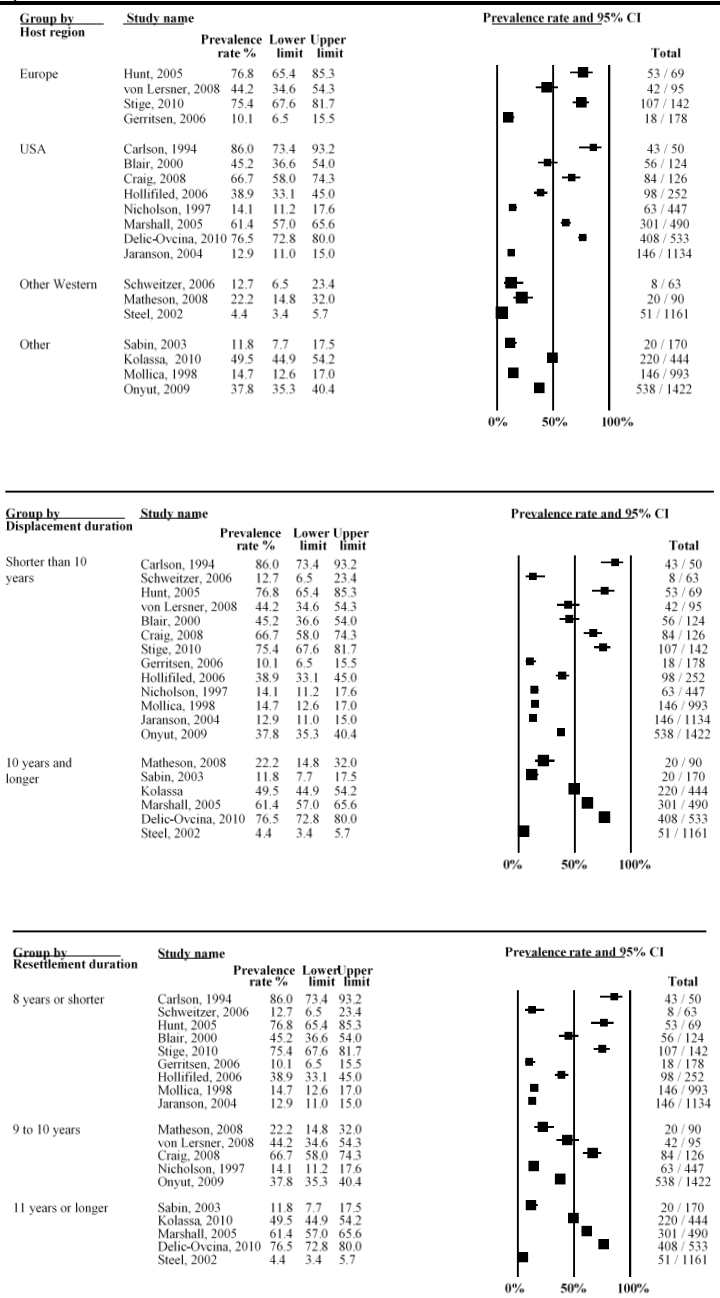




[a] 'Europe' includes former Yugoslavia. 'Middle East & Africa' includes Afghanistan, Ethiopia, Iran, Rwanda, and Somalia. 'Southeast Asia' includes Cambodia, Indonesia, Laos, Sri Lanka, and Vietnam. 'Other' includes Guatemala and mixed country of origin samples.

In terms of rates of PTSD by region of origin, there was a high variation (Figure 2.12.). The lowest rates tended to be reported for refugees originating from Sub-Saharan Africa (12.7% to 49.5%), whilst the highest were reported for refugees from Europe (mainly from former Yugoslavia) (44.2% to 76.8%) and for Southeast Asian refugees (14.1% to 86%), particularly for refugees from Cambodia resettled in the USA (45.2% to 86%).

Figure 2.13. Prevalence rates (%, with 95% CI) of PTSD in long-settled war refugees stratified by refugee characteristics: host region, displacement and resettlement duration



[a] 'Europe' includes Germany, The Netherlands, Norway, and United Kingdom. 'Other Western' includes Australia and Canada. 'Other' includes refugee camps in Mexico, Uganda and on Thailand-Cambodia border.

Studies conducted in Australia tended to report the lowest rates of PTSD (4.4% to 12.7%), followed by a study from Canada (22.2%), and the studies conducted in refugee camps (11.8% to 49.5%) (Figure 2.13.). Compared to studies conducted in refugee camps in Mexico (11.8%) and Thailand (14.7%), studies conducted in refugee camps in Sub-Saharan Africa (Uganda) reported higher rates of PTSD (37.8% to 49.5%). Prevalence of PTSD reported in studies conducted in the USA were highly variable (12.9% to 86%), although majority (63%) of the studies reported rates above 40% and these high rate studies included refugees from former Yugoslavia and Cambodia.

Other anxiety disorders

Four studies reported on GAD (Blair, 2000; Steel, et al., 2002; von Lersner, et al., 2008; Westermeyer, 1988), with rates ranging from 0.7% to 13.7% (Q=54.4, d.f.=3, p<0.0001, I^2=94.5%). Rates of Panic Disorder ranged from 0.6% to 8% (Q=32.8, d.f.=2, p<0.0001, I^2=93.9%) (Blair, 2000; Steel, et al., 2002; von Lersner, et al., 2008), Social Phobia from 0.3% to 27% (Q=100.152, d.f.=2, ;<0.0001, I^2=98.0%) (Blair, 2000; Steel, et al., 2002; von Lersner, et al., 2008), OCD from 0% to 0.5% (Q=10.8, d.f.=2, p=0.005, I^2=81.5%) (Steel, et al., 2002; von Lersner, et al., 2008; Westermeyer, 1988). Agoraphobia rate was reported in a single study, 9% (von Lersner, et al., 2008). Overall, the lowest rates for these disorders tended to be reported by a higher quality study conducted with Vietnamese refugees in Australia (Steel, et al., 2002) and the highest by a lower quality study of Cambodian refugees in the USA (Blair, 2000). A subgroup analysis was not performed for the remaining anxiety disorders because of the small number of the studies.

Comorbidity of mental disorders

Two studies provided some data on comorbidity of mental disorders. These studies found that 71.0% of those diagnosed with PTSD also had a diagnosis of depression (Blair, 2000; Marshall, et al., 2005) and 32.5% of those who had PTSD also had social phobia (Blair, 2000).

Publication bias

Based on the Begg-Mazumdar rank correlation test and Egger's linear regression method, there was no evidence of publication bias for depression (Begg-Mazumdar p=0.142, Egger's p=0.490) or PTSD (Begg-Mazumdar p=0.50, Egger's p=0.491). The results for unspecified anxiety disorder studies were less clear as Begg-Mazumdar rank correlation test was marginally statistically significant, whereas Egger's linear regression test was statistically non-significant (Begg-Mazumdar p=0.06, Egger's p=0.133).

2.3.3. Factors associated with mental disorders - a narrative review

Twenty-four studies reported on risk factors for depression, PTSD, and/or unspecified anxiety disorder, using univariate analysis (Blair, 2000; Carlson & Rosser-Hogan, 1994; Craig, et al., 2008; D'Avanzo & Barab, 1998; Delic-Ovcina, 2011; Onyut, et al., 2009; Steel, Silove, et al., 2002), multivariate analysis (Caspi, et al., 1998; Gerritsen, et al., 2006; Kolassa, et al., 2010; Mollica, et al., 1998; Nicholson, 1997; Buseh, McElmurry, & Fox, 2000), or both (Beiser & Hou, 2001; Bhui, et al., 2003; Birman & Tran, 2008; Chung & Kagawa-Singer, 1993; Hinton, et al., 1998; Hollifield, et al., 2006; Jaranson,

et al., 2004; Marshall, et al., 2005; Matheson, et al., 2008; Sabin et al., 2003; Schweitzer, et al., 2006). Eleven risk factors were studied by either univariate or multivariate analysis in at least three studies for one of the three outcomes. These factors can be classified into three major categories: demographics, war-related and post-migration factors. The findings are presented in Table 2.3.

In summary, the majority of studies reported no association between demographic factors (age, gender, and education) and mental disorders. There was some evidence suggesting females to be at a greater risk of having unspecified anxiety disorder (5 out of 7 studies, 71%; Birman & Tran, 2008; Chung & Kagawa-Singer, 1993; Gerritsen, et al., 2006; Nicholson, 1997; Schweitzer, et al., 2006), but not PTSD. The few studies that did report a significant association in univariate analyses between age and education and mental disorders (in particular, depression and PTSD), all indicate older age (Craig, et al., 2008; Delic-Ovcina, 2011; Hinton, et al., 1998; Marshall, et al., 2005; Sabin, et al., 2003) and lower education (Craig, et al., 2008; Delic-Ovcina, 2011; Hinton, et al., 1998) to be risk factors for mental disorders. However, these associations mostly disappeared once other potential confounders were adjusted for in multivariate analyses.

With respect to war-related factors, a higher number of traumatic experiences was the most common factor consistently found to be positively associated with mental disorders (≥73% of the studies; Bhui, et al., 2003; Birman & Tran, 2008; Blair, 2000; Carlson & Rosser-Hogan, 1994; Chung & Kagawa-Singer, 1993; Gerritsen, et al., 2006; Hollifield, et al., 2006; Jaranson, et al., 2004; Kolassa, et al., 2010; Marshall, et al., 2005; Matheson, et al., 2008; Mollica, et al., 1998; Nicholson, 1997; Sabin, et al., 2003; Onyut, et al., 2009; Schweitzer, et al., 2006).

Among the post-migration factors, higher number of post-migration stressors or higher level of distress experienced due to these stressors were positively associated with mental disorders (67%-100% of studies; Blair, 2000; Buseh, et al., 2000; Gerritsen, et al., 2006; Nicholson, 1997; Schweitzer, et al., 2006). When considered together, poor socio-economic factors after migration (unemployment, low income, poor host language proficiency, and lack of social support) were positively associated with depression (67%-100% of studies; Beiser & Hou, 2001; Birman & Tran, 2008; Blair, 2000; Chung & Kagawa-Singer, 1993; Gerritsen, et al., 2006; Hinton, et al., 1998; Marshall, et al., 2005; Nicholson, 1997; Schweitzer, Melville, et al., 2006). A positive association was also found between unemployment and unspecified anxiety disorder (67% of studies; Bhui, et al., 2003; Chung & Kagawa-Singer, 1993; Schweitzer, et al., 2006). The relationship between the remaining socio-economic factors and PTSD and unspecified anxiety disorder was assessed in fewer than three studies, rendering synthesis of results difficult. Nevertheless, these incidental findings suggest also a positive univariate association between these factors and PTSD and unspecified anxiety disorder (Bhui, et al., 2003; Birman & Tran, 2008; Delic-Ovcina, 2010; Gerritsen, et al., 2006; Marshall, et al., 2005), but these associations mostly disappeared once other potential confounders were adjusted for in multivariate analyses, rendering the relationships either as with no association or indeterminate.

Findings on the association between duration in exile and mental disorders suggest no association between the two, with only two studies reporting association between longer duration in exile and depression and unspecified anxiety (Chung & Kagawa-Singer, 1993; Schweitzer, et al., 2006). Overall, studies reported no association between marital

status and PTSD and unspecified anxiety, whilst the relationship with depression was positive (2 out of 3 studies, 67%; Nicholson, 1997; Sabin, et al., 2003).

Table 2.3. Summary of risk factors for depression, PTSD, or unspecified anxiety from univariate and multivariate analysis of studies included in the review [ab]

	Depression		PTSD		Unspecified anxiety	
Factor	univariate	multivariate	univariate	multivariate	univariate	multivariate
Demographics						
older age	+ (3/10; 30%)	+ (1/8; 13%)	+ (4/7; 57%)	+ (1/5; 20%)	+ (2/5; 40%)	+ (1/5; 20%)
female gender	+ (2/8; 25%)	+ (4/8; 50%)	+ (1/5; 20%)/ – (1/5; 20%)	+ (2/5; 40%)/ – (1/5; 20%)	+ (2/7; 29%)	+ (5/7; 71%)
lower education	+ (2/4; 50%)	+ (0/7; 0%)	+ (2/3; 67%)	+ (0/3; 0%)	0 (0/1; 0%)	0 (0/3; 0%)
War context						
number of war traumatic events	+ (6/8; 75%)	+ (8/11; 73%)	+ (8/9; 89%)	+ (8/8; 100%)	+ (5/5; 100%)	+ (8/9; 89%)
Post–migration context						
longer duration in exile	– (2/9; 22%)	+ (2/6; 33%)	0 (0/6; 0%)	0 (0/3; 0%)	– (1/3; 33%)	+ (2/3; 67%)
post-migration stress	+ (2/3; 67%)	+ (2/3; 67%)	+ (2/2; 100%)	+ (2/3; 67%)	+ (1/1; 100%)	+ (3/3; 100%)
unemployment	+ (4/5; 80%)	+ (4/5; 80%)	+ (1/3; 33%)	0 (0/2; 0%)	+ (1/2; 50%)	+ (2/3; 67%)
low income	+ (3/4; 75%)	+ (3/4; 75%)	NA	NA	NA	NA
poor host language proficiency	+ (2/3; 67%)	+ (3/4; 75%)	NA	NA	NA	NA
lack of social support	+ (2/2; 100%)	+ (3/3; 100%)	NA	NA	NA	NA
unmarried	+ (2/3; 67%)	+ (2/3; 67%)	+ (1/2; 50%)	0 (0/3; 0%)	+ (1/1; 100%)	0 (0/3; 0%)

[a]'+' and '– 'signs indicate whether a factor was positively or negatively associated with a disorder, whilst '0' indicates the factor had no effect of either type; NA indicates the factor was not studied in three or more studies. Each of the risk factors shown was examined in three or more studies at least for one of the three review outcomes.

[b]number of studies with +/– /0 association/ out of total number of studies that tested a factor

2.4. Discussion

The current study systematically reviewed studies assessing mental disorders of long-settled war-refugees worldwide, applied a subgroup analysis to understand the reasons for prevalence variability, and narratively reviewed pre-migration and post-migration factors associated with mental health of long-settled war refugees. The review identified 28 studies on long-term mental health with a total of 15156 war-affected refugees. The findings indicate 1) generally high prevalence rates of depression, PTSD and other anxiety disorders among refugees five years or longer after displacement, with prevalence estimates typically in the range of 20% and above; 2) a large variability of prevalence rates between studies, with both clinical and methodological factors contributing substantially to the observed variability; and 3) a number of shared and unique risk factors for mental disorders. Specifically, higher exposure to traumatic experiences and post-migration stress were the most common factors consistently associated with higher rates of mental disorders. Additionally, poor post-migration socio-economic situation (unemployment, low income, poor host language proficiency, and lack of social support) was particularly associated with depression, whilst female gender was associated with unspecified anxiety, but not with PTSD. Other socio-demographic characteristics of the sample appeared to be poor predictors of long-term mental health.

The findings might have several implications. First, they indicate that the risk of having a serious mental disorder is substantially higher in war refugees than in the general population, even several years after refugee resettlement. With the exception of a few studies (Beiser & Hou, 2001; Steel, et al., 2002; Westermeyer, 1988), the refugee studies reported prevalence rates of mental disorders that are substantially higher than

those reported in studies with general non-war affected population. For example, compared with the general Western adult population (The ESEMeD /MHEDEA 2000 Investigators, 2004; Kessler, et al., 2005; Wittchen & Jacob, 2005), the review findings of higher quality studies indicate that refugees may be roughly up to 14 times more likely to have depression and 15 times more likely to have PTSD.

Second, the current review identified a considerable heterogeneity of prevalence rates across the studies. Prevalence rates of depression have ranged from 2.3% (Beiser & Hou, 2001) to 89% (D'Avanzo & Barab, 1998), rates of PTSD from 4% (Steel, et al., 2002) to 86% (Carlson & Rosser-Hogan, 1994). Other anxiety disorders were less often assessed in the studies. The rates of unspecified anxiety, an outcome that largely overlaps with PTSD and other anxiety disorders, have ranged from 20.3% (Birman & Tran, 2008) to 88% (Carlson & Rosser-Hogan, 1994). Overall, these studies have shown up to 40-fold difference in prevalence rates, reflecting high degree of statistical heterogeneity (I^2>96%). Such high level of heterogeneity has also been reported in previous systematic reviews and meta-analyses (Porter & Haslam, 2005; Steel, et al., 2009).

Some degree of between-study heterogeneity is expected given the clinical and methodological differences between the studies, both in terms of participant and study characteristics. It was decided to include studies on different refugee populations in different resettlement countries at different time points of the resettlement process. These studies had notable differences in sampling and assessment methods. A subgroup analysis showed that observed statistical heterogeneity in prevalence rates was partly due to the overall methodological quality of the studies, with studies of higher quality generally reporting lower prevalence rates. Assessments made by native speakers

(versus through an interpreter) tended to report lower prevalence rates for all disorders. Previous studies examining the issues related to the use of interpreters in medical settings indicated that communication errors may occur when eliciting information by such methods (Bhopal, et al., 2004; Farooq, Fear, & Oyebode, 1997; Flores, 2005). Within the context of refugee trauma research, the background characteristics of the interpreter, such as having a different dialect or being from a different ethnic group than the refugee being interviewed, may influence disclosure as well as translation.

These findings as well as the findings of the previous reviews (Porter & Haslam, 2005; Steel, et al., 2009) indicated the observed between-study heterogeneity was also partly due to the clinical characteristics of the studies. Prevalence rates of mental disorders were to some extent related to both which country the refugees came from and in which country they finally resettled. Refugees from former Yugoslavia and Cambodia tended to have the highest rates of depression, PTSD and unspecified anxiety, whilst the refugees from Vietnam and Middle East and Sub-Saharan Africa had the lowest rates. Studies conducted outside Europe or the USA tended to report lower prevalence rates of mental disorders, perhaps reflecting widely different refugee selection and resettlement policies. Studies conducted in Australia and Canada, where refugees considered most likely to successfully resettle are preferentially accepted (United Nations, Department of Economic and Social Affairs (DESA), 2004), reported rates of mental disorders that were lower than that of the native-born population (Beiser & Hou, 2001; Silove, et al., 2007). Studies conducted in the USA tended to report the highest rates of mental disorders, but also tended to report the largest variation across studies. However, the regional variations should be interpreted with caution because of the small number of studies from regions other than the USA.

Third, consistent predictors of the three mental health outcomes include greater exposure to both pre-migration traumatic experiences and post-migration stress. It has been suggested that post-migration factors might confound (Steel, et al., 1999) or precede (Gorst-Unsworth & Goldenberg, 1998; Rumbaut, 1991) the impact of the prior trauma. Yet, most of the studies included in this review reported an independent effect of war trauma exposure on current mental health status even after post-migration factors were taken into account, a finding that suggests a significant and lasting impact of war experience. The impact of poor post-migration socio-economic situation, such as unemployment, financial stress, poor host language proficiency and lack of social support, was particularly evident for depression. However, considering the retrospective nature of the included studies, it cannot be decided whether a poor socio-economic status after migration is a contributing factor in the occurrence or maintenance of a mental disorder or a consequence of the pre-existing mental disorder or both. Nevertheless, findings from a longitudinal study of Southeast Asian refugees resettled in Canada indicate that persistent socio-economic hardship, particularly unemployment and poor host language proficiency, may predict depression even 10 years after resettlement (Beiser & Hou, 2001). Interestingly, the post-migration socio-economic situation had no impact on PTSD. Unlike depression, in which socio-economic disadvantages associated with migration may play a more significant aetiological role, aetiology of PTSD is understood as rooted in trauma exposure, possibly explaining the differences in the relative importance of socio-economic factors in the two disorders. There was a tendency towards a reduction of prevalence rates of depression with increasing length of time since displacement. Two longitudinal studies undertaken amongst Southeast Asian refugees during their 10-year resettlement period in North America suggest that depression levels decreased substantially during this period (Beiser & Hou, 2001; Westermeyer , 1988). Refugee demographic characteristics were

less consistently associated with mental disorders. When gender was investigated as a moderator variable, it was found that prevalence rates of depression and unspecified anxiety in women tended to be higher than those in men. Such gender differences are observable in studies across the world (The ESEMeD /MHEDEA 2000 Investigators, 2004; Piccinelli & Wilkinson, 2000; Somers, Goldner, Waraich, & Hsu, 2006). In the case of PTSD both refugee males and females were found to be at increased risk which runs counter to the previous findings among the general population that suggest females are more likely to develop PTSD (Frans, et al., 2005; Kessler, et al., 1995). Nonetheless, the finding concurs with that reported in the previous meta-analysis on war-affected populations (Steel, et al., 2009). Whilst in the general population men and women typically differ in types of traumatic experiences (Breslau, et al., 1998; Kessler, et al., 1995), both civilian men and women may be exposed to similar traumatic events during war (Jaranson, et al., 2004).

2.4.1. Limitations

There are several important limitations to consider when interpreting the findings of the current review. Although a meta-analysis and data pooling was considered, it was decided that this step was inappropriate due to significant heterogeneity across studies. Instead, the analysis focused on investigating the reasons behind the between-study heterogeneity both through subgroup analysis and a qualitative assessment of studies. Whilst some trends were identified through the subgroup analysis, it is important to note that the residual heterogeneity within groups remained considerable. Therefore, clinical and methodological differences as well as a high level of statistical heterogeneity between studies (in part explained by clinical and methodological differences) may have compromised the validity of the result. It is misleading, for

example, to consider that refugees in the USA are uniformly more likely to have depression; the likelihood is also dependant on other variables, such as country of origin, severity of pre-migration trauma, and also specific post-migration factors a refugee encounters. Better understanding of unique impact of these factors could be reached by applying a meta-regression; however, due to insufficient number of identified studies a meta-regression was not deemed feasible.

The present review focused on studies assessing mental disorders in long-settled war refugees. As such the search terms included the concept term "long-term". Whilst this may have improved the specificity of the search, it may have also resulted in decreased sensitivity so that studies that did not report on the duration of displacement, or at least not in terms specified by the review, may have been missed. This may particularly be the case for studies focusing on risk factors rather than on prevalence rates. An extensive systematic review on depression and PTSD in refugees conducted by Steel et al. (2009) did not identify any other relevant studies than already identified in the present study, suggesting that the current review identified all relevant literature.

The current review strategy may have further limited the generalizability of the findings on risk factors for mental disorders in long-settled refugees since the search terms do not include term the "risk factor" or related keywords. The inclusion of the term "long-term" may have limited results only to the studies that focus on impact of time as a risk factor for mental disorders. Furthermore, relying on mostly cross-sectional prevalence studies to identify risk factors for mental disorders introduces the potential for prevalence-incidence (Neyman) bias (Streiner & Norman, 2009). Cross-sectional studies identify prevalent rather than incident cases and the data will, therefore, tend to reflect risk factors of survival/chronicity of disorder as well as aetiology. Therefore, risk

factors identified in the present review are likely to be the risk factors for maintenance of mental disorders, rather than their development.

As with any systematic review, publication bias is a potential source of error. An attempt was made to reduce the possibility of such bias by performing a thorough search strategy and by reviewing studies published in languages other than English as well as unpublished studies; however, it is still possible that some studies were not identified. There was no indication of publication bias when tested statistically, although the evidence for unspecified anxiety disorder was inconclusive. Given the large degree of heterogeneity across studies and the relatively small number of studies, non-significant results may be due to low statistical power and cannot be taken as evidence that publication bias is absent (Lau, Ioannidis, Terrin, Schmid, & Olkin, 2006; Sterne, Gavaghan, & Egger, 2000; Terrin, Schmid, Lau, & Olkin, 2003; Peters, et al., 2010). Nevertheless, publication bias may be less prevalent for meta-analytic reviews focusing on observational studies (as was the case in this review) than it is for randomized controlled trials (Egger, Schneider, & Smith, 1998). Additionally, multiple tests were performed within the sub-group analyses inflating Type I error.

As already stated, at present there is no consensus on how to assess either the quality of observational studies or the impact of the study quality on the meta-analysis results (Sanderson, et al., 2007; Shamliyan, et al., 2010). Similar to a previous review of mental health of refugees (Porter & Haslam, 2005), it was decided to use a cumulative quality score incorporating methodological components common to observational studies in culturally diverse populations, with all components being given equal weight. This has the disadvantage that studies with very different level of strengths or limitations may receive similar quality scores, i.e. studies with only few, but very

important limitations, may still be ranked among the higher quality studies. Nevertheless, the finding that the study quality score was associated with outcomes in the sub-group analysis does indicate that one or more components in the study quality score are associated with the outcome. This was confirmed by the results of the sub-group analysis of key quality components linked to outcomes in this and previous meta-analytic reviews of refugee mental health (Fazel, et al., 2005; Steel, et al., 2009).

A vote-counting method was used to assess the relationship between risk factors and mental disorders. Whilst this method provides an overall summary of the direction of the effect, it does not consider the effect size and the precision of estimated effects.

The diagnostic criteria were not consistent across studies as both structured diagnostic interviews and self-report questionnaires were used. Although the self-report questionnaires are based on and generally validated against DSM-IV diagnostic criteria (American Psychiatric Association [APA], 1994), one has to be cautious when comparing the results. It has been argued that self-report questionnaires tend to err on the side of high sensitivity rather than high specificity, and tend to over-estimate the prevalence of psychiatric disorders (Hollifield, et al., 2002; Turner, et al., 2003). The most recent meta-analysis of the studies assessing prevalence of depression and PTSD in war-affected populations (including refugees) showed a pattern in which self-report questionnaires on average returned a 10–13% higher prevalence than structured diagnostic interviews when other methodological factors were taken into account (Steel, et al., 2009). On the other hand, diagnostic instruments are based on Western concepts of illness and may be less sensitive to constellations of symptoms experienced by refugees mainly originating from non-Western cultures (Bhugra, 1996; Hollifield, et al., 2002; Mezzich, et al., 1999). It may be just as important not to overestimate the

prevalence of mental disorders of refugee populations as it is to avoid their underestimation and subsequent underestimation of service needs.

This review may also have lacked specificity regarding anxiety disorders, since it was decided to include studies reporting on unspecified anxiety. As already described, this outcome is one of the most frequently reported outcomes in refugees. Numerous studies have indicated that it is a valid method of identifying anxiety caseness, most strongly corresponding to the DSM-IV caseness of GAD, and to somewhat lesser extent of other anxiety disorders. Therefore, it is important to note that there is a large overlap between the findings for this outcome and PTSD, as well as other anxiety disorders.

The extrapolation of the findings is further precluded by several refugee selection factors. Although most studies used probability sampling, the sampling frame was necessarily opportunistic (e.g. health screening records), precluding the generalisability of findings to other refugees. The majority of refugees currently reside in low- and middle-income countries (mostly Asia or Africa); yet, most of the studies identified by this review were conducted in Western industrialized countries, particularly the USA which hosts less than 8% of the world's refugees (UNHCR, 2011). It is also unclear which sub-group of refugees actually stays in a host country for more than five years. It may be that those with mental disorders are less motivated or able to return to the country of origin or they may even have a better chance of being allowed to stay due to having a mental illness (Kühne & Rüßler, 2000). Conversely, those without a mental disorder may be more likely to integrate and make a life for themselves in the new country and may be, therefore, more likely to remain in the country. Thus, the differences found in prevalence rates between studies may reflect different selection processes in the host countries over many years. Furthermore, over two-thirds of

participants studied were from Southeast Asian countries (Vietnam, Cambodia, and Laos). Thus, the regional variations should be interpreted with caution because of the small number of studies conducted with refugees originating from regions other than Southeast Asia and residing in regions other than the USA. Focusing on the specific refugee population in well-to-do Western countries precludes generalization of prevalence rates to the majority of the worldwide refugee population. This underscores the need for research among different world refugee populations residing in diverse social, economic and political contexts.

2.4.2. Summary

In summary, there is an obvious need for more methodologically consistent and rigorous research on the mental health of long-settled war refugees (including those residing in low- and middle-income countries). Nevertheless, substantial evidence already exists. It suggests that mental disorders tend to be highly prevalent in war refugees many years after the war experience and resettlement. Two consistent risk factors predicting higher rates of mental disorders have emerged from the cumulative body of research: past traumatic experience and the post-migration socio-economic situation.

To explore effects of socio-demographic characteristics, war experiences, and post-migration living conditions on mental health of refugees, future research should ideally investigate refugee groups originating from the same area but who have found a refuge in different countries. The comparison of the predictive models between countries would yield hints as to how stable outcomes and the predictive value of baseline features and post-migration factors are across different contexts. Because a) one does

not know whether the current inconsistency of findings reflects true differences in prevalence rates or just methodological inconsistencies and b) if the predictive models were similar one could move research a step forward and not have a need to establish rates for every single case again (just assessing the risk factors would be adequate).

Table 2.2. Characteristics of studies assessing long-term mental health of war refugees

Author(s)	Refugee population (host)	Displacement duration, yrs	Sample selection (response rate %)	Measures	Prevalence	Statistically significant risk factors
Beiser & Hou (2001)	608 Southeast Asian (Vietnamese Chinese, Vietnamese and Laotians) (Canada)	>10 of residence	random and non-random (95% follow-up = 45%)	Self-report developed for the project – Depression	Depression = 2.3% (decreased over 10-year period)	DEPRESSION *Univariate*: depressive symptoms experienced early in the process of resettlement *Multivariate*: depressive levels experienced early in the process of resettlement; unemployment or unstable employment (for men); poor English language proficiency (for women and those who did not become engaged in the labour market during the earliest years of resettlement)
Bhui et al. (2003)	180 Somali (UK)	8 of residence	random (49%)	SCQ and HSCL -subscales on Depression and Anxiety as a single outcome	Anxiety and Depression = 23%	ANXIETY AND DEPRESSION *Univariate*: separated or widowed, being retired or unemployed, taking medication, not having declared asylum on entry, not having a conflict with immigration on arrival, less time in the UK (<7yrs), shortage of food, without shelter, being lost, kidnapped, brainwashed *Multivariate* (controlling for age, gender, conflict with immigration, detention on entry, declaration of seeking asylum on entry, current asylum status, income, current employment status, employment status when in Somalia, accommodation type, cigarette smoking, alcohol use, drug use and number of residence years): number of traumatic events, shortage of food and being lost, having no combat experience
Birman & Tran (2008)	212 Vietnamese (USA)	11.5 of residence	Non-random (–)	HSCL–25 –Depression – Anxiety	Depression=20.8% Anxiety=20.3%	DEPRESSION *Univariate:* lower satisfaction with social support (by like-ethnic friends and one's spouse), alienation, lower life satisfaction *Multivariate:* lower satisfaction with social support (by like-ethnic friends and one's spouse) ANXIETY *Univariate:* females, poor English language, exhibiting more Vietnamese behaviour *Multivariate:* females, pre-migration trauma, exhibiting more Vietnamese behaviour
Blair (2000)	124 Cambodian (USA)	8.1 of residence	random (83%)	NIMH DIS –Depression –Anxiety – Social phobia – Panic dis. DICA-R –PTSD	Depression = 51% GAD =14% Social phobia=27% Panic disorder = 7% PTSD = 45% Comorbidity: PTSD and Depression=71% PTSD and Social Phobia = 32%	DEPRESSION *Univariate*: Pre-migration – higher number of war traumas, loss of immediate family member (a parent, a sibling or a child), higher number of problems while trying to escape, being separated from family while in refugee camp; resettlement – higher number of resettlement stressors, financial stress (lower rates of working outside the home, lower income, receiving welfare) PTSD *Univariate*: Pre-migration – higher number of war traumas, loss of immediate family member (a sibling), being separated from family while in a refugee camp, higher number of problems while trying to escape, higher number of incidents of abuse; resettlement – higher number of resettlement stressors

Author(s)	Refugee population (host)	Displacement duration, years	Sample selection (response rate %)	Measures	Prevalence	Statistically significant risk factors
Buseh et al. (2000)	50 Liberian males (USA)	8.6 of residence	non–random (–)	CES–D – Depression	Depressive Mood = 60%	DEPRESSION *Univariate*: more acculturative stress; CES–D subscales depressed affect, somatic/retarded activity, and interpersonal affect were positively correlated with all items on acculturative stress; CES–D subscale positive affect less perceived hate, less perceived cultural shock and lower overall acculturative stress
Carlson & Rosser–Hogan (1994)	50 Cambodian (USA)	9.9 since leaving home country (5.4 of residence)	random (100%)	HSCL–25 – Depression – Anxiety PCL–C –amended –PTSD	Depression = 80% PTSD = 86% Anxiety = 88%	DEPRESSION, ANXIETY, PTSD, *Univariate*: higher number of traumatic events
Caspi et al. (1998)	161 Cambodian (USA)	7 of residence	random (78%)	HSCL–25 –Depression – Anxiety HTQ –PTSD	Not reported	DEPRESSION, ANXIETY AND PTSD *Multivariate:* no relationship observed with child loss
Chung &Kagawa–Singer (1993)	2180 Southeast Asian (Cambodian, Laotian, and Vietnamese) (USA)	5.9 of residence	random (–)	HOS – Depression – Anxiety	Not reported	DEPRESSION *Univariate*: Cambodians (followed by Lao and Vietnamese) *Multivariate* (controlling for ethnicity and number of years in the USA): higher number of pre-migration traumatic events and female gender; for the >5yrs in the USA: female gender, higher number of traumatic events, longer time in refugee camp, longer time in the USA, unemployment, low family income, poor English, being Vietnamese (compared to Cambodians) ANXIETY *Univariate*: Cambodians (followed by Lao and Vietnamese) *Multivariate*: Regardless of ethnicity and years in the USA – higher number of traumatic events, female gender, older age, receipt of public assistance, lower family income, poor English, being Lao; for refugees >5yrs in the USA: female gender, older age, longer in the USA, higher number of traumatic events, longer time in refugee camp, unemployment, receiving public assistance, low family income, low English proficiency, Lao, Cambodian
Craig et al. (2008)	126 Bosnian (USA)	9 of residence	random (25.2%)	MHI – Depression – Anxiety PSDS – PTSD	Depression = 31.7% PTSD = 66.6% Anxiety = 40.5%	DEPRESSION *Univariate:* females, older age, lower education PTSD *Univariate*: older age, lower education ANXIETY *Univariate*: older age, lower education

Author(s)	Refugee population (host)	Displacement duration, yars	Sample selection (response rate %)	Measures	Prevalence	Statistically significant risk factors
D'Avanzo & Barab (1998)	175 Cambodian females (USA and France)	≥5 of residence	non–random (–)	HSCL–25 – Depression – Anxiety	Depression= 73.7% (France = 87%;USA=65%) Anxiety = 81.3% (France=85%; USA=79%)	DEPRESSION *Univariate*: refugee women in France were more likely to be symptomatic of depression
Delic-Ovcina (2010)	637 Bosnian males (USA)	6–16 (97.7% ≥ 8 years) of residence	non–random (–)	SPS; PTSS – PTSD	PTSD = 76.5%	PTSD *Univariate*: older age, married, lower education, perceived poor general health, recentness of dental visit, higher frequency of smoking, lack of physical activity, no health care coverage and insufficient funds for health care services
Gerritsen et al. (2006)	178 Afghan, Iranian and Somali (Netherlands)	8.8 of residence	random (59%)	HSCL–25 –Depression –Anxiety HTQ – PTSD	Depression = 29.3% PTSD = 10.6% Anxiety = 27.7%	(for the entire sample including 232 recently arrived refugees; mean time in Netherlands = 5.6 years) PTSD AND DEPRESSION/ANXIETY *Multivariate*: asylum seeker (but not for PTSD) being from Iran or Afghanistan; female, higher number of traumatic events, higher post-migration stress, less social support
Hinton et al. (1998)	3401 Vietnamese males (USA)	8–11 of residence	random (85–96%)	HSC–D – Depression	Depression = 8.8% (San Francisco=9.8% Santa Clara=8.2% Houston=8.6%)	DEPRESSION *Univariate*: older age and veteran (in particular for those at the San Francisco and Santa Clara sites), less educated, less proficient in English, more recently arrived, poorer, unemployed or disabled, re-education camp survivors *Multivariate*: unemployed or disabled, veterans, less proficient in English, having income below poverty line, living in Houston (community context)
Hollifield et al. (2006)	252 Kurdish and Vietnamese (USA)	Kurds= 7.0 and Vietnamese 7.8 of residence	non–random (–)	HSCL–25 –Depression –Anxiety PSS-SR – PTSD	Depression = 38.9% PTSD = 31.3% Anxiety = 25.0%	DEPRESSION, PTSD, ANXIETY *Univariate*: higher number of war-related traumatic events *Multivariate*: higher number of war-related traumatic events
Hunt & Gakenyi (2005)	69 Bosnian (UK)	5–8 since war trauma	non–random (69%)	IES–R – PTSD	PTSD = 77% (IES–R> 45)	Not reported
Jaranson et al. (2004)	1134 Ethiopian (Oromo and Somali) (USA)	7.5 since leaving home country (3.4 of residence)	non–random (97%)	PCL–C – PTSD	PTSD = 13%	PTSD *Univariate*: being exposed to torture *Multivariate*: male, being Oromo, change in religious practices since migration, higher number of traumatic events , exposure to torture
Kolassa et al. (2010)	444 Rwandans (refugee camp in Uganda)	~13 since war trauma	random (–)	PDS – PTSD	PTSD=49.5%	PTSD *Multivariate:* higher number of traumatic events

Author(s)	Refugee population (host)	Displacement duration, yars	Sample selection (response rate %)	Measures	Prevalence	Statistically significant risk factors
Marshall et al. (2005)	490 Cambodian (USA)	20–22 of residence	random (87%)	CIDI – Depression – PTSD	Depression = 51% PTSD = 62% Comorbidity of PTSD and depression = 71% Comorbidity of depression and PTSD = 86%	DEPRESSION *Univariate*: poor English language, retired or disabled, unemployed, below federal poverty level, older age, higher number of pre–and post-migration traumatic events *Multivariate:* (adjusted for age, gender, year of immigration, and pre-migration and post-migration trauma exposure): older age, higher number of pre- and post–migration traumatic events PTSD *Univariate*: older age, males, poor English language, retired or disabled, unemployed, below federal poverty level, higher number of pre–and post–migration traumatic events *Multivariate* (adjusted for age, gender, year of immigration, and pre- and post-migration trauma exposure): older age, higher number of pre and post–migration traumatic events
Matheson et al. (2008)	90 Somali (Canada)	≥ 9 (90% sample) of residence	non–random (–)	IES-R –PTSD BDI –Depression	Depression 22.5% PTSD = 22.2%	DEPRESSION *Univariate*: higher number of traumatic events, assault from a stranger or familiar other, coping strategies involving engagement with emotions and avoidant coping efforts *Multivariate:* the relation between trauma experiences and depression was fully confounded by endorsement of emotion-focused coping strategies in relation to acculturation stressors PTSD *Univariate*: higher number of traumatic events, collective trauma, threat to other, assault from a stranger or familiar other, coping strategies involving engagement with emotions and avoidant coping efforts *Multivariate:* higher number of traumatic events
Mollica et al. (1998)	993 Cambodian (refugee camp on Thailand–Cambodia border)	≥ 5 of residence	random (98%)	HSCL–25 –Depression –Anxiety HTQ –PTSD	Depression 55% PTSD = 14.7%	DEPRESSION, PTSD, PTSD SUB–SCALES (except avoidance, which had no dose–effect relationship), ANXIETY *Multivariate* (covariates: gender, age, marital status, education, trauma exposure, and one of the symptom scale or sub-scales): dose-response relationship between cumulative trauma and symptoms – recent trauma had a more potent effect except for emotional numbing (roughly equally 'potent')
Nicholson (1997)	447 Southeast Asian (Vietnamese, Cambodians, Laotians and Hmong) (USA)	9.2 of residence	non–random (–)	HTQ –PTSD HSCL–25 –Depression – Anxiety	Depression = 40% PTSD = 14%, Anxiety = 35%	PTSD, ANXIETY, DEPRESSION *Multivariate*: degree of current stress was the strongest predictor, self–perceived poor health status, greater number of experienced traumatic events (in particular for PTSD), while greater number of witnessed events and rural background (confounded through current stress), and female gender (confounded through lower income) had indirect effects on all mental health. In addition, low income and being unmarried predicted depression; greater number of witnessed events predicted PTSD; and female gender predicted anxiety

Author(s)	Refugee population (host)	Displacement duration, yars	Sample selection (response rate %)	Measures	Prevalence	Statistically significant risk factors
Onyut et al. (2009)	1422 Somalis and Rwandans (refugee camp in Uganda)	≥ 9 (80% sample) of residence	random (<90%)	PDS – PTSD HSCL-25 –Depression – Anxiety	PTSD = 37.8%	DEPRESSION *Univariate*: male gender (only for Rwandese), being Somali, higher number of traumatic events, functioning deficits, physical health deficits PTSD *Univariate*: male gender (only for Rwandese), being Somali, higher number of traumatic events, functioning deficits, physical health deficits ANXIETY *Univariate*: female gender (only for Somali), being Somali, higher number of traumatic events, functioning deficits, physical health deficits
Sabin et al. (2003)	170 Guatemalan (refugee camp in Mexico)	20 of residence	random (93%)	HSCL–25 –Depression – Anxiety HTQ – PTSD	Depression = 38.8% PTSD = 11.8% Anxiety = 54.4%	DEPRESSION *Univariate*: female, widowed, witnessing disappearance of others, torture, mutilation, higher number of traumatic events *Multivariate*: female, widowed, witnessing disappearance of others, higher number of traumatic events PTSD *Univariate*: older age, being close to death, witnessed assassination or massacre, disappearance of others, larger household size, lived in 3 or more camps, not having experienced lack of food *Multivariate*: disappearance of others, being close to death, larger household size, and not having experienced lack of food ANXIETY *Univariate:* older age, higher number of traumatic events, sexual abuse or rape, witnessing massacre, witnessing disappearance of others, torture *Multivariate*: witnessing a massacre, higher number of traumatic events
Steel et al. (2002)	1161 Vietnamese (Australia)	11.4 of residence	random (82%)	CIDI, PVPS – Depression –PTSD – GAD –Social phobia –Panic disorder – OCD	Depression =3% PTSD= 4% GAD = 0.7% Social phobia=0.3% Panic disorder=0.6% OCD=0.5% PVPS: similar results	ANXIETY DISORDERS *Univariate*: females

Author(s)	Refugee population (host)	Displacement duration, yars	Sample selection (response rate %)	Measures	Prevalence	Statistically significant risk factors
Schweitzer et al. (2006)	63 Sudanese (Australia)	9 since leaving home country (2 of residence)	non–random (–)	HSCL-37 –Depression –Anxiety HTQ –PTSD	Depression =16% PTSD= 13%	DEPRESSION *Univariate:* female, higher number of traumas experienced by family, longer time in transit, family separation, less of ethnic community support *Multivariate*: female, higher number of trauma experienced by family, longer time in transit, longer residence, family separation, unemployment PTSD *Univariate:* female, higher number of trauma experienced by the individual, higher number of trauma experienced by family, less of ethnic community support, more post-migration living difficulties *Multivariate*: female, higher number of trauma experienced by the individual, higher number of trauma experienced by family, less of ethnic community support ANXIETY *Univariate:* female, higher number of trauma experienced by the individual, number of trauma experienced by family, less of ethnic community support, more post-migration living difficulties *Multivariate*: female, higher number of trauma experienced by family, longer residence, less of ethnic community support, unemployment, more post-migration living difficulties
Stige & Sveaass (2010)	142 Sri Lankan Tamils & Aceh from Indonesia (Norway)	6.7 of residence	combination of random (10%) and non-random	PTSS-12 –PTSD	PTSD=75.4%	Not reported
von Lersner et al. (2008)	100 refugees from former Yugoslavia (85%), Turkey (8%) and Iraq (5%) (Germany)	10.8 of residence	non–random (–)	MINI –Depression –Anxiety – Social phobia – Panic disorder – Agoraphobia PDS –PTSD	Depression=42.0% PTSD=44.2% GAD=2% Social phobia=9.6% Panic disorder=8% Agoraphobia=9% OCD=0%	Not reported
Westermeyer (1988)	97 Hmong from Laos (USA)	7–9 since leaving home country (6-8 of residence)	random (95%; 96% at the follow–up assessment)	NIMH DIS – Depression – GAD – OCD	Axis 1 disorder = 44% Depression=6.2% GAD = 1% OCD=0.4%	Not reported

Scales: BDI = Beck Depression Inventory, CES–D= Center for Epidemiologic Studies Depression Scale, CIDI=Composite International Diagnostic Interview, DICA = Diagnostic Interview for Children and Adolescents, DICA–R= Diagnostic Interview for Children and Adolescents–Revised, HOS=Health Opinion Survey, HSC–D= Hopkins Symptom Checklist–Depression Scale, HSCL–25=Hopkins Symptoms Checklist–25, HTQ=Harvard Trauma Questionnaire, IES–R=Impact of Event Scale–Revised, MHI=Mental Health Inventory, MINI = The Mini-International

Chapter 3[1]

Factors associated with mental disorders in long-settled war refugees

[1] The present chapter is a modified version of Bogic, et al. (2012). Factors associated with mental disorders in long-settled war refugees: refugees from the former Yugoslavia in Germany, Italy and the UK. *British Journal of Psychiatry* **200**(3), 216-223. See ppendix E for the publication manuscript.

3.1. Introduction

As outlined in previous chapters, there is ample evidence that the prevalence rates of mental disorders among recently-resettled war refugees can be very high, but there is little data on mental health of refugees several years after their war experience and resettlement. Furthermore, the results from a systematic review described in Chapter 2 suggest that refugees may be at increased risk for mental disorders even many years after war experience and resettlement. This increased risk for adverse mental health was associated with higher exposure to both war-related traumatic experiences and post-migration stress. The negative effect of poor post-migration socio-economic situation (unemployment, low income, poor host language proficiency, and lack of social support) was particularly evident for depression.

However, the review also indicated a considerable variability of prevalence rates between the studies. Overall, these studies have shown up to 40-fold difference in prevalence rates. Prevalence rates of depression have ranged from 2.3% (Beiser & Hou, 2001) to 89% (D'Avanzo & Barab, 1998) and rates of PTSD from 4% (Steel, et al., 2002) to 86% (Carlson & Rosser-Hogan, 1994). Some of the variability was partially explained by methodological differences, with studies of a higher methodological rigour generally reporting lower rates of mental disorders. There was also evidence that some of the variability may be due to substantial differences in sample characteristics and the context of the resettlement. Whilst the subgroup analyses provided evidence of the sample and contextual characteristics' effects on the prevalence rates, it did not clarify the interaction between these characteristics and resettlement context, since the review included samples from varying backgrounds residing in varying contexts. Investigation

of this question requires a more consistent and rigorous methodological approach to clarify whether inconsistent results reported in the current review are due to true differences between different samples and contexts or are artefacts of methodological diversity and limitations.

To test whether the association of refugee characteristics with mental disorders varies across countries, similar refugee groups, preferably from the same background, should be studied in different countries using the same assessment instruments. Therefore, the focus of the present study was to investigate mental health of adult refugees from former Yugoslavia who resettled in three West European countries, i.e. Germany, Italy and the United Kingdom almost a decade ago. Germany, Italy and the United Kingdom (UK) have received a substantial number of refugees from the area but, as of yet, there is a scant information available about long-term mental health consequences of this group (Claassen, Ascoli, Berhe, & Priebe, 2005).

The current study aimed to:

i) determine which socio-demographic characteristics, war experiences and post-migration factors are associated with mental disorders in war refugees from the same region who have resettled in different countries;
ii) assess whether the associations varied across countries; and
iii) assess the relative impact of each group of factors on mental disorders and examine the confounding effect of post-migration factors in explaining the relationship between war exposure and mental disorders.

3.2. Methods

This is an exploratory cross-sectional study which used quantitative research methods. The present section provides a detailed description of the methods used to answer the research question.

3.2.1. Links with larger investigation

The present study was part of a large-scale multicentre investigation that was funded by the European Commission: CONNECT ("Components, organization, costs and outcomes of health care and community based interventions for people with posttraumatic stress following war and conflict in the Balkans") (Priebe, et al., 2004; Priebe, Bogic, Ashcroft, et al., 2010). The CONNECT study was conducted in five Balkan and three West European countries between 2004 and 2008. The main focus of the study was to assess components, organisation, utilisation, costs and outcomes of health care and community based interventions for people with posttraumatic stress following war and migration. It also aimed to estimate whether and, if so, to what extent, results gained in refugee populations can be generalised to people who stayed in the area of the conflict and vice versa.

To achieve these aims, the methods included two related parts of data collection:

a) A survey conducted in each participating country to identify people who experienced potentially traumatic events related to the war in the Balkans

b) Within the survey, people with persistent symptoms of posttraumatic stress were identified and re-interviewed at a one-year follow-up period.

The present PhD candidate was the project manager of the CONNECT study and, as such, she was involved in designing the CONNECT study protocol and had overall responsibility for the study implementation and management in all participating centres in eight European countries. More specifically, she was involved in day-to-day coordination of the study including communication with other centres as well as with the European Commission; preparation of and participation at the project meetings; preparation, monitoring and managing ethics application and approval in the UK; and preparation and submission of the project's scientific and management reports. The PhD candidate also identified relevant refugee community organisations in the UK, initiated collaboration and participated regularly in community gatherings, which were usually hosted at the community organisations or embassies. The PhD candidate led the translation of study measures from the English language to Croatian/Bosnian/Serbian languages. Throughout the course of the study, 11 research assistants were involved in recruiting and interviewing participants, of which five, including the PhD candidate, were based in the UK. The PhD candidate trained the other researchers in implementing the study interview. She herself recruited, interviewed and followed-up 99 participants in the UK.

She was responsible for data management and the statistical analysis for the present thesis as well as for the CONNECT study (N= 4167 participants), with some statistical input. Together with the Chief Investigator of the CONNECT study and a statistician, she designed and developed analyses to identify several important outcomes of the CONNECT study, such as a) the identification of factors associated with the occurrence

of different types of mental disorders in an adult population who were directly exposed to war in the Balkans and who stayed in the area of conflict, b) investigating the association of violations of human rights and other stressful war experiences with rates of PTSD and depression and symptom levels of intrusion, avoidance and hyperarousal, and c) the identification of factors associated with psychological symptom levels. Finally, she was actively involved in dissemination of the outputs of the CONNECT study through participation in national and international conferences (e.g., Bogic, 2007a; Bogic, 2007b; Bogic, 2009), and writing for peer- reviewed journals (e.g. Priebe, Bogic, Ajdukovic, et al., 2010; Priebe, Bogic, Aschcroft, et al., 2010; Priebe, et al., 2013).

The present thesis drew on the CONNECT study design, and some of the data collected for this thesis was also used for analysis in the CONNECT study, but with a different focus and different research questions. Mental health of refugees, pre-migration and post-migration factors associated with mental health and stability of these associations across countries was the main focus for this PhD study. With the exception of the Research Question 3 (PTSD recovery rate, symptom change and factors associated with recovery rate during a one-year follow-up period), the research questions addressed in the thesis were not part of the CONNECT study and were designed by the PhD candidate alone. The statistical analysis plan to address these research questions was designed, developed, and conducted by the candidate alone, i.e. detailed analysis of long-term mental health of refugees, cross-country comparison, and QOL was the original work of the candidate. Whilst the longitudinal study was designed beforehand within the CONNECT study the analysis was the original work of the candidate. Finally, the systematic literature review presented in Chapter 2 was the original work of the PhD candidate from designing the study protocol to the execution. Whilst another

reviewer contributed to the literature search phase and data extraction (A.N.) in collaboration with the PhD candidate, the candidate performed both quantitative and narrative data synthesis by herself.

3.2.2. Inclusion criteria

Participants were eligible for participation in the present study if they were born within the territory of former Yugoslavia; were between 18 and 65 years old; had experienced at least one war-related traumatic event; had experienced the last war-related event at or after 16 years of age; had no severe learning difficulty and no mental impairment due to a brain injury or other organic cause. The traumatic experience was established using a screening list containing 20 stressful events that people may have experienced during wartime. Refugees who had not been in the war-exposed areas during the war were not included. The term refugee was used irrespective of current formal residence status (e.g. citizenship of the recipient country, refugee, asylum seeker).

3.2.3. Recruitment method: random sampling and linkage sampling

In classic statistical theory, if a random sample is drawn from a population whose underlying distribution is known, it may be assumed that the properties of the sample mirror those of the population i.e. a ‘representative’ sample is obtained. In most cases this means that researcher must have a sampling frame from which the sample is recruited. The challenge arises when a sampling frame is not available to a researcher as the subpopulation of interest is ‘hard-to-reach’ and ‘hidden’ in the general population.

Such a methodological challenge is frequently reported in epidemiological research among refugees (Bloch, 2007; Jacobsen & Landau, 2003; Spring, et al., 2003).

In the present study, a combination of random and non-random sampling approaches was adopted to recruit war refugees from former Yugoslavia in Germany, Italy and the United Kingdom. The challenges in recruitment of research participants and specific recruitment methods adopted in each country are described in detail below.

Recruitment in the UK

In the present study no census or immigration figures were available for refugees coming from the former Yugoslavia and residing in the UK. Neither official government organization (such as Home Office) nor non-governmental organizations (NGOs) have reliable statistical overview of the refugees from the former Yugoslavia and their demographic statistics. The most recent census prior to the study taking place was in 2001 and it contained no information on asylum seekers and refugees. It did report on country of birth but the data on Yugoslavian-born residents was reported under the scope of 'other Eastern Europe' (Office for National Statistics, 2004). An additional challenge was the UK's confidentiality laws (Data Protection Act, 1998), prohibiting release of refugee names and addresses.

In the absence of resident registers in the UK, potential interviewees were contacted through community organizations and snowball sampling. In the first step, all existing community organizations that were involved with populations originating from former Yugoslavia were identified. In total 31 community organizations were identified and

contacted, of which 16 accepted to collaborate in the study. Of the 16 collaborating community organizations, 10 were involved with the Albanian population coming from Kosovo, five with the Bosnian population, and one community organization was involved with population originating anywhere from the former Yugoslavia. In order to comply with the UK's confidentiality law that prohibits release of individual's name and address (Data Protection Act, 1998), community organizations mailed invitation letters and one reminder to all their members without revealing individuals' names to the researchers. The invitation letters were provided in both mother tongue and English. In total, 1493 potential participants were invited to participate.

To widen the sample beyond those in contact with community organizations (e.g. socially isolated individuals and those who had left the refugee community to live in and affiliate with the majority society), snowball or linkage method was used, in which primary respondents were asked to provide the names and contact details of other refugees coming from the former Yugoslavia. Additionally, eligible refugees were recruited through interviewers' friends.

Several strategies that have previously been successful with refugee communities were used. These included attending various social and cultural community gatherings, spreading information about the study within the community at community meetings, and receiving referrals from previous participants. Such strategies are believed to be helpful in building trust and relationship between researchers and participants who are in many cases suspicious of outsiders (Bloch, 2007; Spring, et al. 2003). This may be particularly important in the case of refugees suffering from posttraumatic stress. Research has shown that people with posttraumatic stress who have a high level of avoidance are more likely to refuse to participate because they are avoiding any

reminders of the trauma (Schwarz & Kowalski, 1992). Recruiting refugees via community organizations and snowball sampling may to some extent overcome this problem as people who have a high level of avoidance may take part if approached via friends or a "friend of a friend" (a researcher). The importance of the relationship of the interviewer and participants is further emphasized by Lee and Lu (1989) who found that refugees were more likely to disclose trauma histories and symptoms to familiar, trusted and bilingual interviewers. It has been suggested that this sort of community approach increases response rate (Bhui, et al. 2003). This is central to recruiting as broad and representative a sample as possible and to attaining a high participation rate, as high refusal rates may bias the results (Spring, et al. 2003).

Participants were recruited throughout the UK (including London, Birmingham, Coventry, Newcastle, Derby, Doncaster, Dewsbury, and Leeds).

Recruitment in Italy

In Italy, data registers of persons coming from the former Yugoslavia were provided by the Registry Offices of the Town and City Councils in two Italian regions Reggio Emilia (Modena, Bologna, Forlì-Cesena, Ravenna, Rimini, Ferrara, and Piacenza and Parma) and Friuli Venezia Giulia Region (Trieste). Of the 354 Town Councils in Emilia Romagna Region, 333 were contacted and 169 provided data on potential participants. A single Town Council in Friuli Venezia Giulia Region (Trieste) was contacted and accepted to provide data on potential participants. Potential participants were identified from data registers based on available data on their surnames, country of origin and year of arrival to the host country. In total, 4626 potentially eligible

participants were identified. All potentially eligible participants were sent an invitation letter in Italian and inferred mother language. In case of no response, individuals were contacted up to three times at a three weeks interval. The random sampling method was supplemented with a small number of participants recruited through snowball sampling method.

Recruitment in Germany

In Germany recruitment was conducted across the Berlin and Saxony regions (Berlin, Dresden, Leipzig and Chemnitz). Registry offices in these cities provided data for approximately 22,772 potentially eligible participants, from which 5783 participants were randomly selected. As in Italy, potential participants were identified from data registers based on available data on their surnames, country of origin and year of arrival to the host country. Selected individuals were sent a letter with an invitation to participate in the study and up to two reminders. The invitation letter was provided in both mother tongue and German. The random sampling method was supplemented with a small number of participants recruited through snowball sampling method.

3.2.4. Measures

Semi-structured interviews utilizing several cross-culturally validated measures were conducted with all participants.

A short description of the measures used, as well as the rationale for their use, follows. All measures used are also presented in appendix B.

Socio-demographic data about the participants were obtained on a brief structured questionnaire developed by the study team. Within the questionnaire the following areas were assessed: general socio-demographic data (gender, age, marital status, education level, and employment status) and issues related to exile (country of origin, duration of exile, current legal status and time taken to achieve it).

History of potentially traumatic experiences

War-related Stressors Screening Checklist was used to assess whether the interviewee had experienced a potentially traumatic event related to the war, and if so, was she or he at least 16 years old at the time. The list consisted of 20 potentially traumatic war events. The experience of any of the events on the list was sufficient for inclusion.

The Life Stressor Checklist-Revised (LSCL-R)

The history of potentially traumatic experiences before, during, and after the war was assessed using an amended version of the 24-item Life Stressor Checklist-Revised (Mollica, et al., 1992). This instrument assesses whether participants had ever had one or more of 24 traumatic experiences (e.g. injury, shelling, rape or sexual assault, combat, loss of a family member, torture, natural catastrophe) that would be sufficient to qualify as a traumatic event in DSM-IV. For each event experienced the following data were recorded: how many times; year when it occurred (year of the first time, the last time and the most traumatic time in case of a multiple trauma); duration of event when trauma was prolonged and lasted longer than one day (measured in days); whether it was related to war; and the level of personal distress caused by the event at the time of the trauma (measured on a 5-point Likert scale, ranging from *0 = not at all* to *4 =*

extremely, I could hardly stand it). If the event lasted for a longer time, or had been repeated continually, many times over a longer period of time, the period was registered in which the event took place (e.g. 1991-1995). Cumulative scores were calculated for pre-war, war and post-war experiences. A similar version of the LSCL-R has been previously used with sample from former Yugoslavia (Jankovic Gavrilovic, et al., 2005; Priebe, et al., 2009).

Post-migration stressors

This is a short checklist constructed to capture different aspects of the participants' life situation since migration. Questions covered the following areas: a) separation from family, b) employment and financial difficulties, c) inadequate accommodation, and d) access to medical care. A cumulative score of the number of stressors experienced was obtained (range 0-6).

Additional single questions on acculturation were assessed: a) level of perceived acceptance by the host culture, b) host language proficiency, (both measured on Likert scale, ranging from *1 = not at all* to *5 = entirely),* and c) number of social contacts with countrymen and with friends from the host-country. Previous studies have reported high correlations between single-item self-reported measures of acculturation and objective measures of language ability as well as with other important explanatory variables (Beiser & Hou 2000; Westermeyer & Her, 1996), demonstrating their utility and validity.

Past and current psychopathology

The Mini International Neuropsychiatric Interview (MINI)

The MINI (Sheehan, et al., 1998) was used to assess current and lifetime psychiatric diagnoses. It is a brief structured diagnostic interview eliciting all the symptoms listed in the symptom criteria for DSM-IV and ICD-10 for 15 major Axis I psychiatric categories, one Axis II disorder and for suicidality. Its diagnostic algorithms are consistent with DSM-IV and ICD-10 diagnostic algorithms.

The MINI was validated by a cross-national study involving more than 600 subjects (Sheehan, et al., 1998). The instrument has been found to be scientifically valid and reliable overall when measured against the much longer Composite International Diagnostic Interview (C.I.D.I.) and the Structured Clinical Interview for DSM-III-R Patients (S.C.I.D.-P) (Sheehan, et al., 1998). The reliability of the interview has been shown in various cultures (Kadri, et al., 2005; Lecrubier, et al., 1997; Otsubo, et al., 2005; Rossi, et al., 2004).

The MINI has two to four screening questions per disorder and additional symptom questions within each disorder are asked only if the screening questions are passed. The questions are precise and require only 'yes' or 'no' answers, reducing interpretational error during the interview (Bhui, et al., 2006). The measure has been found to be sensitive to changes over time allowing the identification of minor modifications of the patients' clinical conditions (Rossi, et al., 2004).

In the present study diagnoses assessed with the MINI included major depression (with or without melancholic features), dysthymia, suicidality, hypomania, mania, panic disorder, agoraphobia, social phobia, obsessive-compulsive disorder, PTSD, alcohol abuse or dependence, drug abuse or dependence, psychotic disorder, mood disorder

with psychotic features, and antisocial personality disorder. Of note, the original MINI was supplemented by an additional module on somatisation disorder from the MINI Plus (Sheehan, et al., 1998), since a high prevalence of somatisation has been previously reported in refugees and other war-affected populations (Klaric, Klaric, Stevanovic, Grkovic, & Jonovska, 2007; Cardozo, et al., 2000; Salama, Spiegel, Van Dyke, Phelps, & Wilkinson, 2000).

The modules on eating disorders (anorexia nervosa and bulimia nervosa) were excluded from the interview schedule, since these disorders were found to have low prevalence in the population from former Yugoslavia (Broers, et al., 2006). Furthermore, a modified version of the PTSD module was used to allow for assessment of past (since the critical war-related traumatic event) as well as current (a month prior to the interview) symptoms of PTSD. Both current and lifetime diagnoses of mania, hypomania, panic disorder, PTSD, psychotic disorder, mood disorder with psychotic features, antisocial personality disorder and somatisation disorder were assessed, whilst only current diagnosis was assessed for the remaining disorders.

The utility of the MINI as a screening tool to identify those at risk in the population from former Yugoslavia (e.g. Eytan, Guthmiller, Durieux-Paillard, Loutan, & Gex-Fabry, 2011; von Lersner, et al., 2008) and other ethnic groups (Bhui, et al., 2006) has been demonstrated previously. When deciding whether to use the MINI or the MINI Plus, a more detailed version that helps mainly with the diagnosis of Psychotic and Mood DSM-IV Disorders, length of the interview was taken into account. Although the MINI Plus covers a much wider spectrum of disorders, it is also significantly longer to administer.

3.2.5. Interviews and procedure

Face-to-face interviews were carried out between January 2005 and November 2006. Once a participant was approached a study information sheet was handed to him/her (appendix A-1) and the rationale, aims and practical issues regarding the study were discussed. The participant could then ask any further questions regarding the study and his/her potential participation. If the participant agreed to take part in the study an informed consent form was signed by the participant before the interview was conducted (appendix A-2).

The interviews were conducted at participants' homes, community organizations or the research centres. Interviewing at a participant's home had an advantage as this was convenient for participants and they felt more comfortable talking about traumatic experiences in familiar surroundings. Infrequently, other household members were present during interviews, which may have had a negative impact on the validity of answers. In addition, as researchers were from the same community as the participants, problems with maintaining clear professional boundaries and counter transference reactions were frequently reported and addressed during supervision sessions.

The interview usually lasted from an hour and a half to two hours depending on the participant's mental health state, extent of traumatic experiences and service use. At the end of each interview the participant received £18 as a reimbursement for his/her time. Participants were also informed that they may be contacted again in 12 months time and asked for consent to take part in a follow-up study. Their contact details were obtained so that they could be contacted if they were selected for the follow-up study.

All interviews were conducted in one of the native languages: Bosnian, Croatian, Serbian or Albanian. Respondents were given the choice of being interviewed in any of the above languages or in the host country's language i.e. English, Italian and German. None chose the latter in the UK or Germany, whereas two participants chose to be interviewed in Italian. The reason for choosing to be interviewed in Italian given by these participants was that they did not want to "have anything to do with [their] home country".

Out of the 11 interviewers nine were qualified psychologists, one a sociologist and one an ethnologist. Seven interviewers originated from former Yugoslavia and four were refugees themselves. All interviewers were bilingual (national language and Bosnian/Croatian/Serbian or Albanian).

The interviewers were trained in the assessment methods. The author of this thesis was involved in training the researchers in the use of assessment instruments and interviewing techniques. The MINI items are rule-based to avoid observer bias, but do require some clinical judgment. Rating agreement among a group of 33 interviewers from the aforementioned CONNECT study (including the 11 researchers collecting data used for this thesis) was assessed for the MINI in two mock interviews. Item agreement was reached when all interviewers gave the same rating. Among 251 items the average agreement rate was 90.2%. Quality assurance checks in the form of the MINI training were regularly conducted to maintain consistency over time and prevent 'rater's drift' in assessments. Biweekly supervision sessions were held throughout the study, providing debriefing and ongoing supervision during data collection.

3.2.6. Statistical analysis methods

Standard definitions from the American Association for Public Opinion Research (AAPOR) were used to calculate response and cooperation rates (The American Association for Public Opinion Research [AAPOR, 2011]). A ‘‘response rate’’ was defined as the number of participants divided by the sum of the numbers of participants, nonparticipants (including refusals and non-contacts), and persons of unknown eligibility (AAPOR, 2011). A ‘‘cooperation rate’’ was defined as the number of participants divided by the number eligible that were ever contacted (AAPOR, 2011). An ‘adjusted response rate’ was defined as the number of participants divided by the number of total contacted excluding known non-contacts (returned letters) and known ineligible.

Descriptive statistics were used to summarise participant data in each country. The prevalence rates of mental disorders were calculated as percentages of participants with a positive diagnosis. Prevalence rates are reported with standard errors.

The distribution of all continuous variables was assessed with the Kolmogorov-Smirnov and Shapiro-Wilk tests. Because these tests tend to be overly sensitive to large sample sizes whereby increasingly smaller departures from normality can be detected, normality graphs and plots were also examined to make a final assessment of normality (Field, 2005). For normally distributed variables the mean and standard deviation are reported, whereas for variables that were non-normally distributed the mean, standard deviation, median and range are illustrated in all relevant tables in the results.

The selection of statistical tests used to compare the variables between the different groups was based on the distribution of the data. Parametric tests (one-way ANOVA) were used for comparisons of normally distributed continuous variables, whereas non-parametric tests (Kruskal-Wallis tests) were used for comparisons of non-normally distributed continuous variables. Comparisons of categorical variables were performed with Chi-square tests.

Multivariable hierarchical logistic regression analyses examined associations between potential explanatory variables and the three types of disorders, mood disorders (major depression, dysthymia, hypomania, mania), anxiety disorders (panic disorder, agoraphobia, social phobia, obsessive-compulsive disorder, PTSD, generalised anxiety disorder), substance use disorders (alcohol abuse and dependence, drug abuse and dependence), and specifically PTSD.

The strategy for selecting variables for use in the regression models was two-fold. Firstly, potential explanatory variables that were theoretically meaningful and shown as important in previous research were considered for analysis. Secondly, univariate associations between outcomes and potential explanatory variables were examined. Variables that were significant at $p<0.10$ for at least one of the four outcomes were considered for multivariable model. A lenient threshold of $p<0.10$ was used to avoid excluding any potentially confounding variables. The significant explanatory variables were entered into the regression models sequentially in blocks, reflecting the chronological nature of the refugee experience: first pre-war factors (socio-demographics, number of pre-war traumatic events); second war factors (active participation in war, number of war traumatic events, time since the most traumatic war event); and third post-migration factors (number of post-war traumatic events, post-

migration stressors, cohabitation status, employment status, feeling accepted by the host country, host language proficiency, residence status, country of residence). In considering the results of the multivariable model only variables with a $p<0.05$ were considered to be significant.

Three categorical variables (education level, marital status, employment status) were collapsed into dichotomous ones according to model goodness-of-fit. The variable 'experienced distress at the time of the most traumatic event during the war' was excluded from multivariable analyses because of its low variance, with approximately 95% of participants in each country rating the highest option (score 4).

Bivariate correlations between all explanatory variables were also assessed. For normally distributed continuous variables Pearson's R correlations were used. For non-normally distributed continuous variables Spearman correlation coefficients (rho) were calculated to assess the linear associations between two continuous variables, whereas point-biserial correlation was used to assess the correlation between a continuous and a categorical variable. For categorical variables Chi square tests were applied to compare the proportions among different groups. In the next step, multicollinearity among the remaining explanatory variables was assessed by inspecting variance inflation factor (VIF) and tolerance statistics.

For assessing the discriminating ability of the four models predicting anxiety disorders, mood disorders, substance use disorders, and PTSD, receiver operating characteristic (ROC) curves were calculated separately for each model. An area under the ROC curve (AUC) of 0.5 indicates no discrimination, and an AUC of 1 perfect discrimination.

To test whether the effects of predictors differed across countries, interactions between country and each significant predictor variable were tested in multivariable regression analyses.

To assess the extent to which pre- and post-migration risk factors explain between-country differences in mental disorders, logistic models were fitted for each of the four outcomes. Using likelihood ratio tests, the impact of each pre-migration factor was first assessed and then of each post-migration factor in the presence of all pre-migration factors.

Using logistic and linear regression analyses, sensitivity analyses were performed comparing the likelihood of obtaining basic survival needs in each country, whilst adjusting for mental health status and age.

Finally, observed and adjusted prevalence rates with standard errors were calculated for factors included in the multivariable logistic regression analyses. All factors were dichotomised for this analysis.

Missing data analysis

Overall, 152 (17.8%) cases had missing data on at least one out of the 83 variables related to the multivariable logistic analyses presented in this chapter. The missing data value included data missing on all individual items within multiple item scales (Life Stressors Checklist-Revised and Post-migration Stressors List). For all multiple item

scales used in the analyses, mean scores were computed for all participants where 80% or more of the scale items were answered, rather than deleting the existing information. The overall amount of missing data for each item ranged from 0.1% to 7.8%, and 0.8% of the cases had more than 20% of data missing on individual scales. The main analyses were based on the sample with complete information on each variable.

To examine whether missing data may have biased the results of regression analyses, sensitivity analyses were conducted using a multiple imputation (MI) method. Assessment of missing data descriptives indicated that the data were missing completely at random (MCAR) and that there was no multicollinearity or singularity present for the variables used. A 'fully conditional specification' (FCS) approach was used to impute the missing data. The fully conditional approach to imputation is a more flexible method that does not rely on the assumption of multivariate normality (Lee & Carlin, 2010; van Buuren, 2007).

For imputation of missing data in multiple item scales (Life Stressors Checklist-Revised and Post-migration Stressors List), data were imputed for each missing data item (rather than the total scale score), and following this a scale mean score was calculated. The MI model included all variables that were included in the original regression models. Main outcome variables were also included in the MI model as predictors only but these were not imputed. Finally, all multivariable regression analyses were repeated with the imputed data set.

All analyses were carried out on unweighted data using SPSS 17.0 for Windows (SPSS Inc., Chicago, Illinois, USA) and Stata 10.1 (StataCorp, Texas).

3.2.7. Ethical considerations

Ethical issues related to participation in, and conduct of, trauma-focused studies with special reference to vulnerable populations, such as refugees, have been highlighted in past research (Block, Warr, Gibbs, & Riggs, 2013; Jacobsen & Landau, 2003; Stein, et al., 2000). Existing evidence from studies on traumatized populations suggests that most individuals make favourable cost-benefit appraisals regarding their participation, although a subset of participants reports strong negative emotions or unanticipated distress (Dyregrov, Dyregrov, & Raundalen, 2000; Newman & Kaloupek, 2004).

Ethical clearance to conduct the present research was sought and obtained from the relevant ethics committees in each country.

As a measure for minimizing harm and maximizing benefit, each participant was 1) provided with oral and written information about the nature and aims of the study, 2) asked to sign a written informed consent to participate, 3) assured about the confidentiality of the information given, 4) informed about their right to refuse to answer questions, to take a break during the interview or to withdraw from the interview at any time without having to give a reason, and 5) given an opportunity to choose the ethnicity of the interviewer, due to the multi-ethnic nature of the conflict in the former Yugoslavia.

Considering the nature of the interview, all interviewers were given instructions on what to do in case a participant or they themselves become emotionally distressed. Participants were provided with a list of contact information for local health care institutions offering treatments for people with posttraumatic stress.
The participants were given a telephone number to contact if they if they had any further questions about the research program. They were also given a token payment for agreeing to be interviewed.

3.3. Results

3.3.1. Description of refugee samples in Germany, Italy and the UK

Responders and non-responders

Overall, 11902 potentially eligible participants identified through data registers or community organisations registers in the three countries were invited to take part in the study (Germany=5783, Italy=4626, UK=1493) and 5.3% responded (Germany=3.4%, Italy=5.5%, UK=11.7%). Adjusted for known non-contacts and known ineligible, the response rate was 23.6% (Germany=31.5%, Italy=15.4%, UK=23.1%). Of those people who responded to the invitation letters and who were eligible, 52.9% were interviewed. The highest cooperation rate was in Italy (70.6%) and the lowest in Germany (37.6%). Additionally, 227 participants were recruited using a snowball method (Germany=57, Italy=42, UK=128). For snowball sampling response rates could not be established. A total of 854 participants were interviewed (Germany=255, Italy=297, UK=302). Table 3.1 summarises the selection processes applied in each country.

Table 3.1. Summary of sample selection by country of residence[a]

Country	Sampling design	Invitation letters sent	Returned, unknown address	Responded	Ineligible	Refused	Participants	Response rate (%)[b]	Adjusted response rate (%)	Cooperation rate (%)
Total	Random or sampling in community organisations	11902	1226	2263	1078	558	627	5.3	23.6	52.9
	Snowballing	NA	NA	NA	NA	NA	227	NA	NA	NA
Germany	Random sampling	5783	778	1324	798	328	198	3.4	31.5	37.6
	Snowballing	NA	NA	NA	NA	NA	57	NA	NA	NA
Italy	Random sampling	4626	412	610	249	106	255	5.5	15.4	70.6
	Snowballing	NA	NA	NA	NA	NA	42	NA	NA	NA
UK	Sampling in community organisations	1493	36	329	31	124	174	11.7	23.1	58.4
	Snowballing	NA	NA	NA	NA	NA	128	NA	NA	NA

[a] NA=not applicable.
[b] Attempt was made to contact 11902 refugees identified through data registers or community organizations registers. It is not possible to establish how many were in fact contacted and how many of those did not respond because they were not eligible for the study.

Socio-demographic, trauma and migration related characteristics of the samples

Socio-demographic trauma and migration related characteristics of the three samples are reported in Table 3.2.

As can be seen in Table 3.2., there was a slight preponderance of females over males in the sample (except in Italy). The mean age was 41.6 (*SD* = 10.8), with a range between the ages of 20 and 65 years. Most participants were married or cohabiting (76.3%), unemployed (51.3%) and had obtained at least secondary school education (78.0%). Between 41.8% and 67.9% of refugees in each sample originated from Bosnia and Herzegovina, whilst each other group of origin represented less than 24% of the sample.

Participants reported experiencing a mean of 1.1 ([*SD* = 1.3]; median 1 [range = 0-7]) potentially traumatic events before the war and 1.1 ([*SD* = 1.3]; median 1 [range = 0-10]) after the war, whilst the mean number of different traumatic war events was 6.8 (*SD* = 3.6). The most traumatic war experience occurred on average 10.5 ([*SD* = 3.1]; median 12 [range = 3-15]) years prior to the interview. The mean level of distress reported for such event was 3.9 ([*SD* = 0.3]; median 4 [range = 0-4]), indicating that the event caused extreme level of distress. Approximately one fifth of the sample reported having actively participated in the war.

Table 3.2. Socio-demographic, trauma and migration related characteristics of the refugee samples in the three recipient countries[a]

	Total (N=854)	Refugees in Germany (N=255)	Refugees in Italy (N=297)	Refugees in the UK (N=302)	P value
	N (%)	N (%)	N (%)	N (%)	
Females	438 (51.3)	133 (52.2)	137 (46.1)	168 (55.6)	0.063
Age (years) [c]	41.6 (10.8)	41.9 (10.4)	38.9 (10.1)	43.9 (11.1)	<0.001
Country of origin					<0.001
Bosnia and Herzegovina	489 (57.3)	160 (62.7)	124 (41.8)	205 (67.9)	
Kosovo	150 (17.6)	34 (13.3)	45 (15.2)	71 (23.5)	
Serbia	108 (12.6)	38 (14.9)	66 (22.2)	4 (1.3)	
Croatia	84 (9.8)	19 (7.5)	46 (15.5)	19 (6.3)	
Macedonia	23 (2.7)	4 (1.6)	16 (5.4)	3 (1.0)	
Education level attained					0.738
None or primary	188 (22.0)	59 (23.1)	61 (20.5)	68 (22.5)	
Secondary school	354 (41.5)	113 (44.3)	130 (43.8)	111 (36.8)	
Vocational/tertiary	312 (36.5)	83 (32.6)	106 (35.7)	123 (40.7)	
Marital status					0.003
Married/cohabiting	652 (76.3)	189 (74.1)	242 (81.5)	221 (73.2)	
Single	89 (10.4)	27 (10.6)	34 (11.4)	29 (9.3)	
Divorced/separated	76 (8.9)	28 (11.0)	15 (5.1)	33 (10.9)	
Widowed	37 (4.3)	11 (4.3)	6 (2.0)	20 (6.6)	
Employment status					
Employed	351 (41.1)	59 (23.1)	212 (71.4)	88 (29.1)	<0.001
Unemployed	438 (51.3)	167 (65.5)	76 (25.6)	187 (61.9)	
Retired	31 (3.6)	8 (3.1)	1 (0.3)	22 (7.3)	
Training/education	34 (4.0)	21 (8.2)	8 (2.7)	5 (1.7)	
Number of pre-war traumatic events [b]	1.1 (1.3), 1.0 (0-7)	1.2 (1.3), 1 (0-7)	0.9 (1.2), 0 (0-7)	1.3 (1.4), 1 (0-7)	0.001
Number of war traumatic events [c]	6.8 (3.6)	7.8 (3.9)	5.2 (2.8)	7.4 (3.5)	<0.001
Number of post-war traumatic events [b]	1.1 (1.3), 1 (0-10)	1.5 (1.4), 1 (0-7)	1.0 (1.2), 1 (0-10)	0.9 (1.1), 1 (0-6)	<0.001
Time since index[d] war trauma (years) [b]	10.5 (3.1), 12 (3-15)	11 (3.0), 12 (3-15)	9.8 (3.3), 11 (3-15)	10.6 (2.9), 12 (4-15)	<0.001
Distress at index trauma 0-4[b]	3.9 (0.3), 4 (0-4)	3.9 (0.3), 4 (2-4)	3.9 (0.4), 4 (1-4)	3.9 (0.3), 4 (0-4)	0.322
Active participant in war	192 (22.5)	59 (23.1)	88 (29.6)	45 (14.9)	<0.001
Time since migration (years) [b]	9.3 (4.4), 10 (1-15)	10.4 (5.3), 7 (1-15)	7.9 (4.1), 1 (0-10)	9.6 (3.4), 11 (1-15)	<0.001
Number of post-migration stressors ever experienced [c]	2.6 (1.6)	3.4 (1.5)	2.8 (1.4)	1.9 (1.4)	<0.001
Host language proficiency [c]	3.6 (1.1)	3.4 (1.1)	3.9 (1.0)	3.3 (1.2)	<0.001
Feeling accepted by the host country [c]	3.7 (1.0)	3.5 (1.0)	3.7 (1.0)	3.9 (0.9)	0.006
Temporary residence status	497 (58.2)	204 (80.0)	202 (68.0)	91 (30.1)	<0.001

[a] Data are given as the number and percentage of participants unless otherwise indicated.
[b] Mean and (standard deviation) , median and (minimum-maximum) are reported for these non-normally distributed variables
[c] Mean and (standard deviation) are reported for these normally distributed variables
[d] Index trauma is defined as the most traumatic war event.

The frequency of potentially traumatic war events experienced by the refugee samples is presented in Table 3.3. The most frequent war-related traumatic experiences were 'shelling or bombardment' (84.9%), 'lack of shelter' (64.3%) and 'being under siege' (59.3%).

Table 3.3. Number and percentage of potentially traumatic war events experienced by refugees across three countries

	Total	Refugees in Germany	Refugees in Italy	Refugees in the UK
	N (%)	N (%)	N (%)	N (%)
Serious accident, fire, or explosion	45 (5.3)	17 (6.7)	11 (3.7)	17 (5.6)
Natural disaster	12 (1.4)	3 (1.2)	5 (1.7)	4 (1.3)
Non-sexual assault by someone they knew	137 (16.0)	65 (25.6)	24 (8.2)	48 (15.9)
Non-sexual assault by stranger	315 (36.9)	132 (52.0)	55 (18.7)	128 (42.4)
Sexual assault by someone they knew	13 (1.5)	7 (2.8)	2 (0.7)	4 (1.3)
Sexual assault by stranger	31 (3.6)	25 (9.8)	2 (0.7)	4 (1.3)
Imprisonment	166 (19.4)	61 (24.0)	24 (8.1)	81 (26.8)
Life threatening illness	31 (3.6)	17 (6.7)	5 (1.7)	9 (3.0)
Sudden death of a dear person	99 (11.6)	30 (11.9)	25 (8.4)	44 (14.6)
Lack of food or water	454 (53.2)	141 (55.5)	128 (43.8)	185 (61.3)
Ill without access to medical care	184 (21.5)	80 (31.5)	29 (9.8)	75 (24.8)
Lack of shelter	549 (64.3)	173 (68.1)	214 (72.5)	162 (53.6)
Expelled from home under threat	402 (47.1)	150 (59.1)	56 (18.9)	196 (65.1)
Combat	192 (22.5)	53 (20.9)	80 (26.9)	59 (19.5)
Shelling or bombardment	725 (84.9)	217 (85.1)	277 (93.6)	231 (76.7)
Mine explosion	81 (9.5)	25 (11.6)	17 (5.9)	39 (13.7)
Siege	506 (59.3)	170 (66.9)	146 (49.3)	190 (62.9)
Serious injury	91 (10.7)	30 (11.8)	21 (7.1)	40 (13.2)
Witnessed murder or death	422 (49.4)	163 (64.2)	108 (37.9)	151 (50.0)
Learned about murder or death of a dear person	502 (58.8)	144 (58.5)	149 (52.3)	209 (69.2)
Disappearance or kidnapping of a dear person	304 (35.6)	85 (33.7)	75 (25.3)	144 (47.7)
Torture	202 (23.8)	93 (36.6)	22 (7.5)	87 (28.9)
Being lost	160 (18.7)	62 (24.9)	38 (12.9)	60 (19.9)
Kidnapped	147 (17.2)	51 (20.1)	18 (6.1)	78 (25.8)

Participants experienced on average 2.6 (*SD*=1.6) migration stressors. The frequency of post-migration stressors experienced by the refugee samples is presented in Table 3.4. The most frequently experienced post-migration stressors were 'inadequate accommodation' (52.9%), 'separation from family for a long time' (52.3%) and

'financial difficulties' (52.2%). The average length of time since migration was 9.3 years ([*SD* = 4.4]; median 10 [range = 1-15]) and 58.2% reported having a temporary residence status. Mean score on "Feeling of being accepted in the host country" was 3.7 (*SD* = 1.0) indicating that on average participants felt between moderately and well accepted in the host country. With regards to the proficiency in host language, mean score was 3.6 (*SD* = 1.1), thus showing that on average participants felt their host language proficiency was between moderate and good.

Table 3.4. Number and percentage of migration related stressors experienced by refugees across three countries

	Total	Refugees in Germany	Refugees in Italy	Refugees in the UK
Separated from family for long time	443 (52.3)	86 (34.5)	191 (64.3)	166 (55.0)
Difficult to get work permit	359 (42.4)	196 (78.7)	127 (42.8)	36 (11.9)
Difficult to find work in own profession	430 (50.8)	188 (75.5)	146 (49.2)	96 (31.8)
Inadequate accommodation for long time	448 (52.9)	181 (72.7)	143 (48.1)	124 (41.1)
Not received medical help when needed	90 (10.6)	35 (14.1)	27 (9.3)	28 (9.1)
Significant financial difficulties	442 (42.2)	138 (55.4)	195 (65.7)	109 (36.1)

Comparison of socio-demographic, trauma and migration related characteristics between the samples in the three countries

Comparisons between samples in the three countries on socio-demographic, trauma and migration related characteristics were performed. Kruskall- Wallis tests were applied for comparisons on non-normally distributed continuous variables (number of potentially traumatic experiences before and after the war, time since the most traumatic war even, distress at the time of the most traumatic war experience, time since migration). Although the Kolmogorov-Smirnov test of normality was significant for the variables age, number of potentially traumatic experiences during the war and number

of post-migration stressors, closer inspection of normality graphs indicated that the scores were reasonably normally distributed. One-way ANOVA tests were used for cross-country comparison on these variables. Chi square tests were performed for all categorical variables (gender, country of origin, education level, marital status, employment status, active participation in war, residence status).

"Feelings of being accepted by the host country" and "Host language proficiency" answers were on a 5 point Likert-type scale. Such variables do not strictly fulfil the criteria for using parametric tests. However, on visual inspection of graphs, the distribution looked reasonably similar and the departure from symmetry did not look too great. It was decided to apply a parametric test (one-way ANOVA) and these results are presented in this thesis.

The three refugee samples differed significantly on all socio-demographic, trauma and migration related variables with the exception of gender, level of education, and distress experienced at the time of the most traumatic war event ($p<0.01$ for all between-sample comparisons). Refugees in Italy were younger and had more often been married or cohabiting than refugees in Germany or the UK. More than two thirds of refugees in Italy were employed compared to less than a third of refugees in Germany and the UK. Refugees in Germany reported experiencing the highest number of traumatic events; particularly higher rates were evident for interpersonal assaults, such as sexual and non-sexual assaults, and torture. They also reported experiencing the highest number of post-migration stressors.

Prevalence of mental disorders

The prevalence rates of mental disorders by country are shown in Table 3.5. Of the total sample, 54.9% (range across the three countries 42.1% – 67.8%) refugees had at least one of the studied DSM-IV disorders. Rates of anxiety disorders were 43.7% (range 42.4% - 60.7%) and those of mood disorders 43.4% (range 30.0% - 57.4%). Substance use disorders (4.4%), somatisation disorders (1.2%) and psychotic disorders (1.3%) were less frequent across all countries. The most frequent individual disorders were Major Depressive Disorder (34.3%, range 25.6% - 40.9%) and PTSD (33.1%, range 18.9% - 54.9%). Lifetime prevalence of PTSD was 52.4% (range 35.7% - 76.0%), indicating that 19.3% (16.8% - 21.1%) of refugees had PTSD in the past but had recovered by the assessment time. The prevalence rates of most disorders showed statistically significant variation across countries. The prevalence estimates were frequently the highest for refugees in Germany and the lowest for refugees in Italy. The exceptions were the higher prevalence rate of Major Depressive Disorder observed in refugees in the UK and the higher rate of Generalized Anxiety Disorder observed in refugees in Italy. Even when 'any mental disorder' was considered, the distribution was the same among countries i.e. Germany the highest and Italy the lowest prevalence.

Comorbidity of mental disorders

As shown in Table 3.5., 18.6% (range 12.2% - 22.5%) of the sample met the criteria for only one mental disorder, 16.0% (range 12.5% - 18.8%) for two disorders, and 20.3% (range 9.8% - 36.9%) for three or more disorders. The most frequently co-occurring categories of disorders were mood and anxiety disorders; about three quarters (74.0%) of those who met the criteria for an anxiety disorder also had a mood disorder. The

highest co-morbidity of the individual disorders was between PTSD and Major Depression i.e. 64.7% of refugees who had PTSD also had Major Depression and 62.7% of those who had Major Depression also had PTSD.

Table 3.5. Observed prevalence of current mental disorders in refugees across the three recipient countries[a]

Mental disorder	N	Total	Refuges in Germany	Refugees in Italy	Refugees in the UK	Comparison between countries
Any mood disorder	**841**	**43.4 (1.7)**	**57.4 (3.1)**	**30.0 (2.7)**	**45.1 (2.9)**	**<0.001**
Major Depressive Disorder (MDE)	851	34.3 (1.6)	36.8 (3.0)	25.6 (2.5)	40.9 (2.8)	<0.001
MDE recurrent	846	15.6 (1.3)	11.1 (2.0)	14.1 (2.0)	20.9 (2.4)	0.005
MDE with melancholic features	845	23.1 (1.5)	24.6 (2.7)	15.5 (2.1)	29.4 (2.7)	<0.001
Dysthymia	842	7.4 (0.9)	16.9 (2.4)	3.7 (1.1)	3.0 (1.0)	<0.001
Hypomanic Episode	850	1.5 (0.4)	2.7 (1.0)	0.7 (0.5)	1.3 (0.7)	0.13
Manic Episode	850	1.9 (0.5)	4.3 (1.3)	0.3 (0.3)	1.3 (0.7)	0.002
Any anxiety disorder	**854**	**43.7 (1.7)**	**60.7 (3.1)**	**30.3 (2.7)**	**42.4 (2.8)**	**<0.001**
Panic Disorder	851	10.0 (1.0)	14.1 (2.2)	6.4 (1.4)	10.0 (1.7)	0.01
Panic Disorder with agoraphobia	852	6.7 (0.9)	10.6 (1.9)	2.7 (0.9)	7.3 (1.5)	0.001
Agoraphobia without Panic Disorder	853	8.2 (0.9)	12.2 (2.1)	2.4 (0.9)	10.6 (1.8)	<0.001
Social Phobia	854	6.4 (0.8)	9.4 (1.8)	2.0 (0.8)	8.3 (1.6)	0.001
Obsessive-Compulsive Disorder	854	4.8 (0.7)	9.4 (1.8)	1.0 (0.6)	4.9 (2.9)	<0.001
PTSD current	854	33.1 (1.6)	54.9 (3.1)	18.9 (2.3)	28.8 (2.6)	<0.001
PTSD lifetime	853	52.4 (1.7)	76.0 (2.7)	35.7 (2.8)	49.0 (2.9)	<0.001
Generalised Anxiety Disorder	854	8.7 (1.0)	4.7 (1.3)	14.8 (2.1)	6.0 (1.4)	<0.001
Any substance abuse disorder	**845**	**4.4 (0.7)**	**11.8 (2.0)**	**0.7 (0.5)**	**1.7 (0.7)**	**<0.001**
Alcohol Dependence	854	1.8 (0.5)	4.7 (1.3)	0.3 (0.3)	0.7 (0.5)	<0.001
Alcohol Abuse	845	4.3 (0.9)	1.1 (0.3)	1.0 (0.8)	1.0 (0.6)	<0.001
Substance Dependence	853	1.9 (0.5)	6.3 (1.5)	0 (0)	0 (0)	<0.001
Substance Abuse	853	4.2 (1.0)	13.4 (3.1)	0 (0)	0.7 (0.5)	<0.001
Psychotic Disorder	**854**	**1.3 (0.4)**	**2.4 (1.0)**	**0.7 (0.5)**	**1.0 (0.6)**	**0.23**
Somatisation Disorder	**851**	**1.2 (0.4)**	**2.4 (0.9)**	**0.3 (0.3)**	**1.0 (0.6)**	**0.11**
Any mental disorder	**853**	**54.9 (1.7)**	**67.8 (2.9)**	**42.1 (2.9)**	**56.6 (2.9)**	**<0.001**
One mental disorder	**854**	**18.6 (1.3)**	**12.2 (2.1)**	**19.9 (2.3)**	**22.5 (2.4)**	**0.004**
Two mental disorders	**854**	**16.0 (1.3)**	**18.8 (2.5)**	**12.5 (1.9)**	**17.2 (2.2)**	**0.100**
≥ 3 mental disorders	**854**	**20.3 (1.4)**	**36.9 (3.0)**	**9.8 (1.7)**	**16.6 (2.1)**	**<0.001**

[a] Data are given as the percentage of participants and (standard error) unless otherwise indicated.
PTSD=Post-Traumatic Stress Disorder

3.3.2. Addressing research question 1: Factors associated with mental disorders

The present section addressed research question 1: What participant characteristics and experiences are associated with mental disorders in war refugees from the same region who have resettled in different countries several years previously?

More specifically, the following research questions were addressed:

1a) what socio-demographic characteristics, war experiences and post-migration factors are associated with mental disorders in war refugees from the same region who have resettled in different countries several years previously?

1b) what is the relative impact of each group of factors on mental disorders and what is the confounding effect of post-migration factors in explaining the relationship between war exposure and mental disorders?

1c) are the factors associated with mental disorders stable across the countries?

Factors associated with mental disorders

Preliminary analyses

Before analyses proceeded, independent variables were assessed for multicollinearity. First, bivariate correlations among the potential predictor variables were assessed using statistical tests as described in the methods (section 3.2.6.). Variables 'country of origin' and 'length of time since migration' were highly correlated with 'time since the most traumatic war event' (Spearman's *rho*=0.690, $p<0.001$; Spearman's *rho*=0.640, $p<0.001$, respectively) and were, therefore, excluded from logistic regression analyses.

Multicollinearity among the remaining variables to be included in the multivariable regression analyses was assessed using collinearity diagnostic test, but none of the variables exceeded a variance inflation factor (VIF) of 5 or tolerance value less than 0.1 (Stine, 1995), and were, therefore, retained in all further analyses.

The variable "experienced distress at the time of the most traumatic event during the war" was excluded from multivariable logistic analyses because of a very low variance, with approximately 95% of participants in each country rating the highest option.

Univariable associations between explanatory variables and mental disorders

Univariable associations between explanatory variables and mental disorders were examined first. The results are presented in Table 3.6. As can be seen, each variable tested was found to be significantly (p<0.10) associated with at least one of the outcomes.

Table 3.6. Univariable associations between pre-war, war and post-war factors and indices of any mood, anxiety, PTSD, and substance use disorders among war refugees

Variable	Any mood disorder			PTSD			Any Anxiety disorder			Any substance use disorder		
	OR	(95% CI)	*p* value	OR	(95% CI)	*p* value	OR	(95% CI)	*p* value	OR	(95% CI)	*p* value
UK	1	[Reference]		1	[Reference]		1	[Reference]		1	[Reference]	
Germany	1.64	(1.17-2.31)	0.004	3.01	(2.12-4.27)	<0.001	2.11	(1.50-2.96)	<0.001	7.74	(2.96-20.27)	<0.001
Italy	0.52	(0.37-0.73)	<0.001	0.57	(0.39-0.84)	0.005	0.59	(0.42-0.83)	0.002	0.39	(0.08-2.04)	0.265
Gender												
Male	1	[Reference]		1	[Reference]		1	[Reference]		1	[Reference]	
Female	1.49	(1.13-1.96)	0.004	1.13	(0.85-1.51)	0.395	1.43	(1.09-1.88)	0.010	0.21	(0.09-0.48)	<0.001
Age	1.03	(1.01-1.04)	<0.001	1.04	(1.02-1.05)	<0.001	1.02	(1.011.03)	0.002	0.97	(0.93-1.00)	0.043
Education level												
None or primary	1	[Reference]		1	[Reference]		1	[Reference]		1	[Reference]	
Secondary or higher	0.45	(0.32-0.62)	<0.001	0.44	(0.32-0.62)	<0.001	0.46	(0.33-0.64)	<0.001	0.58	(0.29-1.18)	0.132
Number of pre-war traumatic events	1.11	(1.00-1.22)	0.055	1.06	(0.95-1.17)	0.304	1.02	(0.92-1.13)	0.688	1.13	(0.91-1.42)	0.267
Number of war-related traumatic events	1.17	(1.13-1.22)	<0.001	1.24	(1.18-1.29)	<0.001	1.18	(1.13-1.23)	<0.001	1.12	(1.03-1.23)	0.008
Active participant in war												
No	1	[Reference]		1	[Reference]		1	[Reference]		1	[Reference]	
Yes	0.72	(0.52-1.01)	0.057	0.72	(0.50-1.02)	0.065	0.68	(0.49-0.95)	0.022	2.80	(1.43-5.47)	0.003
Time since index[a] war trauma	0.95	(0.91-0.99)	0.016	1.02	(0.97-1.07)	0.434	1.01	(0.96-1.05)	0.839	1.02	(0.92-1.14)	0.672
Number of post-war traumatic events	1.26	(1.13-1.41)	<0.001	1.26	(1.12-1.41)	<0.001	1.30	(1.16-1.45)	<0.001	1.39	(1.14-1.69)	0.001
Migration stressors count	1.40	(1.27-1.53)	<0.001	1.35	(1.22-1.48)	<0.001	1.32	(1.21-1.45)	<0.001	1.31	(1.06-1.62)	0.013
Employment status												
Employed	1	[Reference]		1	[Reference]		1	[Reference]		1	[Reference]	
Unemployed	3.16	(2.37-4.21)	<0.001	2.77	(2.04-3.76)	<0.001	2.43	(1.84-3.22)	<0.001	1.54	(0.78-3.08)	0.217
Living with partner												
Yes	1	[Reference]		1	[Reference]		1	[Reference]		1	[Reference]	
No	1.12	(0.81-1.54)	0.505	0.94	(0.67-1.32)	0.740	0.99	(0.72-1.37)	0.971	2.36	(1.20-4.65)	0.013
Permanent residence status	1	[Reference]		1	[Reference]		1	[Reference]		1	[Reference]	
Temporary residence status	2.13	(1.60-2.83)	<0.001	2.28	(1.68-3.09)	<0.001	2.09	(1.58-2.77)	<0.001	3.15	(1.37-7.25)	0.007
Feeling accepted by host country	0.59	(0.50-0.68)	<0.001	0.76	(0.66-0.89)	<0.001	0.74	(0.64-0.85)	<0.001	0.62	(0.45-0.85)	0.003
Host language proficiency	0.64	(0.57-0.74)	<0.001	0.63	(0.55-0.72)	<0.001	0.68	(0.60-0.78)	<0.001	0.89	(0.66-1.20)	0.443

Multivariable associations between explanatory variables and mental disorders

Associations of variables found significantly (p<0.10) associated with any of the four mental disorders in the univariable logistic regression models were further explored in multivariable hierarchical logistic regression models as described in the statistical methods section (section 3.2.6.) and are presented in Table 3.7.

Higher rates of mood disorders were associated with female gender, older age, lower education, more traumatic experiences during and after the war, more post-migration stressors experienced, being unemployed, having a temporary residence status and not feeling accepted by the host country.

Higher rates of anxiety disorders were associated with lower education, more traumatic experiences during and after the war, no involvement in war activities, more post-migration stressors experienced and temporary residence status. Rates of anxiety disorders (but not PTSD) were lower in participants who felt accepted by the host country. Additionally, higher rates of PTSD were associated with older age.

A younger age, being male and not living with a partner were associated with higher odds of substance use disorders.

After adjusting for potential confounders, refugees in the UK had the highest odds of mood disorders, whilst refugees in Germany had the highest odds of PTSD and substance use disorders. There were no differences among refugees in the three countries regarding other anxiety disorders.

Results indicated that pre-war factors (Block 1), war factors (Block 2) and post-migration factors (Block 3) each explained a significant amount of variance in the rates of mood disorders (6.9%, 12.2% and 16.1% of the variance, respectively), anxiety disorders (5.0%, 11.0%, 11.5%) and PTSD (7.3%, 14.2%, 12.8%). Only pre-war and post-migration factors significantly contributed to variance in the rates of substance use disorders (10.8% and 20.7%). The final models therefore explained between 27.5% and 35.2% of the variance.

For mood and anxiety disorders the effects of war exposure remained statistically significant, although somewhat weakened, once post-migration factors were introduced into the model. The effect of time since the most traumatic war event on mood disorders was fully confounded by post-migration factors. Time since the war trauma was the only war factor (and only for mood disorders) for which the statistical significance changed once post-migration factors were introduced into the model.

Table 3.7. Association between pre-war, war and post-migration factors and indices of any mood, anxiety, PTSD, and substance use disorders among the war-affected refugees

		Any Mood Disorder (N=833)			Any Anxiety Disorder (N=845)			PTSD (N=845)			Any Substance Use Disorder (N=837)		
		Adjusted OR (95% CI)		*p* value	Adjusted OR (95% CI)		*p* value	Adjusted OR (95% CI)		*p* value	Adjusted OR (95% CI)		*p* value
Block 1	**Pre-war factors**												
	Females	1.39	(1.04-1.85)	0.026	1.31	(0.99-1.73)	0.063	1.01	(0.75-1.36)	0.948	0.19	(0.08-0.45)	<0.001
	Age	1.02	(1.01-1.04)	0.001	1.02	(1.01-1.03)	0.007	1.03	(1.02-1.05)	<0.001	0.96	(0.93-1.00)	0.033
	Secondary or higher education	0.47	(0.34-0.67)	<0.001	0.50	(0.35-0.70)	<0.001	0.45	(0.32-0.64)	<0.001	0.42	(0.20-0.88)	0.022
	Number of pre-war traumatic events	1.08	(0.97-1.20)	0.164	1.00	(0.90-1.11)	0.958	1.00	(0.89-1.12)	0.976	1.15	(0.92-1.43)	0.235
Block 2	**Pre-war factors**												
	Females	1.85	(1.30-2.64)	0.001	1.50	(1.06-2.11)	0.022	1.14	(0.78-1.65)	0.498	0.22	(0.09-0.56)	0.002
	Age	1.02	(1.01-1.04)	0.002	1.01	(1.00-1.03)	0.129	1.03	(1.01-1.04)	0.001	0.95	(0.91-0.99)	0.010
	Secondary or higher education	0.60	(0.42-0.87)	0.006	0.57	(0.40-0.82)	0.003	0.53	(0.36-0.77)	0.001	0.36	(0.16-0.79)	0.011
	Number of pre-war traumatic events	1.08	(0.96-1.21)	0.202	1.00	(0.89-1.11)	0.939	0.99	(0.88-1.12)	0.920	1.19	(0.94-1.50)	0.145
	War factors												
	Number of war-related traumatic events	1.21	(1.16-1.27)	<0.001	1.21	(1.15-1.26)	<0.001	1.25	(1.20-1.32)	<0.001	1.09	(0.99-1.20)	0.068
	Active participant in war	0.80	(0.52-1.22)	0.294	0.63	(0.41-0.95)	0.027	0.55	(0.35-0.86)	0.009	1.25	(0.58-2.69)	0.563
	Time since index[a] war trauma	0.89	(0.85-0.94)	<0.001	0.97	(0.92-1.02)	0.272	0.97	(0.92-1.03)	0.347	1.08	(0.96-1.21)	0.223
Block 3	**Pre-war factors**												
	Females	1.60	(1.08-2.38)	0.019	1.33	(0.92-1.93)	0.126	1.00	(0.67-1.50)	0.987	0.18	(0.07-0.48)	0.001
	Age	1.02	(1.00-1.04)	0.030	1.01	(0.99-1.02)	0.396	1.03	(1.00-1.05)	0.008	0.95	(0.91-0.99)	0.033
	Secondary or higher education	0.52	(0.34-0.79)	0.002	0.56	(0.37-0.84)	0.005	0.52	(0.34-0.80)	0.003	0.44	(0.17-1.10)	0.078
	Number of pre-war traumatic events	1.08	(0.95-1.23)	0.225	1.01	(0.89-1.14)	0.869	1.02	(0.90-1.17)	0.720	1.22	(0.93-1.60)	0.142
	War factors												
	Number of war-related traumatic events	1.16	(1.10-1.22)	<0.001	1.16	(1.10-1.22)	<0.001	1.21	(1.14-1.28)	<0.001	1.00	(0.90-1.12)	0.963
	Active participant in war	0.73	(0.45-1.18)	0.202	0.56	(0.36-0.89)	0.013	0.47	(0.28-0.77)	0.003	1.55	(0.65-3.71)	0.323
	Time since index[a] war trauma	0.95	(0.89-1.01)	0.086	0.98	(0.96-1.09)	0.477	1.02	(0.95-1.08)	0.657	1.08	(0.93-1.24)	0.316

Table 3.7. continued on the next page

Table 3.7. continued Association between pre-war, war and post-migration factors and indices of any mood, anxiety, PTSD, and substance use disorders among the war-affected refugees

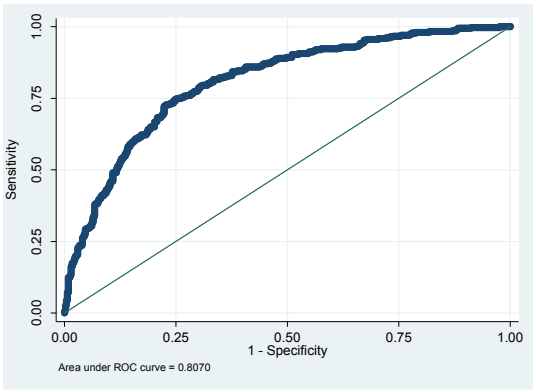
Block 3	Any Mood Disorder (N=833)			Any Anxiety Disorder (N=845)			PTSD (N=845)			Any Substance Use Disorder (N=837)		
	Adjusted OR (95% CI)		*p* value	Adjusted OR (95% CI)		*p* value	Adjusted OR (95% CI)		*p* value	Adjusted OR (95% CI)		*p* value
Post-migration factors												
Number of post-war traumatic events	1.17	(1.02-1.33)	0.027	1.20	(1.05-1.37)	0.007	1.17	(1.02-1.33)	0.025	1.14	(0.88-1.46)	0.320
Number of post-migration stressors	1.37	(1.21-1.54)	<0.001	1.24	(1.11-1.38)	<0.001	1.21	(1.07-1.37)	0.002	0.99	(0.75-1.30)	0.931
Unemployed	1.99	(1.35-2.93)	0.001	1.36	(0.94-1.96)	0.107	1.35	(0.90-2.03)	0.149	0.85	(0.33-2.19)	0.739
Not living with partner	1.32	(0.89-1.97)	0.174	1.08	(0.74-1.58)	0.690	1.08	(0.71-1.63)	0.730	2.44	(1.09-5.46)	0.031
Feeling accepted by the host country	0.62	(0.51-0.74)	<0.001	0.82	(0.69-0.98)	0.027	0.88	(0.73-1.06)	0.168	0.75	(0.50-1.11)	0.153
Host language proficiency	1.04	(0.86-1.26)	0.670	0.92	(0.76-1.11)	0.371	0.88	(0.72-1.08)	0.228	0.90	(0.56-1.45)	0.665
Temporary residence status	2.04	(1.34-3.10)	0.001	1.93	(1.31-2.85)	0.001	1.87	(1.21-2.87)	0.005	2.42	(0.82-7.12)	0.108
Country												
Germany vs. UK	0.64	(0.39-1.06)	0.080	1.09	(0.67-1.72)	0.722	1.91	(1.16-3.15)	0.011	4.06	(1.25-13.20)	0.020
Italy vs. UK	0.48	(0.29-0.78)	0.003	0.66	(0.41-1.04)	0.072	0.87	(0.52-1.51)	0.657	0.26	(0.04-1.57)	0.059

Note: For Any Mood Disorder model, Block 1 Nagelkerke R^2=0.069,$\chi^2_{(4)}$=44.2, p<0.001; Block 2 Nagelkerke R^2=0.191 (R^2change=0.122), $\chi^2_{(4)}$=127.8, p<0.001; Block 3 Nagelkerke R^2=0.352 (R^2change=0.161), $\chi^2_{(9)}$=254.1, p<0.001.
For Any Anxiety Disorder model, Block 1 Nagelkerke R^2=0.05, $\chi^2_{(4)}$=32.0, p<0.001; Block 2, Nagelkerke R^2=0.160 (R^2change=0.110) $\chi^2_{(4)}$=107.4, p<0.001; Block 3 Nagelkerke R^2=0.275 (R^2change=0.115), $\chi^2_{(9)}$=194.2, p<0.001.
For PTSD model, Block 1 Nagelkerke R^2=0.073, $\chi^2_{(4)}$=45.6, p<0.001; Block 2 Nagelkerke R^2=0.215 (R^2change=0.142), $\chi^2_{(4)}$=144.7, p<0.001; Block 3 Nagelkerke R^2=0.343 (R^2change=0.128), $\chi^2_{(9)}$=239.3, p<0.001.
For Any Substance Use Disorder model, Block 1 Nagelkerke R^2=0.108, $\chi^2_{(4)}$=28.0, p<0.001; Block 2 Nagelkerke R^2=0.135 (R^2change=0.027), $\chi^2_{(4)}$=35.0, p=0.071; Block 3 Nagelkerke R^2=0.342 (R^2change=0.207), $\chi^2_{(9)}$=91.8, p<0.001.
[a] Index trauma is defined as the most traumatic war event.

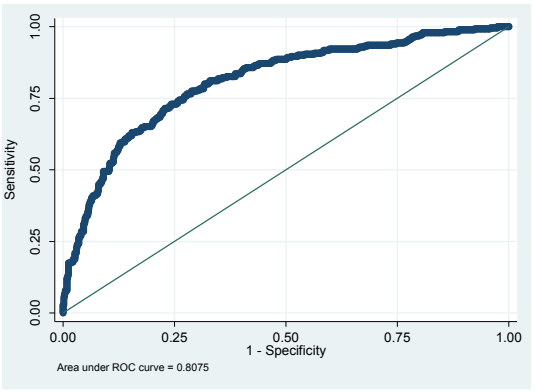
The ROC curves indicated that the discriminating ability of the four models to predict mood disorders, anxiety disorders, substance use disorders, and PTSD was satisfactory, with an AUC of 0.81 for mood disorders, 0.77 for anxiety disorders, 0.90 for substance use disorders and 0.81 for PTSD. AUCs for ROC curves assessing discriminating ability of the four models are plotted in Figure 3.1.

Figure 3.1. Receiver Operating Characteristic (ROC) curves for mental disorders models as defined in Table 3.7

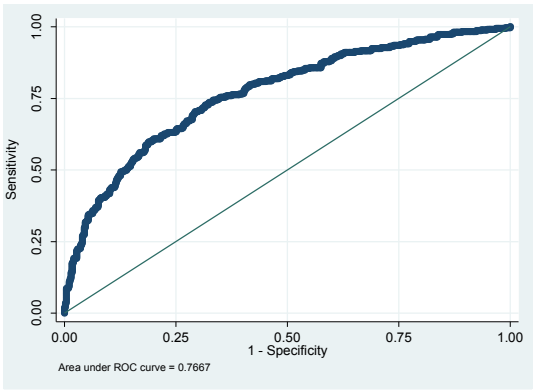
a) Any mood disorder



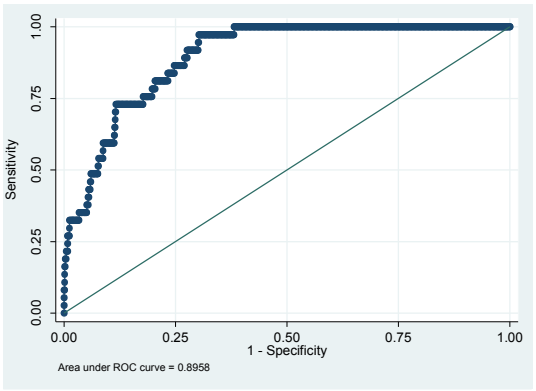
b) PTSD



c) Any anxiety disorder



d) Any substance use disorder



Stability of associations across the three countries

Analyses that tested interaction effects between country and each predictor variable and their associations with mental disorders provided no evidence for such effects. Out of the 26 tested interaction effects only one was statistically significant (x^2=4.59, p=0.032), as would be expected to occur by chance.

The results of likelihood ratio tests assessing the impact of pre- and post-migration risk factors on between-country differences in prevalence rates of mental disorders are presented in Table 3.8. The results of the likelihood ratio tests indicated that post-migration factors fully explained country differences in rates of anxiety disorders. For mood, PTSD and substance use disorders neither pre-migration nor post-migration factors fully explained country differences; however, post-migration factors had the largest impact in reducing the country differences for all three outcomes. None of the individual pre-migration or post-migration risk factors fully explained country differences, although several factors reduced the differences. The number of war experiences partially explained country differences for anxiety disorders, PTSD and substance use disorders i.e. differences in the odds of these disorders between refugees in Italy and the UK (but not Germany) disappeared. Temporary residence and unemployment were the factors with the strongest impact on country differences in rates of mood disorders; temporary residence and post-migration stressors for anxiety disorders and PTSD; and temporary residence status and number of traumatic experiences after the war for substance use disorders.

Table 3.8. Results of likelihood ratio tests assessing the impact of pre- and post-migration risk factors on between-country differences in prevalence rates of mental disorders

	Any Mood Disorder			Any Anxiety Disorder			PTSD			Any Substance Use Disorder		
	OR (95% CI)	Model LR χ^2	*p*	OR (95% CI)	Model LR χ^2	*p*	OR (95% CI)	Model LR χ^2	*p*	OR (95% CI)	Model LR χ^2	*p*
Country unadjusted												
Germany vs. UK	1.64 (1.17-2.31)	na	na	2.11 (1.50-2.96)	na	na	3.01 (2.12-4.27)	na	na	7.74 (2.96-20.27)	na	na
Italy vs. UK	0.52 (0.37-0.73)			0.59 (0.42-0.83)			0.57 (0.39-0.84)			0.39 (0.08-2.04)		
Country adjusted for gender												
Germany vs. UK	1.67 (1.19-2.36)	41.14	<0.001	2.14 (1.52-3.01)	51.51	<0.001	3.02 (2.13-4.29)	83.18	<0.001	7.73 (2.93-20.43)	46.76	<0.001
Italy vs. UK	0.54 (0.38-0.76)			0.61 (0.43-0.85)			0.58 (0.39-0.85)			0.34 (0.07-1.78)		
Country adjusted for age												
Germany vs. UK	1.73 (1.22-2.43)	37.17	<0.001	2.19 (1.56-3.09)	49.27	<0.001	3.35 (2.33-4.80)	79.88	<0.001	7.31 (2.78-19.21)	46.73	<0.001
Italy vs. UK	0.58 (0.41-0.82)			0.64 (0.45-0.90)			0.68 (0.46-1.00)			0.32 (0.06-1.67)		
Country adjusted for education												
Germany vs. UK	1.65 (1.17-2.33)	41.93	<0.001	2.14 (1.52-3.02)	52.35	<0.001	3.10 (2.17-4.43)	83.96	<0.001	7.79 (2.97-20.41)	44.5	<0.001
Italy vs. UK	0.52 (0.37-0.73)			0.59 (0.42-0.83)			0.58 (0.39-0.85)			0.40 (0.08-2.07)		
Country adjusted for N of pre-war traumas												
Germany vs. UK	1.67 (1.18-2.34)	41.01	<0.001	2.10 (1.50-2.96)	52.5	<0.001	3.03 (2.13-4.31)	82.96	<0.001	7.98 (3.04-20.96)	44.59	<0.001
Italy vs. UK	0.54 (0.38-0.75)			0.59 (0.42-0.83)			0.58 (0.40-0.86)			0.41 (0.08-2.16)		
Country adjusted for N of war traumas												
Germany vs. UK	1.59 (1.12-2.25)	19.34	<0.001	2.10 (1.48-2.98)	29.11	<0.001	3.14 (2.17-4.56)	52.12	<0.001	7.61 (2.90-19.95)	39.21	<0.001
Italy vs. UK	0.69 (0.49-0.99)			0.80 (0.57-1.15)			0.89 (0.59-1.34)			0.45 (0.08-2.36)		
Country adjusted for active participation in war												
Germany vs. UK	1.69 (1.20-2.37)	41.32	<0.001	2.18 (1.55-3.07)	51.44	<0.001	3.10 (2.18-4.41)	82.92	<0.001	7.01 (2.66-18.47)	45.44	<0.001
Italy vs. UK	0.54 (0.38-0.76)			0.62 (0.44-0.87)			0.60 (0.41-0.88)			0.31 (0.06-1.65)		
Country adjusted for time since index[a] war trauma												
Germany vs. UK	1.72 (1.22-2.43)	50.11	<0.001	2.13 (1.51-2.99)	53.51	<0.001	3.03 (2.13-4.30)	83.3	<0.001	7.86 (3.00-20.61)	44.85	<0.001
Italy vs. UK	0.48 (0.88-0.96)			0.58 (0.41-0.81)			0.57 (0.39-0.83)			0.38 (0.07-1.99)		
Country adjusted for all pre-arrival factors												
Germany vs. UK	**1.88 (1.29-2.73)**	**18.72**	**<0.001**	**2.38(1.64-3.44)**	**28.11**	**<0.001**	**3.91 (2.62-5.84)**	**54.31**	**<0.001**	**7.26 (2.69-19.65)**	**45.6**	**<0.001**
Italy vs. UK	**0.82 (0.56-1.21)**			**0.97 (0.66-1.42)**			**1.19 (0.76-1.85)**			**0.26 (0.05-1.45)**		

Table 3.8. continued on the next page

Table 3.8. continued Results of likelihood ratio tests assessing the impact of pre- and post-migration risk factors on between-country differences in prevalence rates of mental disorders

	Any Mood Disorder			Any Anxiety Disorder			PTSD			Any Substance Use Disorder		
	OR (95% CI)	Model LR $\chi^{2\,b}$	*p*	OR (95% CI)	Model LR $\chi^{2\,b}$	*p*	OR (95% CI)	Model LR $\chi^{2\,b}$	*p*	OR (95% CI)	Model LR $\chi^{2\,b}$	*p*
Country adjusted for N of post-war traumas												
Germany vs. UK	1.68 (1.14-2.45)	14.35	<0.001	2.13 (1.46-3.11)	21.78	<0.001	3.58 (2.39-5.38)	46.42	<0.001	6.59 (2.40-18.1)	40.31	<0.001
Italy vs. UK	0.78 (0.53-1.16)			0.93 (0.63-1.37)			1.15 (0.74-1.80)			0.26 (0.05-1.45)		
Country adjusted for N of post-migration												
Germany vs. UK	1.10 (0.72-1.67)	13.88	0.001	1.63 (1.09-2.44)	16.53	<0.001	2.74 (1.77-4.23)	31.93	<0.001	6.94 (2.34-20.20)	41.44	<0.001
Italy vs. UK	0.53 (0.35-0.81)			0.72 (0.48-1.08)			0.90 (0.57-1.44)			0.25 (0.04-1.44)		
Country adjusted for employment status												
Germany vs. UK	1.83 (1.26-2.68)	12.37	<0.001	2.35 (1.62-3.40)	23.62	<0.001	3.88 (2.59-5.80)	49.42	<0.001	7.34 (2.69-20.03)	40.36	<0.001
Italy vs. UK	1.00 (0.66-1.50)			1.09 (0.73-1.62)			1.37 (0.86-2.18)			0.25 (0.04-1.46)		
Country adjusted for living situation												
Germany vs. UK	1.89 (1.30-2.75)	18.43	<0.001	2.38 (1.64-3.45)	28.05	<0.001	3.92 (2.62-5.85)	54.31	<0.001	7.23 (2.65-19.70)	43.39	<0.001
Italy vs. UK	0.83 (0.57-1.23)			0.97 (0.66-1.42)			1.19 (0.76-1.86)			0.26 (0.05-1.55)		
Country adjusted for feeling accepted by the host country												
Germany vs. UK	1.58 (1.07-2.33)	15.08	<0.001	2.17 (1.49-3.16)	23.83	<0.001	3.63 (2.42-5.45)	48.29	<0.001	6.27 (2.28-17.26)	42.14	<0.001
Italy vs. UK	0.71 (0.47-1.06)			0.90 (0.61-1.33)			1.13 (0.72-1.77)			0.23 (0.04-1.30)		
Country adjusted for host language proficiency												
Germany vs. UK	1.88 (1.29-2.73)	16.15	<0.001	2.39 (1.65-3.47)	25.6	<0.001	3.96 (2.64-5.94)	51.83	<0.001	7.18 (2.65-19.42)	43.22	<0.001
Italy vs. UK	0.88 (0.59-1.31)			1.06 (0.72-1.57)			1.34 (0.85-2.11)			0.27 (0.05-1.54)		
Country adjusted for residence status												
Germany vs. UK	1.21 (0.79-1.87)	11.54	0.003	1.62 (1.07-2.46)	14.75	0.001	2.69 (1.71-4.24)	28.18	<0.001	5.02 (1.70-14.88)	37.9	<0.001
Italy vs. UK	0.61 (0.40-0.93)			0.75 (0.50-1.12)			0.93 (0.59-1.49)			0.18 (0.03-1.09)		
Country adjusted for all post-arrival factors												
Germany vs. UK	**0.64 (0.39-1.06)**	**9.02**	**0.011**	**1.09 (0.67-1.72)**	**5.79**	**0.055**	**1.91 (1.16-3.15)**	**11.62**	**0.003**	**4.06 (1.25-13.20)**	**27.69**	**<0.001**
Italy vs. UK	**0.48 (0.29-0.78)**			**0.66(0.41-1.04)**			**0.89 (0.52-1.51)**			**0.16 (0.02-1.07)**		

LR, the likelihood ratio is defined as 2*(L1–L0) and (approximately) follows a chi-squared distribution on 1 degree of freedom, where L0 represents the log-likelihood for the model including only one pre- or post-arrival factor and L1 is the log-likelihood for the model also adjusting for country. For the model including only one pre- or post-arrival factor, the smallest chi-squared statistic obtained by adding country variable, would be the most important factor given the log-likelihood changed by the least amount. [a]Index trauma is defined as the most traumatic war event. [b]For addition of named factor.

To further explore country differences, a sensitivity analyses was performed comparing the likelihood in each country of obtaining basic survival needs. The results are presented in Table 3.9. After adjusting for age and mental health status, refugees in Germany experienced the highest number of post-migration stressors, including difficulties with employment (obtaining a work permit, work in own profession, and having paid employment) and adequate accommodation, whilst refugees in the UK were the least likely to experience post-migration stressors or not feeling accepted by the host country.

Table 3.9. Results of logistic and linear regression sensitivity analyses comparing the likelihood of refugees experiencing post-migration stressors in each country[a]

Post-migration stressors	Germany vs. Italy			Germany vs. UK			UK vs. Italy		
	Adjusted B coefficient (95% CI)		***p***	**Adjusted B coefficient (95% CI)**		***p***	**Adjusted B coefficient (95% CI)**		***p***
Accepted by the host country	0.01	(-0.18, 0.15)	0.863	-0.30	(-0.45, -0.14)	<0.001	0.28	(0.13, 0.44)	<0.001
Number of post-migration stressors	0.32	(0.07, 0.57)	0.011	1.37	(1.13, 1.61)	<0.001	-1.05	(-1.29, -0.82)	<0.001
	Adjusted OR (95% CI)		***p***	**Adjusted OR (95% CI)**		***p***	**Adjusted OR (95% CI)**		***p***
Separated from family for long time	0.28	(0.20-0.41)	<0.001	0.41	(0.29-0.59)	<0.001	0.69	(0.49-0.97)	0.031
Difficult to get work permit	4.54	(3.07-6.73)	<0.001	26.22	(16.47-41.75)	<0.001	0.17	(0.11-0.27)	<0.001
Difficult to find work in own profession	2.84	(1.95-4.15)	<0.001	7.05	(4.79-10.37)	<0.001	0.40	(0.28-0.57)	<0.001
Inadequate accommodation for long time	2.30	(1.58-3.33)	<0.001	3.73	(2.57-5.40)	<0.001	0.62	(0.44-0.87)	0.006
Not received medical help when needed	1.25	(0.71-2.20)	0.439	1.29	(0.75-2.23)	0.363	0.97	(0.54-1.74)	0.918
Significant financial difficulties	0.50	(0.34-0.72)	<0.001	2.04	(1.44-2.91)	<0.001	0.24	(0.17-0.35)	<0.001
Unemployment	4.51	(3.06-6.63)	<0.001	1.03	(0.70-1.50)	0.895	4.62	(3.20-6.67)	<0.001

[a] All B coefficients and odds ratios (OR) are adjusted for age and mental health status (any mental disorder yes/no).

Observed and adjusted prevalence rates for factors included in multivariable logistic regression analyses

The differences in observed and adjusted prevalence rates associated with each of the factors considered in multivariable logistic regressions are shown in Table 3.10. Observed and adjusted prevalence rates were similar in most cases. Of the factors found to be associated with a mental disorder in multivariable logistic regression, the number of potentially traumatic war events was associated with the largest differences in adjusted rates of PTSD (≥4 potentially traumatic experiences were linked with 21.8% higher rates) and anxiety disorders (20.2% higher rates). These differences were somewhat smaller for the adjusted rates of mood disorders (20.0%), for which the largest differences were associated with being unemployed (27.0%). The factor associated with the highest difference in prevalence rates of substance use disorders was gender: male gender was associated with 5.8% higher rates of substance use disorders.

Table 3.10. Observed and adjusted prevalence rates of mood disorders, anxiety disorders, PTSD, and substance use disorders among war-affected refugees[a]

		Mood disorders		Anxiety disorders		PTSD		Substance use disorders	
	N	Observed	Adjusted	Observed	Adjusted	Observed	Adjusted	Observed	Adjusted
Gender									
Male	416	38.4 (2.4)	38.6 (1.3)	39.2 (2.4)	39.4 (1.1)	31.7 (2.3)	31.8 (1.2)	7.3 (1.3)	7.4 (0.6)
Female	438	48.1 (2.4)	48.3 (1.2)	47.9 (2.4)	48.2 (1.1)	34.5 (2.3)	34.6 (1.2)	1.6 (0.6)	1.6 (0.1)
Age (years)									
20-40	427	37.7 (2.4)	38.2 (1.3)	37.5 (2.3)	39.8 (1.1)	24.6 (2.1)	26.5 (1.1)	5.7 (1.1)	5.7 (0.6)
41-65	427	49.2 (2.4)	49.1 (1.2)	49.9 (2.4)	48.0 (1.1)	41.7 (2.4)	40.0 (1.2)	3.1 (0.8)	3.1 (0.3)
Education level									
None or primary	188	58.8 (3.6)	58.9 (1.7)	58.5 (3.6)	58.5 (0.8)	47.9 (3.7)	47.9 (1.9)	6.4 (1.7)	6.4 (0.3)
Secondary or higher	666	39.0 (1.9)	39.3 (1.0)	39.5 (1.9)	39.7 (1.5)	29.0 (1.8)	29.1 (0.9)	3.8 (0.7)	3.8 (0.1)
Number of pre-war traumatic events									
None	365	39.3 (2.6)	40.5 (1.4)	40.5 (2.6)	42.3 (1.2)	29.3 (2.4)	30.5 (1.2)	2.5 (0.8)	3.7 (0.5)
≥1	489	46.5 (2.3)	46.0 (1.2)	46.0 (2.3)	45.1 (1.0)	36.0 (2.4)	35.3 (1.1)	5.8 (1.1)	4.9 (0.4)
Number of war-related traumatic events									
≤3	188	26.9 (3.3)	28.0 (1.4)	26.6 (3.2)	28.1 (1.1)	14.4 (2.6)	16.2 (0.9)	2.1 (1.1)	2.9 (0.5)
≥4	666	48.1 (2.0)	48.0 (1.0)	48.5 (1.9)	48.3 (0.9)	38.4 (1.9)	38.0 (1.0)	5.0 (0.9)	4.8 (0.4)
Active participation in war									
Yes	192	37.4 (3.5)	37.2 (1.0)	36.5 (3.5)	36.3 (1.6)	27.6 (3.2)	27.4 (1.6)	8.5 (2.0)	8.5 (0.6)
No	662	45.2 (2.0)	45.5 (1.9)	45.8 (1.9)	46.1 (0.9)	34.7 (1.9)	35.0 (1.0)	3.2 (0.7)	3.2 (0.3)
Time since index[a] trauma (years)									
≤6	255	46.6 (1.1)	46.6 (1.1)	43.9 (2.0)	43.8 (1.4)	30.6 (2.9)	31.1 (1.5)	3.9 (1.2)	4.5 (0.3)
≥7	592	41.7 (2.0)	42.4 (1.7)	42.4 (3.1)	44.0 (1.0)	30.6 (1.9)	34.2 (1.0)	4.3 (0.8)	4.2 (0.7)
Number of post-war traumatic events									
None	317	39.7 (2.8)	38.4 (1.4)	38.8 (2.7)	37.8 (1.2)	30.0 (2.6)	28.2 (1.2)	1.9 (0.8)	2.5 (0.4)
≥1	536	45.6 (2.2)	46.7 (1.1)	46.6 (2.2)	47.5 (1.0)	35.1 (2.1)	36.3 (1.1)	5.8 (1.0)	5.5 (0.4)
Number of post-migration stressors									
< 3	573	36.8 (2.0)	36.4 (1.0)	37.5 (2.0)	37.9 (0.9)	27.6 (1.9)	27.6 (0.9)	3.5 (0.8)	3.4 (0.3)
≥ 3	273	57.6 (3.0)	58.8 (1.5)	57.1 (3.0)	56.6 (1.3)	45.1 (3.0)	45.2 (1.6)	6.3 (1.5)	6.5 (0.7)
Employment									
Employed	385	28.5 (2.3)	28.8 (1.1)	31.9 (2.4)	32.3 (1.0)	21.3 (2.1)	21.5 (1.0)	3.4 (0.9)	3.4 (0.4)
Unemployed	469	55.8 (2.3)	55.8 (1.1)	53.3 (2.3)	53.4 (1.0)	42.9 (2.3)	42.9 (1.1)	5.2 (1.0)	5.2 (0.5)
Living with partner									
Yes	652	42.8 (2.0)	42.9 (1.0)	43.7 (1.9)	43.7 (0.9)	33.4 (1.8)	33.4 (0.9)	3.4 (0.7)	3.4 (0.3)
No	202	45.5 (3.5)	46.2 (1.9)	43.6 (3.5)	44.4 (1.7)	32.2 (3.3)	32.8 (1.8)	7.7 (1.9)	7.6 (1.0)
Feeling accepted by the host country									
No (rating 1-3)	344	56.9 (2.1)	56.6 (1.3)	53.2 (2.7)	51.6 (1.2)	40.7 (2.7)	39.7 (1.4)	6.2 (1.3)	6.4 (0.6)
Yes (rating 4-5)	505	34.5 (2.7)	34.7 (1.0)	37.6 (2.2)	38.6 (1.0)	28.3 (2.0)	28.8 (1.0)	3.2 (0.8)	3.0 (0.3)
Host language proficiency									
poor (rating 1-3)	393	53.6 (2.5)	54.5 (1.2)	52.9 (2.5)	53.4 (1.1)	43.3 (2.5)	43.9 (1.3)	5.6 (1.1)	6.5 (0.7)
good (rating 4-5)	457	35.0 (2.2)	34.3 (1.1)	36.1 (2.2)	35.7 (0.9)	24.7 (2.0)	24.0 (0.9)	3.3 (0.8)	3.4 (0.3)
Temporary residence status									
Yes	497	50.9 (2.5)	51.2 (1.1)	51.1 (2.2)	51.3 (1.0)	40.4 (2.2)	40.6 (1.2)	6.0 (1.1)	6.1 (0.5)
No	357	32.8 (2.3)	33.0 (1.2)	33.3 (2.5)	33.4 (1.0)	23.0 (2.2)	22.9 (0.9)	2.0 (0.7)	2.0 (0.3)
Country									
Germany	255	57.4 (3.1)	57.5 (1.7)	60.7 (3.1)	61.4 (1.5)	54.9 (3.1)	55.4 (1.6)	11.8 (2.0)	12.1 (0.9)
Italy	297	30.0 (2.7)	30.0 (1.2)	30.3 (2.7)	30.3 (0.9)	18.9 (2.3)	18.9 (0.7)	0.7 (0.5)	0.7 (0.1)
UK	302	45.1 (2.9)	45.7 (1.4)	42.4 (2.8)	42.8 (1.1)	28.8 (2.6)	29.1 (1.1)	1.7 (0.7)	1.7 (0.1)

[a] Data are given as percentage of participants (standard error).

Observed and adjusted prevalence rates by country are presented in Tables 3.11. and 3.12. As shown in Table 3.11, the largest difference in adjusted rates of anxiety disorders was associated with the number of potentially traumatic war events in the UK sample (≥4 potentially traumatic experiences were linked with 17.3% higher rates), temporary residence status in Germany sample (32.8%), and number of post-migration stressors in Italy sample (≥3 post-migration stressors were linked with 13.6% higher rates). The number of potentially traumatic war events was associated with the largest differences in adjusted rates of PTSD in Germany and Italy (36.6% and 10.0%, respectively), while in the UK both the number of potentially traumatic war events and none or primary education level were equally associated with the largest difference (18.8%).

Observed and adjusted prevalence rates of mood and substance use disorders by country are presented in Table 3.12. In terms of mood disorders, the largest difference in adjusted rates was associated with temporary residence status in Germany (35.4% higher rates), number of post-migration stressors in Italy (18.7%), and feeling accepted by the host country in the UK (24.3%). The factor associated with the highest difference in prevalence rates of substance use disorders was male gender for all three samples (Germany=16.3%, Italy 9.7%, and the UK=2.5%).

Table 3.11. Observed and adjusted prevalence rates of any anxiety disorder and PTSD among war refugees in Germany, Italy and the UK

	Refugees in Germany		Refugees in Italy		Refugees in the UK	
	Observed	**Adjusted**	**Observed**	**Adjusted**	**Observed**	**Adjusted**
Anxiety disorders						
Education level						
None or primary	80.0 (5.3)	79.0 (1.7)	44.3 (6.4)	27.8 (1.0)	52.9 (6.1)	57.3 (1.9)
Secondary or higher	55.1 (3.6)	56.0 (1.6)	26.7 (2.9)	40.1 (1.8)	39.3 (3.2)	38.5 (1.2)
Number of war-related traumatic events						
≤3	26.7 (6.7)	34.8 (3.2)	25.8 (4.5)	25.2 (1.3)	28.3 (6.7)	28.2 (2.0)
≥4	68.1 (3.2)	66.7 (1.4)	32.5 (3.3)	32.8 (1.2)	44.9 (3.1)	45.5 (1.2)
Active participant in war						
No	62.2 (3.5)	63.6 (1.6)	33.0 (3.3)	32.4 (1.1)	43.6 (3.1)	44.3 (1.2)
Yes	55.9 (6.5)	54.4 (2.9)	23.9 (4.6)	25.4 (1.6)	35.6 (7.2)	34.2 (2.8)
Number of post-war traumatic events						
None	54.0 (6.3)	54.2 (3.1)	25.6 (4.1)	25.0 (1.2)	43.1 (4.2)	41.3 (1.7)
≥1	63.4 (3.5)	63.8 (1.6)	33.3 (3.5)	33.7 (1.2)	41.8 (3.9)	44.1 (1.4)
Number of post-migration stressors						
< 3	50.0 (4.4)	50.5 (2.1)	26.3 (3.2)	25.6 (1.0)	39.8 (3.1)	40.9 (1.2)
≥ 3	73.6 (4.0)	73.0 (1.3)	37.9 (4.8)	39.2 (1.5)	57.1 (7.1)	52.5 (2.8)
Feeling accepted by the host country						
No (rating 1-3)	75.2 (3.9)	68.8 (1.7)	36.2 (4.3)	35.8 (1.3)	47.9 (5.1)	50.8 (1.9)
Yes (rating 4-5)	48.9 (4.4)	54.5 (2.1)	25.9 (3.4)	26.2 (1.2)	40.2 (3.4)	39.0 (1.3)
Temporary residence status						
No	35.3 (6.8)	34.8 (2.8)	22.1 (4.3)	21.2 (1.2)	37.9 (3.3)	38.7 (1.2)
Yes	67.2 (3.3)	67.6 (1.3)	34.2 (3.3)	34.6 (1.1)	52.7 (5.3)	52.2 (1.9)
PTSD						
Age (years)						
20-40	44.4 (4.5)	47.3 (2.4)	16.1 (2.7)	16.4 (0.9)	17.1 (3.4)	20.7 (1.4)
41-65	64.9 (4.2)	63.0 (2.0)	23.1 (3.9)	22.7 (1.1)	36.9 (3.6)	34.8 (1.5)
Education level						
None or primary	71.2 (5.9)	74.6 (2.2)	27.9 (5.8)	26.8 (1.7)	45.6 (6.1)	43.6 (2.4)
Secondary or higher	50.0 (3.6)	49.5 (1.8)	16.5 (2.4)	16.8 (0.7)	23.9 (2.8)	24.8 (1.1)
Number of war-related traumatic events						
≤3	20.0 (6.0)	25.1 (2.9)	13.4 (3.5)	13.8 (0.8)	10.9 (4.6)	13.2 (1.3)
≥4	62.4 (3.3)	61.4 (1.5)	21.5 (2.9)	21.3 (0.9)	32.0 (2.9)	32.0 (1.2)
Active participant in war						
No	56.1 (3.6)	57.6 (1.9)	20.6 (2.8)	20.1 (0.8)	30.0 (2.9)	30.2 (1.2)
Yes	50.8 (6.6)	48.3 (3.1)	14.8 (3.80	16.0 (1.3)	22.2 (6.3)	22.6 (2.5)
Number of post-war traumatic events						
None	49.2 (6.3)	49.2 (3.4)	15.4 (3.3)	16.1 (1.0)	33.6 (4.0)	29.1(1.7)
≥1	57.1 (3.6)	57.5 (1.8)	21.1 (3.1)	20.7 (1.0)	24.8 (3.4)	29.1 (1.5)
Number of post-migration stressors						
< 3	45.3 (4.4)	44.6 (2.2)	15.9 (2.6)	15.8 (0.8)	27.5 (2.8)	28.0 (1.2)
≥ 3	66.1 (4.3)	66.9 (1.7)	24.3 (4.2)	24.7 (1.2)	36.7 (7.0)	34.8 (3.1)
Temporary residence status						
No	29.4 (6.4)	27.9 (2.8)	14.7 (3.7)	13.6 (1.0)	25.1 (3.0)	25.9 (1.2)
Yes	61.3 (3.4)	61.8 (1.6)	20.8 (2.9)	21.3 (0.9)	37.4 (5.1)	36.3 (2.2)

[a] Data are given as percentage of participants (standard error).

Table 3.12. Observed and adjusted prevalence rates of any mood and substance use disorder among war refugees in Germany, Italy and the UK

	Refugees in Germany		Refugees in Italy		Refugees in the UK	
	Observed	**Adjusted**	**Observed**	**Adjusted**	**Observed**	**Adjusted**
Mood disorders						
Gender						
Male	53.7 (4.6)	55.4 (2.5)	25.0 (3.2)	25.2 (1.5)	40.5 (4.5)	40.1 (2.0)
Female	60.9 (4.3)	59.4 (2.3)	37.6 (4.5)	35.6 (1.7)	48.3 (3.8)	50.8 (1.8)
Education level						
None or primary	78.0 (5.4)	76.8 (2.1)	44.3 (6.4)	41.4 (2.2)	55.2 (6.1)	59.0 (2.5)
Secondary or higher	51.1 (3.6)	51.5 (1.9)	26.3 (2.9)	27.0 (1.3)	42.1 (3.3)	41.8 (1.5)
Number of war-related traumatic events						
≤3	23.3 (6.5)	29.3 (3.5)	27.8 (4.6)	26.4 (1.8)	28.3 (6.7)	30.1 (2.6)
≥4	64.6 (3.3)	63.1 (1.7)	31.0 (3.3)	31.7 (1.5)	48.2 (3.2)	48.5 (1.5)
Number of post-war traumatic events						
None	50.8 (6.3)	50.5 (3.6)	26.5 (4.1)	23.9 (1.5)	45.9 (4.3)	45.4 (2.1)
≥1	59.7 (3.6)	59.8 (1.9)	32.2 (3.5)	33.9 (1.6)	44.4 (3.9)	45.9 (1.8)
Number of post-migration stressors						
< 3	46.4 (4.5)	43.5 (2.3)	23.2 (3.0)	23.5 (1.2)	42.7 (3.2)	42.8 (1.4)
≥ 3	69.7 (4.2)	72.3 (1.7)	42.7 (4.9)	42.2 (1.9)	59.6 (7.2)	60.5 (3.4)
Employment						
Employed	41.0 (5.6)	38.9 (3.1)	26.4 (3.0)	25.0 (1.2)	22.8 (4.4)	29.1 (2.0)
Unemployed	64.9 (3.7)	65.8 (1.7)	38.8 (5.3)	42.2 (2.1)	55.1 (3.5)	53.1 (1.5)
Feeling accepted by the host country						
No (rating 1-3)	71.4 (4.2)	69.7 (2.0)	41.7 (4.4)	40.0 (1.7)	59.1 (5.1)	62.2 (2.1)
Yes (rating 5)	45.3 (4.4)	46.0 (2.3)	21.2 (3.1)	22.4 (1.3)	39.0 (3.5)	37.9 (1.5)
Temporary residence status						
No	31.9 (6.8)	28.8 (3.3)	20.0 (4.1)	18.3 (1.4)	38.8 (3.4)	40.6 (1.5)
Yes	63.3 (3.4)	64.2 (1.6)	34.7 (3.3)	35.4 (1.4)	59.6 (5.2)	57.2 (2.4)
Substance use disorders						
Age (years)						
20-40	16.3 (3.3)	16.4 (1.5)	0.6 (0.6)	0.9 (0.1)	2.5 (1.5)	2.4 (0.3)
41-65	7.6 (2.3)	8.1 (0.7)	0.9 (0.9)	0.4 (0.0)	1.1 (0.8)	1.3 (0.1)
Gender						
Male	18.9 (3.6)	20.7 (1.5)	1.3 (0.9)	11.2 (0.1)	3.8 (1.7)	3.1 (0.3)
Female	5.3 (2.0)	4.4 (0.3)	0.0 (0.0)	1.5 (0.0)	0.0 (0.0)	0.6 (0.1)
Living with partner						
Yes	9.6 (2.2)	9.6 (0.7)	0.4 (0.4)	0.5 (0.1)	1.4 (0.8)	1.3 (0.1)
No	18.2 (4.8)	19.4 (2.5)	1.8 (1.8)	1.3 (0.2)	2.7 (1.9)	2.7 (0.4)

[a] Data are given as percentage of participants (standard error).

Multivariable models validation with multiply imputed data set

Missing values in all explanatory variables were replaced with imputed values based on a multiple imputation method. As a sensitivity test, the final multivariable models predicting mental disorders were repeated using the same variables but with imputed missing values (as described in section 3.2.6.).

Results from the multiple-imputation regression models were very similar to those using the main non-imputed data-set. All the variables that were significant in the reported models without imputed missing values remained significant when variables with imputed missing values were used. The only exception was the variable 'number of post-war traumatic events', which became only marginally statistically significant in the PTSD regression model (OR= 1.12, 95% CI 0.99-1.28, p= 0.078).

The fact that the differences in regression coefficients between the models with and without imputations are ignorable demonstrates that the results are not sensitive to the missing values.

3.4. Discussion

The discussion is divided into four main sections. A brief description of the main findings concerning the research question is given in the first section (3.4.1), followed by a description of the strengths and limitations of the study in the second section (3.4.2.), and interpretation of the findings and linking them to the existing evidence in related fields in the third section (3.4.3.). A summary and interpretation of the main findings is given in the end of the chapter in section four (3.4.4.).

3.4.1. Principal findings

The present study aimed to provide data on pre-migration and post-migration factors associated with mental disorders in war refugees from the same region who have resettled in different countries several years previously. More specifically, it addressed the following research questions:

1. What participant characteristics and experiences are associated with mental disorders in war refugees from the same region who have resettled in different countries several years previously?
    a. What socio-demographic characteristics, war experiences and post-migration factors are associated with mental disorders in war refugees from the same region who have resettled in different countries several years previously?
    b. What is the relative impact of each group of factors on mental disorders and what is the confounding effect of post-migration factors in explaining the relationship between war exposure and mental disorders?

c. Are the factors associated with mental disorders stable across the resettlement countries?

More than five years after the war in the Balkans, refugees affected by the war and residing in Germany, Italy and the UK were found to have rates of mental disorders that are substantially higher than those reported for non-war affected populations in Western countries (Wittchen & Jacob, 2005; The WHO World Mental Health Survey Consortium, 2004; Kessler, et al., 2005). Of the total sample, more than half had at least one mental disorder. Anxiety and mood disorders were the most frequent groups of disorders (43.7% and 43.4%, respectively), and Major Depressive Episode and PTSD the most frequent individual disorders (34.3% and 33.1%, respectively). Most participants suffering from a mental disorder had a comorbid condition. There was a substantial variation in prevalence estimates of mental disorders in refugees across three countries, with prevalence being frequently the highest in Germany and the lowest in Italy.

Although the prevalence estimates of mental disorders varied substantially among refugees in the three countries, socio-demographic characteristics and experiences before, during and after the war showed consistent associations with disorders. Specifically, lower education, more potentially traumatic experiences during and after the war, more migration-related stress, not feeling accepted by the host population, and having a temporary residence status were independently associated with higher rates of both mood and anxiety disorders. Additionally, mood disorders were correlated with female gender, older age, and being unemployed. Those who took part in war activities had a lower risk of anxiety disorders, whilst older age was associated with PTSD only. Male gender, younger age and not living with a partner were the only factors associated

with higher rates of substance use disorders. Post-migration factors accounted for more variance in the rates of mood, anxiety and substance use disorder, whilst war factors did so for PTSD. Except for substance use disorders, both war factors and post-migration stressors independently contributed to the rates of mental disorders. The associations between risk factors and disorders did not vary significantly across countries and did not fully explain the substantial differences in prevalence rates.

3.4.2. Strengths and limitations of the study

Strengths of the study

To the author's knowledge, this is the largest community-based cross-sectional study that assessed mental disorders in long-settled war refugees originating from the same region and now residing in three different recipient countries. The three other studies that compared long-settled war refugees resettled in different countries both had relatively small sample sizes (D'Avanzo & Barab, 1998; Priebe, et al., 2009; Warfa, et al., 2012), a very selective sample consisting only of individuals with untreated PTSD (Priebe, et al., 2009) or women (D'Avanzo & Barab, 1998), and used self-report measures to assess levels of psychopathology (D'Avanzo & Barab, 1998).

The study included civilians and veterans, which allowed for direct comparison between the two groups. The study used identical assessment methods across countries, including face-to-face interviews with a standardised psychiatric diagnostic interview and self-report measures. All interviewers were trained researchers with a relevant professional background, who spoke the mother tongue of the interviewees.

To ensure reliability of the survey data, all interviewers participated in two-day face-to-face training in administering survey instruments in a standardised manner. A high item agreement was reached between the interviewers across the three countries. Further quality assurance was maintained through supervised practice interviewing and bi-weekly supervision sessions in each country. Finally, the study instruments required no clinical judgement, which further reduced the possibility of interpretational error during the interview.

Concerns about the cultural appropriateness of using Western diagnostic assessments in assessing mental disorders in non-Western cultures (Summerfield, 1999) may not be applicable in this study since it was conducted in a cultural context in which concepts of Western psychiatry may be seen as valid (Mollica, 2000).

Whilst all participants shared a similar cultural background and had experienced war in the same historical context, further differences among the three samples in relevant risk factors were adjusted for in multivariable analyses. Methodologically, this approach allows a more accurate comparison of risk factors in different contexts than meta-analyses which commonly consider studies of samples from varying backgrounds in varying contexts.

Finally, it is important to report on the observed effects of the participation in the present study. As discussed in Methods (see section 3.2.7.), participating in trauma-focused research is viewed by most individuals as a favourable experience, although a subset of participants may experience unanticipated distress (e.g. Dyregrov, et al., 2000). In the UK, the Data Protection Act 1998 was introduced to safeguard the privacy of individuals by precluding access to data registers without prior consent. For this

particular study, such policy meant that refugees in the UK had to be contacted via proxy resources (such as requiring a community organisation to make contact on the study behalf). In contrast, there are no restrictions to data registers in Italy and Germany, and these refugees were contacted directly by the researchers. The proponents of data protection argue that such direct contact is a violation of liberty of the involved individuals and may cause unnecessary distress, particularly in the most vulnerable populations such as refugees.

In the present study, data was systematically collected on any complaints made by those contacted or those participating in the study. The data show that of the total of 10676 refugees contacted through data registers and community organizations across the three countries, only three complaints were reported. The complaints were made by the potential participants in Italy, who were concerned that their data was accessible to the research team and one of them explicitly asked for her data to be removed. None of the people who were interviewed complained. On the contrary, for many participants this was the first time that they were asked about their war experience, which was generally appreciated and explicitly mentioned as a positive experience by many. Even those few that got emotional during the interviews generally appreciated having an opportunity to share their experience with the researchers and some even called back to let the researcher know that the interview was actually helpful to them. These data question the presumed desirability and necessity of the UK's data protection regime and provide support to a less rigid policy towards data sharing in research.

Limitations of the study

The study also has several limitations.

Sampling method. The combination of registry and snowball sampling, and the variation in the precise recruitment method across countries may have led to non-representative samples. The problem is further compounded by the low response rates, considering all those initially contacted as potentially eligible. The methodological shortcomings in recruiting a fully representative sample of refugees in Western European countries were not a specific fault of this study. They are linked to the non-availability of detailed population data, legislation and research regulations in the participating countries, and shared by most studies of refugee groups. However, there is some evidence that it may be possible to attain a representative sample using non-random sampling methods. Spring et al. (2003) compared different non-random sampling strategies (targeted, convenience, and snowball sampling) for refugees in the USA and found no apparent differences between the study sample and the underlying population and discovered no effects of recruitment methods on study outcomes, including PTSD symptoms. Comparisons with population registers, which exist in Germany (Jäger & Rezo, 2008) and Italy show that the samples in the present study were not substantially biased with respect to gender and age. In Germany, a study accessed population registers on Bosnian refugees and found 48% women (52.2% in the present study). In Italy, it was possible to directly compare 217 interviewees with 2990 individuals who were contacted, whose letters were not returned as wrongly addressed and who fulfilled the inclusion criterion of having arrived at or after the time of the war. In the full sample in the Emilia-Romagna there were 46.5% women compared to 46.1% in the interviewed sample. In terms of age groups, the percentages in the full sample were 18-30yrs=31.0%, 31-40yrs=37.4%, 41-50yrs=22.3%, and 51-65yrs=9.3%. The respective figures in the interviewed sample were 19.4%, 39.6%, 22.6% and 18.4%. The difference in the younger group is most likely due to the inclusion criterion that interviewees should have experienced a war related traumatic event at the age of 16

years or later (meaning they had to be at least 23 years old at the time of the interview depending on their country of origin). Whilst this is a very limited comparison, it still indicates that the present samples may be representative of the underlying population, at least in terms of gender and age.

It was not possible to assess any potential selection bias for the UK sample, since there are no registers of the targeted sample. Nevertheless, comparison of the sampling strategies used in the UK sample has shown that, compared to participants recruited through snowball sampling, participants recruited through community organisations tended to be older, unemployed, have poorer knowledge of English, and report more war experiences. They also tended to have a higher rate of psychopathology; however that appeared to be consequence of the above described differences in socio-demographic and war-related characteristics (Jancovic Gavrilovic, Bogic, & Priebe, 2010). Previous research has indicated that social support from ethnic or ethnic-like communities may be an important asset during the initial phase of the resettlement process, by providing stability and encouragement for exploration of the larger society (Beiser, 2006). However, ethnic communities may also become the safety net that some never leave and, hence, stay isolated from the larger society. It could be argued that those who are the most integrated into the host society, such as those employed, those with better knowledge of English, and/or those who have sound social support may not need the assistance of the ethnic community organizations. A study of Iranian refugees in Sweden lends support to this argument – the more quickly and intensively refugees became socially integrated, the faster they were able to cope with their experienced trauma of war and displacement and the less they suffered from psychopathological disturbances (Ghazinour, Richter, & Eisemann, 2003).

It has been argued that non-representative sampling should be more problematic for establishing prevalence rates than for associations between variables (Etter & Perneger, 2000), which was the focus of this study. However, whilst there may appear to be some concordance between the basic sample characteristics of the present samples and those in the existing refugee data registers, remarkably low response rates and the substantial response rate discrepancies between the three countries imply that the samples may not be fully representative and that a systematic bias may have affected study outcomes. For example, given the same sampling strategy, almost twice as many refugees responded in Germany as in Italy. It is possible that such discrepancy in response rates was a result of the influence of some key variables, such as employment and temporary residence status. For example, high employment rates of refugees in Italy may mean that it may have been harder for them to find free time to take part in the study. At the same time, it is possible that refugees in Germany, where highly traumatized refugees were more likely to be allowed to stay in the country, had a greater incentive to participate. Perhaps they anticipated that study assessment might help them secure a better residence status. Based on these arguments, it is not clear to what extent the sampling bias may have confounded the study results. Potential impact of the sampling results on the study outcomes, and in particular cross-country comparison, will be discussed in further detail later in the discussion.

Inclusion criterion. The sampling method included only refugees with exposure to one of the pre-defined war trauma categories. The rationale for the selection of people who experienced war trauma was based on the objective of the study to assess mental disorders in refugees exposed to potentially traumatic war events and, therefore, the study assessed only those people who were indeed exposed to war trauma. This sampling approach provided results that are not confounded by findings in people who

actually did not experience any war events but who may have experienced migration only. The inclusion of non-trauma exposed individuals in surveys of refugee populations may be one of the key factors accounting for the level of heterogeneity in published surveys. One implication of this, however, is that the samples cannot be described as general refugee population samples but those of distinct groups of refugees according to the categories of trauma they have experienced. Whilst findings of many studies indicate that the vast majority (over 90%) of refugees from former Yugoslavia were exposed to war trauma (e.g., Eytan, at al., 2004; Mollica, et al., 1999; Momartin, et al., 2003), even in war zones war related trauma is not the only trauma faced by the affected population. Events such as road traffic accidents, natural disasters, or sudden loss of a loved one occur irrespective of war and may also seriously impact current mental health status. For example, both Momartin et al. (2003) and Priebe, Bogic, Aschroft, et al. (2010) report that a number of adverse mental health outcomes, including PTSD, in populations from former Yugoslavia could be linked to events other than literal forms of war trauma, such as untreated disease, loss of loved ones due to natural causes, and accidents.

Furthermore, prevalence estimates of mental disorders other than PTSD, for example depression and anxiety, will be largely influenced by the decision to limit the sample to war trauma only. Although traumatic events that qualify for the definition of PTSD might increase the risk for major depression and anxiety, these disorders do not require an etiologic traumatic event as an essential part of their definition (e.g., Breslau, Davis, Peterson, & Schultz, 2000; Kohrt, et al., 2012). Yet, the co-occurrence of PTSD with other mental disorders is rather the norm and major depression has been reported to be most likely to co-occur with PTSD both in general population and refugee samples

(e.g., Brady, Killeen, Brewerton, & Lucerini, 2000; Breslau, et al., 2000; Marshall, et al., 2005; Momartin, et al., 2004), with some authors suggesting PTSD as a precursor to major depression (Breslau, et al., 2000). If this is so, and taking into consideration the observed high PTSD and major depression comorbidity, the prevalence estimate of major depression in the current sample may represent mainly individuals whose depression may have occurred as a consequence of PTSD diagnosis.

Even if everyone experienced a war related traumatic event, the sample in the present study is still limited only to those refugees who had experienced at least one of the 20 pre-defined potentially traumatic war events included in the screening list. Whilst the screening list contains most frequently occurring events in war, it cannot be claimed that the instrument assessed the broad range of events experienced by both men and women and by both soldiers and civilians in the war in former Yugoslavia. For example, the list does not cover several types of war-related events (e.g., confinement to home because of danger outside, being forced to hide, unexpectedly discovered dead body, forced to physically harm someone, being present while one's home was searched, confiscation or destruction of property) that had been reported as occurring in other samples affected by the war in former Yugoslavia (e.g., Mollica, et al., 1999; Momartin, Silove, Manicavasagar, & Steel, 2002; Oruc, et al., 2008). A previous study using the Bosnian version of the HTQ, on which the trauma scale in the present study was based, found that almost 30% of those assessed reported experiencing other frightening or life threatening situations than already listed (Oruc, et al., 2008). In the present sample, 24% of refugees also reported experiencing other traumatic events during the war (e.g., lived under the daily threat of attack, rape, forced eviction or forced expulsion, being used as living shield in combat areas or being used for

minefield clearing, walking through minefield, discovering dead bodies or being forced to bury bodies). An instrument that includes a more comprehensive range of events would improve the trauma assessment and the validity of measuring the relationship between war trauma and mental disorders (Hollifield, et al., 2002).

Given the sensitive nature of some of the questions regarding violence and trauma and the fact that the researchers were mostly from the study population, the refugees may have been less likely to disclose certain potentially traumatic events (Jacobsen & Landau, 2003; Miller, 2004). This may be particularly the case for events of a sexual nature or combat exposure. A refugee's reluctance to disclose certain potentially traumatic events might mean that some groups were excluded from participation and, therefore, further compromise the generalizability of the findings. By excluding refugees who failed to report experiencing war trauma, a group of participants with a higher risk of developing PTSD could have been missed, and this might have led to finding a lower prevalence of the disorder.

Finally, existing literature also indicates that current mental health can affect recall of exposures when completing a questionnaire, which consequently may inflate the association between reported traumatic experiences and current disorders. Persons with psychiatric disturbances might be more likely to recall traumatic experiences, whereas those with no psychiatric disturbance might be more likely to forget or downplay objectively similar events (Hotopf & Wessely, 2005; Mollica, et al., 2007; Richardson, et al., 2010). Accordingly, the prevalence rates of mental disorders in the present study may have been spuriously increased due to the exclusion of 'healthy' participants who

failed to disclose any trauma at the time of reporting. Recall bias and traumatic inflation will be covered in more detail later in the discussion.

Given that the present sample represents a specific segment of the refugee population of trauma-exposed individuals, the degree that these findings may be generalized to other war refugee groups (e.g., war refugees exposed to other traumas such as natural disasters) from this or other regions is limited.

Prevalence bias. In the present study, prevalent cases with mental disorders were identified through a cross-sectional study several years after the refugees had been exposed to the war trauma. This means that those who have recovered or were in temporary remission from a mental disorder were missed in the sample of prevalent cases and that those included in the sample of prevalent cases represented mostly individuals with a chronic mental disorder, potentially leading to exaggeration of the chronicity of mental disorders and poorer prognosis. This chronicity bias is also known as incidence-prevalence (Neyman) bias (Streiner & Norman, 2009). It is important to consider the effect of incidence-prevalence bias when interpreting the risk factors identified in the present study. Since the prevalent sample is likely to be systematically biased towards individuals with poorer diagnosis and chronic condition and non-prevalent sample includes both those that never had a mental disorder and those who may have had a mental disorder but have recovered from a mental disorder before the study initiation, the risk factors identified for the development of mental disorders may be confounded with the risk factors responsible for maintenance of mental disorders (Schnurr, Lunney & Sengupta, 2004). The results may be further confounded by the possibility that some of the participants without a mental disorder (e.g. those without

PTSD at the time of assessment) may have been in temporary remission at the time and may have had a disorder at a sub-clinical level.

Recall bias and traumatic inflation. The presence of recall or report bias cannot be excluded in the ascertainment of history of traumatic experiences or mental disorders. This is an important limitation because memory biases may serve as alternative explanations for several of this study's findings. The retrospective report of traumatic events may have been influenced by instability of recall and memory biases. Data show that reports of traumatic exposure by war veterans as well as civilians can change over time (e.g., Herlihy & Turner, 2006; Mollica, et al., 2007; Southwick, Morgan, Nicolaou, & Charney, 1997; Wessely, et al., 2003), and may even be subject to exaggeration (Richardson, et al., 2010). Given that the current study assessed lifetime history of trauma and that the war trauma itself occurred more than a decade earlier, a certain degree of imprecision in recall is expected.

It has been suggested that cognitive impairments, such as poor recall and concentration, are generally reported by trauma survivors, in particular those suffering from PTSD (Koso & Hansen, 2006; Moore, 2009), and this might adversely influence the quality of recall. Substantial, although inconsistent, evidence also suggests that recall of traumatic experiences may rise or fall with concurrent changes in PTSD severity; that is, the more severe an individual's current posttraumatic stress symptoms, the more intense and numerous traumatic experiences are likely to be reported (Mollica, Caridad, & Massagli, 2007; Southwick, et al., 1997; Wessely, et al., 2003). Consequently, this amplification recall may have inflated the association between reported traumatic

experiences and current disorders. Other studies found that amplification of recalled perceived life threat after trauma was not associated with higher severity of posttraumatic symptom severity, but rather with lack of improvement in symptom severity (Heir, Piatigorsky, & Weisaeth, 2009). Either way, these findings suggest that the association of traumatic experiences and mental disorders found in the present study should be interpreted with caution. Since the sample of prevalent cases in the current study might represent mostly individuals with a chronic mental disorder, it is possible that a) their recall is inflated due to their current symptom severity and/or b) the recall inflation over time may be associated with lack of symptom improvement and recovery since war trauma.

Cross-sectional study design. The retrospective nature of the cross-sectional study precludes inferences regarding the causal relationships between the existence of current mental disorders and poor socio-economic situation after migration. For example, unemployment might be a contributing factor in the occurrence or maintenance of a mental disorder or a consequence of the pre-existing mental disorder or both. Nevertheless, previous research on the longitudinal course of depression in refugees has indicated that persistent socio-economic hardship in the initial resettlement phase, in particular unemployment and poor host language proficiency, may prospectively predict depression even 10 years after resettlement (Beiser & Hou, 2001).

Similarly, the evidence on the impact of war experience in the absence of an experimental design with a control group is not conclusive. To find out what effect war has on mental disorders, ideally one would draw a representative sample from the target population and assess prevalence rates of mental disorders. The respondents would then be randomly assigned to war zone and no-war zone during a period of time and then

assessed again after that period ends. One could then assess whether the prevalence of specific mental disorders pre-war and post-war were different and whether the war experiences were associated with an increase in prevalence for some disorders. Since such an experiment poses practical and ethical concerns, the effect of war is usually assessed in terms of existing pre-war rates in a given country and the post-war rates. However, war-affected countries, including former Yugoslavia, usually do not have data on the pre-war prevalence of mental disorders and it is unclear whether and to what extent post-war rates of mental disorders are in fact elevated following the war. This is particularly important to consider in light of new research findings that psychiatric morbidity might be elevated in post-conflict societies even before the outbreak of war, possibly due to other risk factors such as poverty also present in peacetime. Kohrt et al. (2012) recorded data before and after exposure to direct political violence during the People's War in Nepal and found that anxiety increased after war exposure but high levels of depression remained constant, being closely related to persisting conditions of poverty. Since there is no information on pre-war prevalence estimates in this population, this possibility of generally elevated rates of mental disorders cannot be excluded. It can only be said that the rates of mental disorder following war are high in comparison to the Western general population, and in comparison to other refugee groups, for whom again pre-war rates are usually unknown. Nevertheless, the present study documents the mental health needs post-war, and, even more importantly, how different those needs might be from one recipient country to another. It further indicates that the more severe the war exposure, the more likely one is to maintain PTSD.

Impact of research assessment. The potential impact of the research assessment on study outcomes should not be overlooked. There is substantial evidence from studies on war populations (e.g., Herlihy & Turner, 2006; Mollica, et al., 2007; Richardson, et al.,

2010; Wesseley, et al., 2003) as well as general populations (e.g., Delgado-Rodriquez & Llorca, 2004; Dotinga, van den Eijnden, Bosveld, & Garretsen, 2005; Heir, et al., 2009) that people's stories change depending on how they are being asked, when, who they are talking to, who is the intended audience and why they are being asked. It has been reported that participants in face-to-face interviewing may provide more positive and socially desirable responses and be less willing to disclose sensitive information than in self-reports (Bowling, 2005).

The participants in the present study may have withheld information for a wide variety of reasons such as lack of trust, shame, numbing, lack of emotional expression, the stigma of mental illness, or the lack of privacy in some of the interviews, despite efforts to ensure privacy for all (Hynes, 2003; Miller, 2004; Nicholl & Thompson, 2004). For example, there may have been underreporting of mental disorders, in particular with respect to alcohol and substance use disorders, which may be seen as unacceptable in the cultural and religious context of the studied population (Eytan & Gex-Fabry, 2012). Refugees originating from Bosnia and Herzegovina and Kosovo are predominantly of Islamic religion, which prescribes alcohol abstinence. Thus, it may be expected that refugees of Islamic religion might underreport their alcohol use to an even larger extent than the refugees of other religions and ethnic backgrounds. It is difficult to corroborate the accuracy of the prevalence rates of alcohol and substance use disorders in the present study and to estimate to what extent there was a measurement error as the evidence on these disorders appear to be inconclusive for this population. Whilst one study of the war-exposed general population in five countries of former Yugoslavia reported prevalence rates between 0.6% (FYR Macedonia) and 9% (Serbia) (Priebe, Bogic, Ajdukovic, et al., 2010), another study has reported the prevalence rates to be between 7% (Bosnia and Herzegovina) and 16% (Croatia) (Basoglu, et al., 2005), and

yet another study of displaced persons in Croatia (Kozarić-Kovacić, Ljubin, & Grappe, 2000) revealed a substantially higher rate of alcohol dependence (39.7%), in particular for men (61%). All three studies assessed alcohol and substance use disorders in face-to-face structured clinical interviews.

Similarly, the participants may have underreported certain sensitive traumatic experiences, such as rape or participation in combat (Bogner, Herlihy, & Brewin, 2007). Despite the documented practice of women being raped in the war (Bastick, Grimm, & Kunz, 2007; Kozaric-Kovacic, Folnegovic-Smalc, Skrinjaric, Szajnberg, & Marusic, 1995), only 4.7% reported being sexually abused. Furthermore, other studies have reported that male victims of torture during the wars in former Yugoslavia, were also frequently exposed to sexual abuse (Oosterhoff, Zwanikken, & Ketting, 2004), including rape (5.7%) and fondling of genitals (10.8%) (Basoglu, Livanou, & Crnobaric, 2007). In the present study 32% of males reported being tortured during the war; yet, only one male reported being sexually assaulted. Such underreporting is consistent with findings of other studies amongst samples from former Yugoslavia (Dahl, Mutapcic, & Schei, 1998; Mollica, et al., 1999; Momartin, et al., 2003). Arcel, Folnegovic-Smalc, Kozaric-Kovacic, and Marusic (1995) observed that Bosnian rape victims were reluctant to report being raped as they feared stigmatization by family members and the larger community, a factor that may account for the underreporting in the present study.

It may be possible that interviewer attributes such as gender and ethnic background further affected the truthfulness of respondents to sensitive questions such as sexual violence or combat exposure. For example, there is evidence that men may be more

likely to disclose sensitive information such as their sexual behaviour and psychiatric symptoms to female interviewers (Chun, Tavarez, Dann, & Anastario, 2011; Pollner, 1998), but more likely to report sexual coercion and alcohol abuse to male interviewers (Chun, et al., 2011). In the present study, out of 11 interviewers only one was a male, which may suggest that less socially desirable behaviours, such as alcohol and drug abuse or sexual assaults may have been under-reported by males.

Likewise, using research assistants from the same country as the respondent risks transgressing political, social, or economic fault-lines (Jacobsen & Landau, 2003). In the present study, the ethnic background of the interviewer could be identified based on his or her name or accent. Given that the wars in the region were in a large part associated with ethnic, language and religious differences both within and between the countries, it may be assumed that the refugee trust is also broken down along these lines meaning that members of other ethnic, language or religious groups are to be mistrusted (Hynes, 2003). Ajdukovic and Corkalo (2004) described deep psychological injury and high levels of distrust between community members from two ethnic groups 11 years after the war in Croatia. These were attributed to the failure of inter-ethnic friends and neighbours to forewarn each other about imminent life threatening danger and to provide protection or support at critical times. Some of them became actively involved in violence against community members. To optimize rapport, interviewers were matched to the respondents based on language and ethnic background when logistically possible. For example, throughout the study Serbian refugees were not interviewed by a researcher from Croatia (who have a distinct accent). Prior to the interview taking place, participants were told the name of the researcher who would be interviewing them and were asked if they would like to know the ethnic/religious background of the researcher

or if they would prefer to be interviewed by another researcher (appendix A-1). Whilst none of the participants requested a change of the interviewer, it may still be possible for cluster effects to have occurred in situations when ethnicity matching was not possible, so that different response sets came from, for example, Croats interviewing Serb refugees, and vice versa. For example, a Serb refugee may be less likely to disclose engagement in combat to a Bosnian or Croat researcher, as that would imply that the Serb refugee was a perpetrator and aggressor and place the respondent in a compromising position.

Whilst respondent-interviewer "ethnic-matching" strategies may have reduced the effect of interviewer ethnicity bias for reporting sensitive traumatic experiences, this may not be the case for other assessment domains. For example, some studies have indicated that respondents are more likely to deny their excessive alcohol use to interviewers with the same ethnic/religion background, perhaps due to fear of being judged and stigmatized (Dotinga, et al., 2005). Thus, "ethnicity-matched" interviews in a multi-domain assessment, as in this study, may not necessarily be a feasible technique. It may be that an outsider, with no assumed political, national or ethnic affiliation, would have produced more valid data.

Also, one has to consider the current residence status of those being interviewed. Refugees with unresolved residence status (e.g., asylum seekers, deportees) may feel particularly vulnerable when asked sensitive questions and may require more assurance of anonymity and confidentiality than those with a resolved status (Bloch, 2007; Bogner, et al., 2007). They may also be motivated to intentionally or unintentionally inflate their traumatic exposure and psychiatric symptoms in the hope that the

assessment may help them secure a better legal outcome (Robjant, et al., 2009). Studies show that disability-seeking veterans may malinger or exaggerate their combat experience and psychiatric symptoms (Richardson, et al., 2010), and may have less incentive to recover over time (Jones & Wesseley, 2007). A malingering interpretation for the present data is possible: it is possible that refugees with temporary residence status over-reported their traumatic experiences and psychiatric symptoms because of their possible benefit for future legal outcome. Although the following is anecdotal evidence, it may be helpful in illustrating the point. In Germany, where the permanent residence status is frequently dependent on the mental health of the claimant, several participants requested a copy of their mental health assessments in the study hoping that it may aide them in the status claim. Thus estimates of trauma and mental disorders in the group with an insecure status, in particular in those residing in Germany, may be inflated, which consequently may have inflated the association between reported residence status and current mental disorders.

Issues of trust, interviewer confidentiality and problems with the validity of sensitive data come into play with all administered surveys and necessitate a design and fieldwork strategies that minimize their impact on the validity of the data (Bloch, 2007). Whilst in the present study several strategies were adopted to minimize the impact of assessment mode, including careful selection of interviewers and ethnic/language matching with respondents, good interviewer training, regular assessment quality checks, and strategies to build the trust of the refugee communities, other interviewing tools may have further assured validity of data. The researcher administered both the traumatic experiences and mental health assessments. Using self-administered questionnaires may have provided more accurate data on sensitive questions, such as alcohol and substance abuse, sexual assault and combat engagement (Bowling, 2005).

The highest level of disclosure has been evidenced in new computer-based interviewing methods, such as audio computer assisted self-interview (ACASI), in which respondents read survey questions on a computer screen and then directly enter their responses into the computer (Abbey, 2005; Bowling, 2005; Newman, et al., 2002). Other studies (Durant, Carey, & Schroder, 2002; Ong & Weiss, 2000) have indicated that fully anonymous (rather than confidential) self-report assessments may improve disclosure and therefore data quality even further. Due to the longitudinal nature of the present study that required identification of participants, fully anonymous assessment was not possible. Another alternative could be to use fully anonymous self-reports that the participant could leave in a designated container as a way to ascertain the extent of stigmatized experiences and behaviours in the present study.

Quantitative assessment of trauma. Different types of traumatic war events and migration-related stressors were documented, with a marked degree of variability across the refuge countries. In order to simplify the analysis, the psychological impact and severity of all these stressors were equated and the total number of stressors experienced, a simple additive variable, was considered as a predictor of study outcomes. However, the stressors have qualitative differences and reducing them to additive numbers may mask their importance. As previously reported, some traumatic events such as torture and interpersonal violence may be particularly hazardous to mental health. In terms of migration-related stressors, the presence of stressors may not necessarily be indicative of the refugee reality since items like ‘financial difficulties’ and ‘inadequate accommodation’ can be interpreted differently by different respondents. These qualitative differences were not accounted for in the present data and the analyses.

Explained variance. The variance explained by each model of explanatory variables of mental disorders was limited (27.5% to 35.2%), although reasonable for this type of research. Thus, the differences and associations found in this study may still be subject to unobserved confounding factors. For example, social capital in terms of social cohesiveness, support and trust in a community has been found to be a powerful explanatory concept in mental health (Beiser, Wiwa, & Adebajo, 2010; Rasmussen, et al., 2010). Whilst the findings indicate an association between perceived acceptance by the host society and mental disorders, the assessment of more specific societal features might have increased the variance explained in the models.

Inadequate control for confounding. There were large socio-demographic and trauma differences between the samples in the three countries. For example, twice as many refugees in Italy were employed as refugees in Germany or the UK. Similarly, refugees in Germany were more likely to report higher number of pre-migration traumatic experiences as well as post-migration stressors. Some of the potential reasons for such discrepancies are proposed later in the discussion. Given the country differences in terms of the mental health outcomes it is necessary to acknowledge that some of these differences may be due to inadequate control for confounding variables, such as employment and traumatic experiences. Furthermore, different interviewers were used across the three countries, and although they underwent extensive training, some of the country differences may also be due to differential sensitivity/specificity of the interviewers used in different countries.

Exploratory study. Finally, the main research questions were of an exploratory nature and did not test specific hypotheses, so a sample size calculation was not conducted and as such the sample size and statistical power were not defined apriori.

3.4.3. Discussion of the findings and comparisons with the literature

The results are consistent with other studies suggesting that war and migration experiences can be associated with mental disorders in long-term settled refugees. Similarly high rates of mental disorders have previously been reported among long-resettled refugees from former Yugoslav regions (Mollica, et al., 2001; von Lersner, et al., 2008) and other refugee groups (Blair, 2000; Gerritsen, et al., 2006; Marshall, et al., 2005; Sabin, et al., 2003). For example, a study (von Lersner, et al., 2008) conducted among refugees from former Yugoslavia residing in Germany using the same assessment measure as the present study reported a 42% rate for Major Depression and 44.2% for PTSD, compared to rates of 36.8% and 54.9%, respectively, for refugees in Germany in the present study. Likewise, the high comorbidity found in the present study corroborates findings from other studies (Marshall, et al., 2005) and supports the notion that the long-term complex severe psychological effects of prolonged and repeated trauma may not be captured by the PTSD diagnosis alone (Herman, 1992).

Rates of anxiety and mood disorders in this study were higher than those obtained in the randomly selected war-affected community samples that remained in five countries of the former Yugoslavia (rate of anxiety disorders 33.5% and mood disorders 28.3%) (Priebe, Bogic, Ajdukovic, et al., 2010). Although the differences between the two study populations must be interpreted with caution because of the sampling differences, the finding is in line with that of previous meta-analyses, which concluded that refugees tend to have poorer mental health than those who stay in the area of conflict (Porter & and Haslam, 2001; Porter & Haslam, 2005; Steel, et al., 2009).

The present findings suggest a dose-response relationship between war trauma exposure and the likelihood of mood and anxiety disorders several years later, a finding reported in other studies assessing the long-term outcomes of war (Chung & Kagawa-Singer, 1993; Nicholson, 1997; Mollica, et al. 1998; Blair, 2000; Sabin, et al. 2003; Jaranson, et al. 2004; Marshall, et al., 2005; Gerritsen, et al. 2006; Birman & Tran, 2008). Low rates of substance use disorders and the absence of a significant link between war experiences and these disorders are consistent with findings among compatriot refugees and those who stayed in the area of conflict (Priebe, Bogic, Ajdukovic, et al., 2010; von Lersner, et al., 2008) as well as other refugee groups (Marshall, et al., 2005). Active participation in war was linked to lower rates of PTSD and other anxiety disorders. It has been argued that soldiers' military training and their belief in protecting country and family help them to cope with traumatic events (Basoglu, et al., 1997).

The study also identified several post-migration risk factors for mental disorders. In line with previous research (Blair, 2000; Gerritsen, et al., 2006; Marshall, et al., 2005; Mollica, et al., 1998; Nicholson, 1997), post-migration trauma exposure and stress, including the feeling of not being accepted in the host country, were positively associated with both mood and anxiety disorders. Despite being resident in a host country for an average of nine years, more than half of the studied refugees still had a temporary residence status, which was associated with higher rates of both mood and anxiety disorders. The present study adds to the evidence (Momartin, et al., 2006; Steel, et al., 2006; Steel, et al., 2011) that prolonged unstable residential status and living under a continuous threat of repatriation may contribute to the maintenance of mental disorders in refugees. Unlike mood and anxiety disorders, substance use disorders were associated only with non-war related risk factors i.e. male gender, younger age and not living with a partner, findings that are also consistent with other research (Marshall, et

al., 2005; Priebe, Bogic, Ajdukovic, et al., 2010). For example, a study of Cambodian refugees two decades after resettlement in the USA also failed to find an association between war trauma exposure and later alcohol use disorder (Marshall, et al., 2005).

It has been argued that post-migration factors may confound (Steel, et al., 1999) or supersede (Gorst-Unsworth & Goldenberg, 1998; Rumbaut, 1991) the impact of war trauma on mental disorders. However, the present findings indicate an independent association of war trauma exposure with mood and anxiety disorders, which remained significant, although weakened, after post-migration factors were included in the analysis. The finding that the inverse relationship between recency of most traumatic war experience and a mood disorder was fully confounded by post-migration factors suggests that the higher rates of mood disorders found in more recently resettled refugees in the present study may not be directly related to the recency of the war trauma but rather to the extent of post-migration stressors more recent refugees are faced with. Stressful social and material conditions in resettlement independently predicted mental health status as well as, or better than, actual exposure to war trauma. These findings echo those of two recent studies (Gorst-Unsworth & Goldenberg, 1998; Rasmussen, et al., 2010). They add to the debate as to whether trauma-focused therapies or approaches focusing on on-going psycho-social stressors are more appropriate to understand and address the mental health needs of war refugees (Miller & Rasmussen, 2010). According to the findings of the present study, both war exposure and stressful social and material conditions in resettlement should be considered. Furthermore, whereas resettlement stressors took precedence in explaining the presence of common mental disorder (mood and anxiety disorders), exposure to war experiences was, as found in other studies (Lindencrona, Ekblad, & Hauff, 2008; Miller, Weine, et al., 2002; Gorst-Unsworth & Goldenberg, 1998; Schweitzer, et al., 2006; Silove, et al.,

2007) and the review presented in Chapter 2, most central to explaining the presence of PTSD. A study on Middle Eastern refugees in Sweden found that the core symptoms of PTSD were related to pre-migration trauma factors whereas the common mental disorders in these refugees were related to resettlement stressors (Lindencrona, et al., 2008). Similarly, for long-settled Southeast Asian refugees in the USA, it was found that, although post-migration stress was the most powerful predictor of mental health, experienced war events predicted PTSD more powerfully than either anxiety or depression (Nicholson, 1997).

Differences and similarities between countries

Prevalence rates varied substantially among the refugees in the three countries, with the highest rates for refugees in Germany and the lowest for those in Italy. Some of these differences are explained by differences in characteristics of the incoming refugees, such as previous war experiences. However, even after taking refugee characteristics into account, some differences are associated with post-migration risk factors such as employment, residence status and other post-migration stressors that refugees experience. Whilst some of these differences diminish when the identified risk factors are adjusted for in multivariable analyses, most remain significant.

Several selection processes are likely to have influenced the differences among samples in different countries. They include the motivation to seek refuge in a specific country, the chance to reach and be accepted in the given country, the decision and ability to stay in the host country for more than five years, and finally the factors influencing participation in the study. In Germany, the policy to grant a residence permit only to refugees being in treatment for posttraumatic stress may explain the high rates of mental

disorders in this sample (Kühne & Rüßler, 2000). The importance of the residence permit status was particularly prominent for refugees in Germany, and particularly for mood and anxiety disorders.

The same selection process may also explain low employment rates – those with poorer mental health are less likely to be employed (Sturm, Gresenz, Pacula, & Wells, 1999). Conversely, in Italy a residence permit was granted only to refugees who were employed or had an employed immediate family member (Cozzoli, 2000) resulting in high employment rates and low rates of mental disorders. In the UK, asylum seekers were prevented from entering the labour market after arrival, and thus dependent on welfare provisions. This in turn runs the risk of fixing the refugee in the role of passive victim and fostering dependency on public assistance in the long term, which may explain the high unemployment rates in this sample.

Circumstances for refugees in Germany stand out as rather different from the refugees in Italy and the UK. Refugees in Germany reported much higher rates of interpersonal assaults, including torture. This difference in the profile of traumatic events may further explain higher rates of mental disorders in this country given that exposure to interpersonal assaults may particularly increase the risk for onset and maintenance of mental disorders (Priebe, Bogic, Aschcroft, et al., 2010; Steel, et al., 2009). Even after adjusting for mental health status, post-migration circumstances were much poorer for refugees in Germany, with the large majority failing to obtain a work permit, an employment appropriate to their skill level, and adequate accommodation. Unemployment may further compromise the chances of integration, prevent recovery from existing mental disorders and contribute to the onset of new disorders, in particular

depression (Beiser & Hou, 2001). The depression rate was particularly high in refugees in the UK, who had a similarly high unemployment rate as refugees in Germany.

Several international studies have shown that prevalence rates of mental disorders are usually lower in the general population in Italy than in other European countries (de Girolamo, et al., 2006). The cultural and socio-economic reasons for the low rates remain poorly understood, but may also have impacted on mental disorders in the refugees.

Factors associated with each type of mental disorder were the same across the three host countries, indicating that predictive associations were not dependent on the country of refuge and were consistently identified despite a substantial variation of prevalence rates.

3.4.4. Summary

War refugees appear to have high rates of mental disorders even several years after resettlement and probably require substantial levels of support from health and social services. Prevalence rates varied substantially among countries and most of this variation remained unexplained in this study. The country differences may be linked to specific resettlement policies, and refugees in less socio-economically inclusive recipient countries might have more mental disorders. Future research may explore the impact of the recipient society further with more specific measures of social and economic inclusion.

One may conclude that findings on prevalence rates even for a very similar group of war refugees are context specific and need to be established for each country separately. Once the differences in the prevalence rates among countries are taken into account, the same factors may be considered to estimate the risk for mental disorders. Results of research on risk factors in a similar group of refugees appear to be generalizable, at least across countries that share some cultural and political features as Germany, Italy and the UK do. Policies for the provision of health and social care in each country can target similar risk groups.

Chapter 4

Quality of life and experiences of war and migration

4.1. Introduction

4.1.1. Quality of life: The concept and measurement

Over the past few decades the concept of quality of life (QOL) has spurred considerable interest in mental health research. Underlying this interest is a broadening in focus of measurement of health that goes beyond the traditional conception of health based strictly on the signs and symptoms of disorder, to include measures of the overall well-being and the level of functioning in physical, emotional and social domains of life (The WHOQOL Group, 1994). As such, QOL equates to the World Health Organization's (WHO) definition of health in general as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 1948). Furthermore, there has been a similar rise in recognition of the negative impact of mental disorders on QOL (Schnurr, Lunney, Bovin, & Marx, 2009).

Although there is a lack of agreement over its operational definition and use of terminology, there is a general consensus in the literature that QOL is a multidimensional construct which encompasses both objective and subjective indicators as well as health and non-health related domains (Mendlowicz & Stein, 2000; Priebe & Fakhoury, 2007; Rapaport, Clary, Fayyad, & Endicott, 2005). The objective indicators are external life conditions, including employment, income, housing, and number of social contacts (Priebe & Fakhoury, 2007). The concept of subjective quality of life (SQOL) centres on the individual's subjective perception and appraisal of the quality of his or her own life (The WHOQOL Group, 1994).

The WHO defined SQOL as: “individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. It is a broad-ranging concept, incorporating in a complex way the person’s physical health, psychological state, level of independence, social relationships, personal beliefs and relationship to salient features of the environment” (The WHOQOL Group, 1994, p. 43). This definition emphasizes the multidimensional nature of SQOL, which as a subjective evaluation is embedded in the individual’s physical health, psychological state, level of independence, social relationships, personal beliefs, and relationships to salient features of the environment (The WHOQOL Group, 1994).

Cummins (1996) showed that objective indicators of QOL are sometimes only remotely related to subjective satisfaction, that is, how people actually perceive, for example, their health or employment circumstances. At the same time, some authors have argued that relying solely on SQOL may result in distorted results as the subjective responses are highly dependent on the respondent’s psychological state or mood at the time of the interview (Katschnig, 2006; Ruggeri, Bisoffi, Fontecedro, & Warner, 2001). This may be particularly the case for individuals with mental disorders such as depression, mania or schizophrenia (Katschnig, 2006). Nevertheless, Ruggeri et al., (2001) argue that both objective and subjective dimensions are important in assessing QOL. Ruggeri et al. explored the role of objective and subjective measures in understanding the relationship between QOL and mentally ill patients. They concluded that while subjective measures helped with interpreting the meaning of the objective data, the objective data are more useful in determining the effectiveness of treatment interventions (Ruggeri, et al., 2001).

Numerous measures exist for assessing QOL and these can be classified into three groups: (1) generic, (2) health related, and (3) disease specific QOL measures. Generic QOL measures focus on subjective satisfaction and functioning across a number of life domains and not necessarily those directly related to illness, treatment types or patient characteristics. In contrast, health related measures of QOL focus typically on illness-related symptoms and impairment (although may also cover various life domains). These are also classified under generic measures, in the sense that they are non-disease specific measures. Finally, disease-specific measures provide detailed patterns of specific symptoms and impairments related to a specific disease (Fakhoury & Priebe 2008). In mental health research, a health-related and disease-specific QOL measure is believed to be less appropriate as broad environmental factors, such as social support and employment are fundamentally related to psychopathology (Katschnig, 2006). Within this field, therefore, ratings of satisfaction with life as a whole and with different life domains have been established as indicators of SQOL in line with a generic concept (Priebe, Huxley, Knight, & Evans, 1999).

4.1.2. Quality of life and experiences of war and migration

Refugee research has tended to focus on traumatic experiences of war and migration and subsequent psychological and psychiatric difficulties experienced by refugees in the host country. However, the effects of war trauma and migration may have wider implications than psychopathology but little attention has been devoted to the impact of such experiences on non-psychiatric forms of wellbeing, such as refugees' QOL (de Vries & van Heck, 1994). This is despite the World Health Organization (WHO) having identified individuals living in highly stressful situations, such as refugees, as one of the five priority groups in an international QOL assessment (The WHOQOL Group, 1994).

Numerous studies on war veterans have shown that combat experiences and subsequent mental health problems may be associated with impaired social and role functioning, impaired social-material conditions and poorer QOL (Schnurr, et sl 2009; Toomey, et al., 2007). This association between war experience and poorer QOL may persist even many years after the war (Amir & Lev-Wiesel, 2003; Ikin at al., 2009). Ikin et al. (2009) showed that even 50 years after the Korean War, life satisfaction and QOL in Australian male veterans was significantly poorer than that of comparable non-veteran Australian men. Poor QOL was particularly evident in those with heavy combat exposure and low military rank. Studies conducted with child Holocaust survivors more than 50 years later also revealed a lower QOL when compared to their counterparts who did not experience the Holocaust (Amir & Lev-Wiesel, 2003).

Evidence is also accumulating that mental disorders are associated with substantial impairments in QOL and functioning (Angermeyer, Holzinger, Matschinger, & Stengler-Wenzke, 2002; Olatunji, Cisler, & Tolin, 2007; Rapaport, et al., 2002; Schnurr, et al., 2009). The most often researched mental disorders in correlation with QOL have been anxiety disorders. A recent meta-analysis of QOL in anxiety disorders found large effect sizes indicating poorer QOL among all anxiety disorder patients, with QOL impairments being particularly prominent among PTSD patients (Olatunji, et al., 2007). Another study found that 59% of PTSD patients had severe QOL impairment, which was comparable to 63% of patients with major depression (Rapaport, et al., 2005). PTSD is an important outcome because its aetiology is directly related to traumatic experiences and its DSM-IV diagnostic criteria require that symptoms have a significant impact on the individual's social and occupational functioning, a concept that overlaps with QOL.

Several studies of Vietnam veterans examining the impact of PTSD on QOL show that veterans with PTSD diagnosis had significantly higher risk of diminished functioning and QOL. Research from the National Readjustment Study showed that both male and female veterans with PTSD diagnosis had significantly higher risk of diminished well-being, fair or poor physical health, current unemployment, and physical limitations than did veterans without PTSD (Zatzick, Marmar, et al. 1997; Zatzick, Weiss, et al. 1997). Veterans with PTSD have also been found to be much more likely to report marital, parental, and family adjustment problems than were veterans without PTSD (Jordan, et al., 1992). The findings in the Vietnam War cohort were reiterated in the most recent systematic literature review investigating the relationship between PTSD and QOL in veterans from more recent wars in Iraq and Afghanistan (Schnurr, et al., 2009).

War experience of community populations in post-conflict countries and refugees may have a specific influence on QOL due to disintegration of the social and economic fabric of their worlds. The few studies that have assessed QOL in these populations also suggest a link between war experience and QOL (Babic-Banaszak, et al., 2002; Cardozo, Vergara, Agani, & Gotway, 2000; Jankovic Gavrilovic, et al., 2005; Priebe, et al., 2009). For example, Babic-Banaszak et al. (2002) found that respondents in war-affected areas perceived their health, physical ability, social functioning, and emotional and mental health to be poorer than did those residing in areas not affected by the war in Croatia. This was especially the case for younger age groups, those with lower education and lower income. Cardozo et al. (2000) found social functioning to be substantially lower in the general war-affected population in Kosovo as compared to the USA general population. Poor social functioning was associated with higher levels of cumulative war trauma, living in rural areas, being currently unemployed, and having chronic health problems. Jankovic Gavrilovic et al. (2005) showed that in a group of

medical students that experienced air attacks the level of post-traumatic stress was associated with lower SQOL on almost all domains.

QOL may be particularly diminished in refugees due to additional strains of migration. Migration in itself, regardless of pre-migration traumatic experiences, has been shown to affect QOL. For example, in a large nationally representative Swedish sample, the first generation immigrants had a lower level of satisfaction with life as a whole than the Swedish-raised general population (Fugl Meyer, Melin & Fugl Meyer, 2002). Forced displacement during WWII was negatively associated with life satisfaction among the elderly German population sixty years later (Kuwert, Brähler, Glaesmer, Freyberger, & Decker, 2009). Migration has been associated with severe underemployment, downward mobility, social isolation, marital strain and conflict between parents and children (Ipsos MORI, 2010; Krahn, Derwing, Mulder, & Wilkinson, 2000; Papadopoulos, et al., 2004). It is thought that socio-economic factors such as these may impact QOL (Carlsson, Olsen, Mortensen, & Kastrup, 2006).

In the case of refugees, the post-migration situation is plagued with social and economic disadvantages (Beiser & Hou, 2001). A study (Ekblad, Abazari, & Eriksson, 1999) conducted in Sweden found that Iranian refugees with a history of trauma reported a lower QOL than did Swedes; when asked about factors influencing their QOL, many of the participants discussed post-migration factors, whereas only a few mentioned a negative impact of pre-migration trauma. Furthermore and as previously discussed, refugees' post-migration situation has been found to be associated with poor mental health (e.g. Porter & Haslam, 2005). The specific combination of pre-migration and post-migration experiences, including poor mental health, may make the refugees especially vulnerable to an impaired QOL.

Studies on QOL of refugees are particularly rare but the few existing studies all point towards impaired functioning and poor QOL in this population. A study of Bosnian women refugees in Sweden showed that Bosnian women irrespective of their health status had poorer QOL in almost all areas compared to Swedish women with good health status (Sundquist, Behmen-Vincevic, & Johansson, 1998). Young and Evans (1997) compared psychological distress, QOL and life satisfaction in a matched sample of Salvadoran refugees and Anglo-Canadians in Canada, and found that refugees did not differ with respect to psychological distress but did report significantly lower QOL and satisfaction with life. Poor QOL was also reported by refugees from former Yugoslavia resettled in Germany and the UK many years after war trauma and resettlement (Priebe, et al., 2009).

The three main types of factors have been considered as predictors of QOL in refugees: war-related stressors, post-migration stressors and current psychopathology. Evidence on the relation of these three types of factor to QOL and to each other is complex. In some studies refugees who experienced more war-related traumatic events and those suffering from poor mental health have been found to have particularly low QOL (Ghazinour, Richter & Eisemann, 2004; Miller, Weine, et al., 2002; Priebe, et al., 2009). A study among internally displaced Ethiopian adults has shown that the effect of life trauma in reducing QOL was to a large extent influenced through mental distress and only partly as a direct effect (Araya, Chotai, Komproe, & de Jong, 2007). That is, mental distress confounded the effects of traumatic experiences on QOL whereby trauma increased likelihood of mental distress, which in turn decreased QOL. However, in the case of more recent traumatic experiences related to displacement, lower QOL was directly associated with a higher number of traumatic experiences. Similarly, Priebe et al. (2009) reported that war experiences and current PTSD were both independently

associated with QOL in community populations from former Yugoslavia resettled in Germany and the UK. However, neither of the two studies considered particular hardships of refugee experiences in the new country (e.g. acculturation difficulty, language, asylum status) i.e., the first study assessed internally displaced people and in the second the authors did not analyse data separately for refugees and those who stayed in the area of conflict.

The studies that have considered refugee post-migration context failed to detect an association between pre-migration traumatic experiences and QOL (Cardozo, et al. 2004; Laban, et al., 2008). For example, Cardozo et al. (2004) reported no association between the social functioning of Kareni refugees living on the Thai-Burmese border and their war experiences. By contrast, the poor post-migration situation (lack of sufficient food in camps) had the strongest association with their poor social functioning. In a small non-clinical community sample of Bosnian refugees in the USA both depression and PTSD were associated with social isolation (Miller, Weine, et al., 2002). Psychopathology was also associated with poor QOL in Iraqi asylum seekers in the Netherlands. However, after adjusting for socio-demographics, the adverse life events and post-migration living factors in the regression model, the strength of associations between mental disorders and QOL weakened, suggesting that the relationship between mental disorders and QOL is confounded, at least partially, by these additional factors. In fact, length of stay in the host country, post-migration adverse traumatic events and post-migration living problems had more impact on QOL then psychopathology (Laban, et al., 2008).

Young (2001) examined the moderating effects of social resources on the relationship between migration stress and QOL and life satisfaction among long-settled refugees.

Social support was found to moderate the relationship between post-migration life events and life satisfaction. In addition, social support buffered the effects of daily stressors on QOL. These findings highlight the effect that contextual factors and stressors can have on QOL and also underscore the importance of examining factors other than war trauma and clinical factors in order to better understand predictors of QOL among refugees.

Socio-demographic factors most frequently studied for associations with QOL in refugees include age (e.g. Hermansson, Hörnquist & Timpka, 1996; Laban, et al., 2008; Priebe, et al., 2009), gender (e.g. Ghazinour, et al., 2004; Laban, et al., 2008; Priebe, et al., 2009), marital status (e.g. Hermansson, et al., 1996; Priebe, et al., 2009), level of education (e.g. Hermansson, et al., 1996; Priebe, et al., 2009) and employment status (Carlsson, et al., 2006; Laban, et al., 2008; Priebe, et al., 2009). Although with some inconsistencies, the findings generally indicate older age, higher education and unemployment as being linked with less favourable QOL.

The aim of the present study was to assess SQOL in long-settled war refugees and identify factors associated with SQOL. More specifically, the present study aimed to address the following research questions:

1) What pre-war, war, post-migration and clinical factors are associated with SQOL?

2) What is the relative impact of each group of factors on SQOL and what is the confounding effect of post-migration factors and mental disorders in explaining the relationship between war exposure and SQOL?

4.2. Methods

As stated in the introduction (Chapter 1), whilst the current study is presented as a separate study, it is based on the same cross-sectional data as the study described in Chapter 3. To avoid repetition, the reader is directed to consult the description of methods in Chapter 3 for overlapping methodological aspects. Only methodological aspects specific to the present study are discussed in more detail below.

4.2.1. Links with larger investigation

Details of the study participants are provided in section 3.2.1.

4.2.2. Inclusion criteria

Details of the participant inclusion criteria applied in this study are provided in section 3.2.2.

4.2.3. Recruitment method: random sampling and linkage sampling

Details of the recruitment method applied in this study are provided in section 3.2.3.

4.2.4. Measures

Socio-demographic data

See section 3.2.4. for description.

History of potentially traumatic experiences

See section 3.2.4. for description.

The Life Stressor Checklist-Revised (LSCL-R)

See section 3.2.4. for description.

Migration stressors

See section 3.2.4. for description.

Current psychopathology

The Mini International Neuropsychiatric Interview (MINI)

See section 3.2.4. for description.

Quality of life

The Manchester Short Assessment of Quality of Life (MANSA)

The MANSA (Priebe, et al., 1999) is a brief self-administering instrument designed for assessing degree of satisfaction with life as a whole and with different life domains. It is based on the Lancashire Quality of Life Profile (LQLP; Oliver, Huxley, Priebe, & Kaiser, 1997), but is much more concise. The MANSA contains sixteen questions, of which four are objective and to be answered with *yes* or *no* (e.g. having a 'close friend',

being accused of a crime). The remaining twelve questions are subjective and satisfaction is rated on a 7-point Likert scale with a range between 1 = couldn't be worse and 7 = couldn't be better.

The psychometric properties of the MANSA are satisfactory and its high correlation with the LQOLP suggests concurrent validity (Priebe, et al., 1999). The validity and reliability of the instrument has been reported with different populations (Björkman & Svensson, 2005). The MANSA has been applied in studies on posttraumatic stress and chronic consequence of war in populations from the former Yugoslavia (e.g. Bravo-Mehmedbasic, Kucukalic, Kulenovic, & Suljic, 2010; Kashdan, Morina, & Priebe, 2009; Jankovic Gavrilovic, et al., 2005; Morina, 2007).

All instruments used in the present study were translated into Bosnian, Croatian, Serbian, and Albanian languages and then back translated to English, Italian and German, by native Bosnian/Croatian/Serbian/Albanian team members who were also fluent in German/Italian/English. The translations were not literal, but sought to express the same meaning and connotations in words that were colloquial and appropriate in style in Bosnian/Croatian/Serbian/Albanian languages.

4.2.5. Interviews and procedure

See section 3.2.5. for description.

4.2.6. Statistical analysis methods

Descriptive statistics were used to summarise participant socio-demographic data in each country.

Descriptive statistics were used to describe scores on subjective and objective indicators of QOL as well as the overall score on subjective indicators of QOL. The data is presented for the total sample as well as separately 1) for each host country and 2) by mental health status (PTSD, mental disorders other than PTSD, and no mental disorder).

The distribution of all continuous variables was assessed with the Kolmogorov-Smirnov test. For normally distributed variables the mean and standard deviation are reported, whereas for variables that were non-normally distributed the mean, standard deviation, median and range are illustrated in all relevant tables in the results.

The selection of statistical tests used to compare the variables between the different groups was based on the distribution of the data. Parametric tests (one-way ANOVA) were used for comparisons of normally distributed continuous variables, whereas non-parametric tests (Kruskal-Wallis tests) were used for comparisons of non-normally distributed continuous variables. Comparisons of categorical variables were performed with Chi-square tests.

Following tests to confirm that the distribution of SQOL scores was approximately normal, multiple hierarchical linear regression analysis was used to examine associations between pre-war, war, post-migration and clinical variables and the SQOL score. The candidate predictor variables were:

a) pre-war factors - gender, age, educational attainment, and number of pre-war traumatic events;
b) war factors – active participation in war, number of traumatic events experienced during the war, and time since the most traumatic war event;
c) post-war factors – number of post-war traumatic events, cohabitation status, employment status, number of post-migration stressors, feeling accepted by the host country, host language proficiency, residence status, and country of residence; and
d) clinical factors – no mental disorder, PTSD (regardless of comorbidity), mental disorder other than PTSD.

The "PTSD group" included participants with PTSD and other mental disorders, whereas the "mental disorder other than PTSD group" included participants who did not have PTSD but had other mental disorders. Mental disorders other than PTSD included major depression (with or without melancholic features), dysthymia, suicidality, hypomania, mania, panic disorder, agoraphobia, social phobia, obsessive-compulsive disorder, alcohol abuse or dependence, drug abuse or dependence, psychotic disorder, mood disorder with psychotic features, and antisocial personality disorder.

First, univariate associations between explanatory variables and SQOL were examined using univariate linear regression. Variables statistically significant at $p<0.10$ were then considered in a multiple linear regression model. A lenient threshold of $p<0.10$ was used to avoid excluding any potentially confounding variables. Variables were entered into the regression model in four sequential blocks. Pre-war factors comprised the first block, war factors the second block, post-war factors the third block, and clinical factors

the fourth block. In considering the results of the multiple regression model only variables with a $p<0.05$ were considered to be significant.

Several diagnostic statistics were preformed in order to check that there were no serious violations for multiple regression analysis. As described in the methods section (3.2.6.) in Chapter 3 both bivariate correlations and multicollinearity diagnostic statistics were inspected prior to the regression to examine multicollinearity between explanatory variables. Casewise diagnostics were used to identify cases with extreme standardized residual values and Cook's distance values were inspected to assess the influence of such cases on the model. The assumption of linearity was assessed by inspecting the scatter plot of standardized residuals against standardized predicted values, whilst normality of residuals was assessed by checking the histogram and normal probability plot.

Missing data analysis

Overall, 193 (22.6%) cases had missing data on at least one out of the 96 variables related to the multiple linear regression analysis presented in this chapter. The missing data value included data missing on all individual items within multiple item scales (Life Stressors Checklist-Revised, Post-migration Stressors List, and MANSA). The overall amount of missing data for each item ranged from 1.1% to 78.0%, with the majority (98%) of participants missing less than 5% of data. For all multiple item scales used in the analyses, mean scores were computed for all participants where 80% or more of the scale items were answered, rather than deleting the existing information. The main analyses were based on the sample with complete information on each variable.

To examine whether missing data may have biased the results of regression analysis, sensitivity analyses were conducted using multiple imputation method as described in Chapter 3 (section 3.2.6.). Assessment of missing data descriptives indicated that the data were missing at random (MAR rather than MCAR), which was confirmed through Little's MCAR test (χ^2=405.29, d.f.=337, p=0.006). Specifically, the missing value on MANSA item 'satisfaction with sex life' tended to be more frequent among participants who were older, who reported higher satisfaction with family relationships and people lived with, and lower satisfaction with mental and physical health.

For imputation of missing data in multiple item scales, data were imputed for each missing data item (rather than the total scale score) and, following this, the scale mean score was calculated. The MI model included all variables that were considered for original regression analysis. Finally, multiple linear regression analysis was repeated with the imputed data set.

All analyses were carried out on unweighted data using SPSS 18.0 for Windows (SPSS Inc., Chicago, Illinois, USA).

4.3. Results

4.3.1. Sample description

Socio-demographic, war and migration related characteristics of the sample are described in section 3.3.1.

Description of SQOL scores

As shown in Table 4.1 the mean score on MANSA SQOL was 4.7 (SD = 0.9) indicating that on average participants rated their SQOL between "mixed" and "mostly satisfied". The participants reported being the most satisfied with relationship with family (M = 5.9 [SD = 1.2]; median = 5 [1-7]) and living situation i.e. living with others or living alone (M = 5.8 [SD = 1.4]; median = 6 [1-7]). They were the least satisfied with employment status i.e. with being employed, unemployed, retired or in education or training (M = 3.8 [SD = 1.7]) and with their financial situation (M = 3.9 [SD = 1.5]).

Refugees in Germany (M = 4.4 [SD = 1.0]) reported a significantly lower mean score on MANSA than did refugees in Italy (M = 4.8 [SD = 0.8]) or the UK (M = 4.9 [SD = 0.9]) (p<0.001), whilst there was no statistical difference in the mean scores between refugees in Italy and the UK (p=0.409).

With regards to the objective indicators of quality of life, the majority of participants had somebody whom they could call a close friend (84.3%) and most had met with a friend in the week prior to the interview (83.5%). Only a small fraction of the

participants had been accused of a crime (1.8%) or had been a victim of physical violence (3.3%) in the year prior to the interview.

Table 4.1. Subjective and objective indicators of quality of life in refugees in three countries

	N	Total	Refugees in Germany	Refugees in Italy	Refugees in the UK
Subjective indicators of quality of life (Mean, SD)					
satisfaction with life quality in general	839	4.5 (1.3)	4.0 (1.4)	4.5 (1.3)	4.9 (1.3)
satisfaction with employment status	847	3.8 (1.7)	3.2 (1.7)	3.9 (1.7)	4.2 (1.6)
satisfaction with financial situation	843	3.9 (1.5)	3.5 (1.5)	3.6 (1.5)	4.3 (1.5)
satisfaction with friendships	844	4.8 (1.4)	4.5 (1.4)	4.7 (1.4)	5.1 (1.3)
satisfaction with leisure activities	848	4.1 (1.5)	3.7 (1.5)	4.0 (1.6)	4.4 (1.4)
satisfaction with accommodation [a]	844	5.0 (1.5), 5 (1-7)	4.9 (1.4), 5 (1-7)	4.7 (1.6), 5 (1-7)	5.3 (1.5), 6 (1-7)
satisfaction with personal safety [a]	845	5.1 (1.4), 5 (1-7)	4.7 (1.5), 5 (1-7)	5.4 (1.2), 6 (1-7)	5.3 (1.3), 5 (1-7)
satisfaction with living situation [a]	846	5.8 (1.4), 6 (1-7)	5.5 (1.5), 6 (1-7)	5.9 (1.3), 6 (1-7)	5.9 (1.3), 6 (1-7)
satisfaction with sex life [a]	776	4.9 (1.8), 6 (1-7)	4.7 (1.6), 5 (1-7)	5.2 (1.7), 5.5 (1-7)	4.8 (1.9), 5 (1-7)
satisfaction with relationship with family [a]	845	5.9 (1.2), 5 (1-7)	5.6 (1.3), 5 (1-7)	6.0 (1.2), 6 (2-7)	6.0 (1.2), 6 (1-7)
satisfaction with physical health	846	4.6 (1.6)	4.1 (1.7)	5.1 (1.6)	4.6 (1.6)
satisfaction with mental health	848	4.6 (1.8)	3.8 (1.8)	5.2 (1.5)	4.5 (1.7)
MANSA mean	849	4.7 (0.9)	4.4 (1.0)	4.8 (0.8)	4.9 (0.9)
Objective indicators of quality of life (N, %)					
having a close friend	842	710 (84.3)	201 (81.0)	240 (80.8)	269 (90.6)
meeting a friend during the last week	841	702 (83.5)	203 (81.5)	228 (77.0)	271 (91.6)
accused of crime during the last year	847	15 (1.8)	6 (2.4)	6 (2.0)	3 (1.0)
victim of physical violence during the last year	847	28 (3.3)	10 (4.0)	9 (3.0)	9 (3.0)

[a] Mean and (standard deviation) , median and (minimum-maximum) are reported for these non-normally distributed variables

SQOL scores and mental disorders

The comparison of mean SQOL scores between the PTSD, mental disorder other than PTSD, and no mental disorder groups showed lower SQOL in PTSD group as

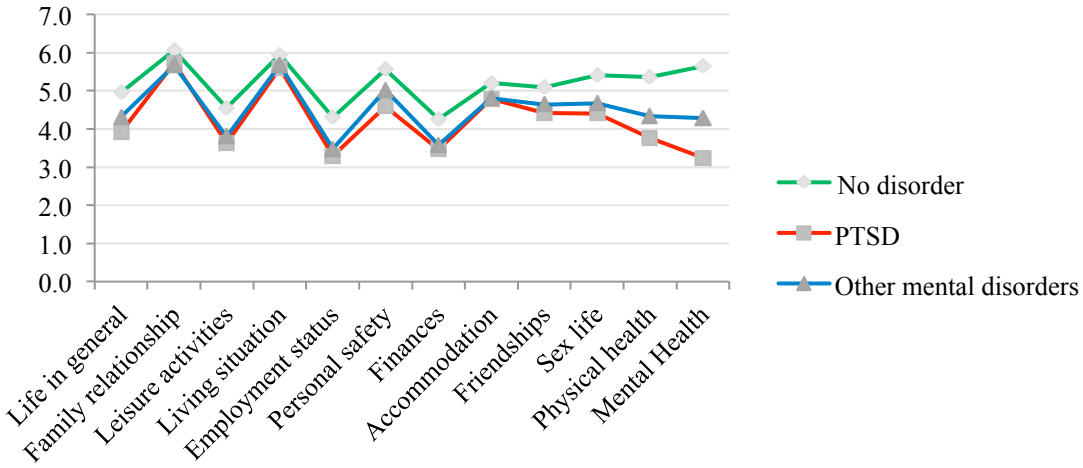
compared to the other groups. The mean (SD) SQOL score for the PTSD group was 4.2 (0.9) as compared to 4.5 (0.9) in the other mental disorders group, and 5.2 (0.7) in those without mental disorder (F [2, 429.38] =126.22, $p<0.001$).

With respect to individual life domains, significant differences were observed between the groups on all 12 domains: life in general (F [2, 431.57] =55.82, $p<0.001$), family relationships ($\chi^2[2, N = 845] = 15.36$, $p<0.001$), leisure activities (F [2, 453.50] =35.44, $p<0.001$), living situation ($\chi^2[2, N = 846] = 13.71$, $p<0.001$), employment status (F [2, 448.48] =36.31, $p<0.001$), personal safety ($\chi^2[2, N = 845] = 79.35$, $p<0.001$), finances (F [2, 436.73] =28.40, $p<0.001$), accommodation ($\chi^2[2, N = 844] = 13.52$, $p = 0.001$), friendships (F [2, 436.57] =20.93, $p<0.001$), sex life ($\chi^2[2, N = 776] = 53.11$, $p<0.001$), physical health (F [2, 427.92] =97.58, $p<0.001$) and mental health (F [2, 416.02] =246.15, $p<0.001$).

The distribution of SQOL scores across the three groups is illustrated in Figure 4.1. As it can be seen, the PTSD group and other mental disorders group scored lower in all domains compared with the group without a mental disorder. The PTSD group also scored lower than the group with other mental disorders on SQOL domains of personal safety, physical and mental health. The domains with which the group without a mental disorder and the group with a mental disorder other than PTSD expressed the lowest satisfaction were their employment status (M = 4.3 [SD = 1.5] and M = 3.5 [SD = 1.8], respectively) and financial situation (M = 4.3 [SD = 1.3] and M = 3.6 [SD = 1.6], respectively), whereas the areas of life with which the PTSD group were least satisfied were mental health (M = 3.2 [SD = 1.6]), and, again, employment status (M = 3.3 [SD = 1.7]). In all three groups, participants were most satisfied with their relationship with family (no disorder group, M = 6.1 [SD = 1.1]; group with a mental disorder other than

PTSD, M = 5.7 [SD = 1.3]; PTSD group, M = 5.7 [SD = 1.3]) and living situation (no disorder group, M = 5.9 [SD = 1.3]; group with a mental disorder other than PTSD, M = 5.7 [SD = 1.3]; PTSD group, M = 5.6 [SD = 1.3]).

Figure 4.1. SQOL scores for PTSD, mental disorder other than PTSD, and no mental disorder sub-samples



4.3.2. Addressing research question 2: SQOL and factors associated with SQOL

Factors associated with SQOL

Preliminary analysis

The SQOL scores and clinical factor variable (categorical = no mental disorder, PTSD, other mental disorder) were assessed for possible associations using Spearman's correlation coefficient (rho). The result showed Spearman's rho correlations of -0.391 (p<0.01), indicating a moderate strength of association between the two variables.

Univariate associations between explanatory variables and SQOL

Several variables were univariately significantly (p<0.10) associated with SQOL, as presented in Table 4.2.

Table 4.2. Univariate associations between SQOL of life and explanatory variables

Variable	Coefficient	(95% CI)		*p* value
Pre-war factors				
Female gender	-0.09	(-0.21,	0.04)	0.170
Age	-0.01	(-0.02,	-0.01)	<0.001
Education level				
None or primary education	Reference			
Secondary education	0.03	(-0.08,	0.17)	0.455
Higher education	0.02	(-0.09,	0.17)	0.540
Number of pre-war traumatic events	-0.10	(-0.15,	-0.06)	<0.001
War factors				
Number of war traumatic events	-0.03	(-0.05,	-0.02)	<0.001
Active participation in war	-0.05	(-0.20,	0.10)	0.492
Time since index war trauma	0.01	(-0.01,	0.03)	0.157
Post-war factors				
Number of post-war traumatic events	-0.14	(-0.19,	-0.09)	<0.001
Number of migration-related stressors	-0.20	(-0.24,	-0.17)	<0.001
Unemployed	-0.39	(-0.51,	-0.26)	<0.001
Not living with partner	-0.13	(-0.42,	-0.13)	<0.001
Temporary residence status	-0.29	(-0.42,	-0.17)	<0.001
Accepted in the new environment	0.36	(0.30,	0.42)	<0.001
Host language proficiency	0.17	(0.11,	0.22)	<0.001
Country				
UK	Reference			
Germany	-0.59	(-0.74,	-0.44)	<0.001
Italy	-0.09	(-0.24,	0.05)	0.193
Clinical factors				
No disorder	Reference			
PTSD	-0.97	(-1.09,	-0.84)	<0.001
Disorders other than PTSD	-0.68	(-0.82,	-0.53)	<0.001

Multivariate associations between explanatory variables and SQOL

Adjusted odds ratios for factors significantly associated (p<0.10) with SQOL were further explored in hierarchical linear regression model as described in the methods section. The results are presented in Table 4.3.

Table 4.3. Relative contributions of pre-war, war, post-migration and clinical factors to predicting SQOL

Block		*B*	95% CI		*p* value	R^2	Adjusted R^2	ΔR^2
1	**Pre-war factors**				<0.001	0.026	0.024	0.026
N=838	Age	-0.01	(-0.01,	0.00)	0.011			
	Number of pre-war traumatic events	-0.08	(-0.13,	-0.03)	0.001			
2	**War factors**				<0.001	0.040	0.036	0.014
N=837	Age	-0.01	(-0.01,	0.00)	0.041			
	Number of pre-war traumatic events	-0.08	(-0.13,	-0.03)	0.001			
	Number of war traumatic events	-0.03	(-0.05,	-0.01)	0.001			
3	**Post-migration factors**				<0.001			
N=827	Age	0.00	(-0.01,	0.00)	0.311	0.325	0.315	0.285
	Number of pre-war traumatic events	-0.08	(-0.12,	-0.03)	<0.001			
	Number of war traumatic events	-0.01	(-0.02,	0.01)	0.408			
	Number of post-war traumatic events	-0.05	(-0.10,	-0.01)	0.013			
	Number of post-migration stressors	-0.13	(-0.17,	-0.09)	<0.001			
	Unemployed	-0.29	(-0.41,	-0.16)	<0.001			
	Not living with partner	-0.36	(-0.49,	-0.24)	<0.001			
	Accepted in the new environment	0.26	(0.20,	0.32)	<0.001			
	Host language proficiency	0.08	(0.03,	0.14)	0.005			
	Temporary residence status	-0.02	(-0.14,	0.10)	0.761			
	Country of residence							
	UK	Reference						
	Germany	-0.30	(-0.45,	-0.15)	<0.001			
	Italy	-0.16	(-0.31,	-0.01)	0.039			
4	**Clinical factors**				<0.001			
N=825	Age	0.00	(-0.01,	0.00)	0.484	0.403	0.393	0.078
	Number of pre-war traumatic events	-0.07	(-0.11,	-0.03)	<0.001			
	Number of war traumatic events	0.01	(-0.01,	0.02)	0.264			
	Number of post-war traumatic events	-0.03	(-0.07,	0.01)	0.173			
	Number of migration-related stressors	-0.10	(-0.13,	-0.06)	<0.001			
	Unemployed	-0.21	(-0.33,	-0.09)	<0.001			
	Not living with partner	-0.33	(-0.44,	-0.21)	<0.001			
	Accepted in the new environment	0.23	(0.17,	0.28)	<0.001			
	Host language proficiency	0.06	(0.00,	0.11)	0.043			
	Temporary residence status	0.06	(-0.05,	0.18)	0.291			
	Country of residence	Reference						
	UK							
	Germany	-0.32	(-0.46,	-0.17)	<0.001			
	Italy	-0.22	(-0.37,	-0.08)	0.002			
	Clinical status							
	No disorder	Reference						
	PTSD	-0.65	(-0.78,	-0.52)	<0.001			
	Disorders other than PTSD	-0.47	(-0.61,	-0.34)	<0.001			

ΔR^2 = change in R^2

Pre-war variables (age and number of pre-war traumatic events) were entered at Block 1 in the equation and explained a significant amount of variance in SQOL scores, increasing the variance explained by 2.6% above the null model (R^2_{change} = 0.026, F_{change} [2, 838] = 11.26, p<0.001). The war-related variable, number of traumatic events experienced during the war, was entered at Block 2 of the regression equation and was found to significantly increase the variance in SQOL explained by variables in Block 1 by 1.4% (R^2_{change} = 0.014, F_{change} [1, 837] = 11.77, p=0.001). The post-migration variables (number of post-war traumatic events, number of post-migration stressors, employment status, marital status, feeling accepted in the new environment, host language proficiency, residence status and country of residence) were entered simultaneously at Block 3, and these variables significantly improved the prediction of SQOL scores. The amount of variance explained by these variables was 28.5% (R^2_{change} = 0.285, F_{change} [10, 828] = 38.83, p<0.001). Finally, clinical variables (having PTSD and having a mental disorder other than PTSD) were found to significantly contribute to explaining variance over and above that explained by the variables entered in Block 1 to Block 3. These two variables accounted for additional 7.8% of the variance in SQOL scores (R^2_{change} = 0.078, F_{change} [2, 826] = 53.55, p<0.001). The final model i.e. with all variables entered, was found to have an adjusted R^2 value of 0.393, F (2, 826) = 53.89, p<0.001. Thus 39.3% of the variance in SQOL could be predicted on the basis of the 13 variables in the model.

The results also demonstrated that when only pre-war factors were entered into the model (Block 1) older age and more pre-war traumatic experiences were negatively associated with SQOL. When war experiences were added into the model (Block 2) age and pre-war traumatic experiences remained significantly associated with SQOL as well as war experiences i.e. more war experiences was associated with lower SQOL. When

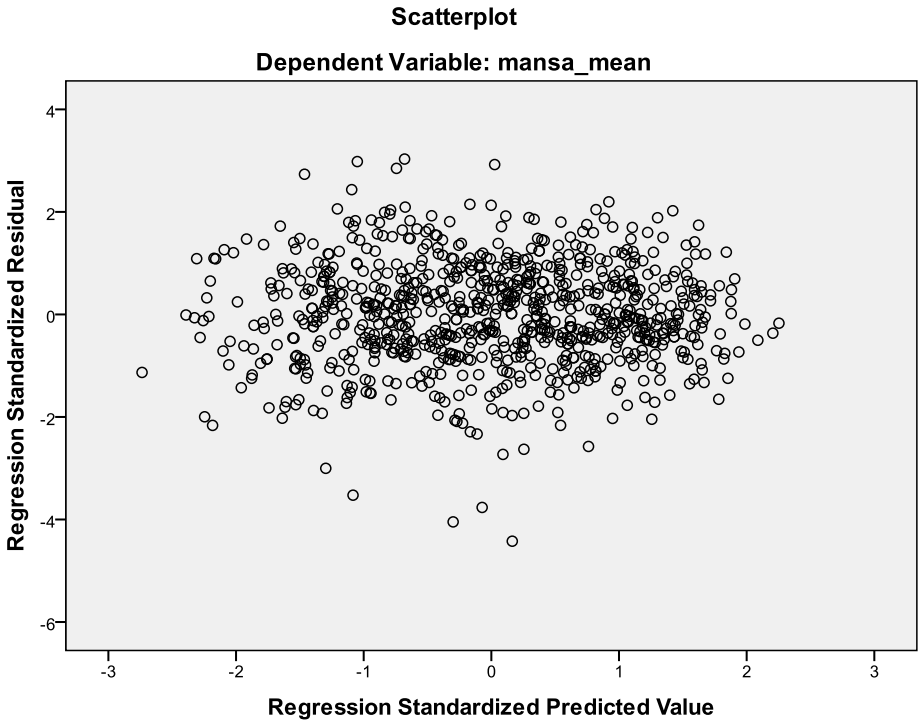
post-migration factors were entered into the model (Block 3), pre-war experiences were still negatively associated with SQOL, whereas the effect of age and war experiences ceased to be significant. Furthermore, more post-war traumatic experiences, more post-migration stressors, being unemployed, not living with a partner and living in Germany or Italy, were all associated with lower SQOL. The more one felt accepted by the host country and more proficient one was in the host language, the better SQOL was. Residence status was not significantly associated with SQOL. Finally, with the addition of mental health status to the model (Block 4), most of the factors with previously significant associations with SQOL remained significant. The exception was post-war traumatic experiences, which became non-significant. Participants who fulfilled diagnostic criteria for either PTSD or any other mental disorder reported a lower quality of life than those without a mental disorder.

Multiple linear regression model demonstrated that, when all variables were adjusted for, lower SQOL was independently associated with higher number of pre-war traumatic events, higher number of post-migration stressors, being unemployed, and not living with a partner. SQOL increased the more participants felt accepted by the host country and the more fluent they were in the use of the host country language. Compared to the refugees in the UK, refugees in Germany and Italy had lower SQOL. Finally, lower SQOL was associated with having a diagnosis of PTSD or any other mental disorder.

Collinearity diagnostics identified no variable with a variance inflation factor (VIF) above 5 (Stine, 1995) or tolerance value below 0.2 (Menard, 1995). Casewise diagnostics identified five cases with a standardized residual value ±3. Cook's distance values were inspected to assess the influence of these cases on the model but none of

them had Cook's distance greater than 1. The scatter plot presented in Figure 4.2. indicated that the assumptions for a linear regression model holds, since the residuals are distributed around a horizontal line (Y=0). This is further supported by normal probability plot which indicated no deviation from normality.

Figure 4.2. Scatter plot of residuals from Model described in Table 4.3. against the linear combination of predictors



Multiple linear model validation with multiply imputed data set

The multiple linear regression model exploring factors associated with SQOL was repeated using the same variables in the multiple-imputation model (section 4.2.6.). Results from the multiple-imputation regression model were very similar to those using the main non-imputed data set. All the variables that were significant in the reported model without imputed missing values remained significant when variables with imputed missing values were used. The only exception was the effect of host language

proficiency, which became only marginally significant (OR= 0.05, 95% CI= -0.01 to 0.10, p=0.091) after controlling for all other variables in the models. The predictive performance of non-imputed and multiply-imputed models were largely similar, as indicated by similar R^2 (R^2=0.393 and R^2=0.395, respectively).

4.4. Discussion

4.4.1. Principal findings

The mean score for SQOL in this study was 4.7, indicating that refugees were on average feeling between "mixed" and "mostly satisfied" with their life. The highest ratings were for satisfaction with relationships with family and for satisfaction with living situation. The lowest ratings were for satisfaction with employment status and financial situation. Refugees in Germany reported being the least satisfied and those in the UK the most satisfied with their QOL. In addition, participants suffering from PTSD reported being the least satisfied with their QOL when compared to those suffering from other mental disorders or without a mental disorder.

Adverse post-migration living conditions i.e. a higher number of migration-related stressors, being unemployed, not living with a partner, not feeling accepted by the host country and poor host language proficiency, as well as clinical factors i.e. having a mental disorder were all independently associated with lower SQOL. These two sets of factors accounted for the largest proportion of variance in the SQOL scores (28.5% and 7.8%, respectively). Additionally, experiencing more potentially traumatic events before the war was also associated with lower SQOL. Country differences remained even after adjusting for potential confounders. The effect of mental disorders (both PTSD and mental disorders other than PTSD) on SQOL remained statistically significant even after war exposure and post-migration factors were entered into the model, indicating the independent effect of mental disorders on SQOL. Whilst war-related traumatic experiences were significantly associated with SQOL in univariate

analysis, this association disappeared once post-migration factors were adjusted for, indicating that this relationship was fully confounded by post-migration factors.

4.4.2. Strengths and limitations of the study

Since the present study was based on the same data as the study described in Chapter 3, several strengths and limitations apply to both studies. These shared strengths and limitations are summarized below.

Strengths of the study

The present study adds to the existing but very limited knowledge of refugee's well-being in relation to traumatic exposure and migration by elaborating on an outcome (SQOL) that extends beyond PTSD and other mental disorders, and by measuring this outcome in a large community sample of war refugees. Other strengths of this study include the use of the same measures to assess culturally homogenous refugee samples resettled in different countries and its focus on the long-term well-being of this understudied population.

Limitations of the study

As noted in section 3.5.2. in Chapter 3, this study has methodological limitations in terms of non-random sampling methods and sample composition (only refugees from former Yugoslavia who had experienced at least one war-related event), and as such its findings cannot be generalized to entire refugee populations. However, the absence of areas with a high density of refugees and the data protection legislation in these

countries do not allow for more rigorous random sampling. A strong systematic selection bias may have particularly affected the prevalence rates of mental disorders and the mean score of SQOL in the sample, while the associations between explanatory variables and SQOL are likely to be more robust toward a sampling bias (Etter & Perneger, 2000).

The study is further limited by its cross-sectional design which does not allow the inference of causal relationships. The order of variables in the multiple linear analysis was specified according to the chronological order in which prior research has hypothesized that events would occur in an individual's life (Steel, et al., 1999). That is, socio-demographic characteristics, trauma and migration-related experiences preceded mental disorders, which preceded SQOL. However, it is likely that mental health symptoms and SQOL interact mutually over time, with life events such as family separation, job loss, and threat of deportation worsening symptoms and symptom resolution leading to improved SQOL (Schnurr, Hayes, Lunney, McFall, & Uddo, 2006). For example, in a longitudinal study of Mandean refugees in Australia change in visa status from temporary to permanent residence was significantly associated with increased SQOL (Nickerson, Steel, Bryant, Brooks, & Silove, 2011). However, the authors did not take into account the length of time refugees were resident in Australia, so that the change in SQOL cannot necessarily be attributed to change in visa status alone but may also reflect SQOL over time trajectory. Future research might attempt to illuminate potential causal relations between these variables in prospective, longitudinal studies, starting at refugees' arrival in the resettlement country.

Although the MANSA has been used in other studies with refugees from former Yugoslavia, the measure has not been extensively validated for this population, which is a common problem in this understudied population (Hollifield, et al., 2002).

It has to be taken into account that SQOL as measured by MANSA, among others, encompasses a question on satisfaction with mental health. The study results showed that SQOL and mental health status are associated with each other but are not identical, suggesting that they capture different aspects of well-being.

In addition, the research questions were exploratory in nature and did not test a specific hypothesis, so the statistical power and sample size have not been defined apriori.

Finally, the differences and associations found in this study may still be subject to unobserved confounding factors since only 39.3% of the variation in SQOL scores were explained by the included independent variables.

4.4.3. Discussion of the findings and comparisons with the literature

The SQOL mean score observed in this study is similar to that found in a study of medical students who experienced air attacks in Serbia (Jankovic Gavrilovic, et al., 2005) and slightly lower than for civilian war survivors in Kosovo five years after the war (Morina, 2007). At the same time, refugees in the present study have reported to be more satisfied with their lives than did war refugees suffering from untreated chronic PTSD (Priebe, et al., 2009) and patients treated for PTSD (d'Ardenne, Capuzzo, Fakhoury, Jankovic-Gavrilovic, & Priebe, 2005; Morina, et al., 2010). For example, the mean MANSA score in 81 civilian war survivors seeking treatment for war-related

stress almost one decade following the war in Kosovo was 3.4 (Morina, et al,. 2010). Low SQOL among refugees suffering from a mental disorder has been documented also in the present study. Refugees without a mental disorder reported a mean SQOL score of 5.2 which is marginally lower than that found among non-war affected medical students in the United Kingdom (Mean=5.3; d'Ardenne, et al., 2005).

The highest ratings were for satisfaction with relationships with family and for satisfaction with living situation. The family is a highly important social structure for people from the Balkan region (Weine, Muzurovic, et al., 2004) and close family ties and high satisfaction with family relationships may reflect this cultural specificity. Similar findings were also reported for refugees from former Yugoslavia suffering from untreated chronic PTSD (Priebe, et al., 2009) as well as for PTSD patients being treated in specialised clinics (d'Ardenne, et al., 2005) who were also most satisfied with living situation and family relationships.

Refugees' dissatisfaction with employment status and financial situation may reflect downward occupational mobility and high unemployment rates, which are often associated with refugee situation (Ipsos MORI, 2010; Krahn, et al., 2000). Despite the generally high educational attainment of these refugees (more than two-thirds of participants had at least a high school education), the results show that they experienced a high rate of unemployment (more than half of the sample was unemployed). Even if employed, many refugees may be underemployed i.e. in employment at a level inappropriate to their educational attainment and prior occupational standing positions (Krahn, et al., 2000) due to numerous obstacles (e.g. lack of qualification recognition in the host country, language barriers, and health issues) (Miller, Worthington, et al.,

2002). These findings also suggest that refugees may not regard mental health as their main problem but rather one amongst many, in particular socio-economic problems.

With respect to the factors associated with SQOL, adverse post-migration living conditions i.e. a higher number of migration-related stressors, being unemployed, not living with a partner, not feeling accepted by the host country, and poorer host language proficiency were all independently associated with lower SQOL, even after adjusting for the effects of mental distress and trauma. Country differences were also observed in the current study, with lower SQOL being associated with residing in Germany and Italy (as compared to residing in the UK), suggesting that other country-specific factors not already accounted for in the analysis play a role. Post-migration socio-economic situation was identified as the most important set of factors associated with SQOL, explaining 29% of the overall variance. Pre-war, war and clinical factors accounted for much lower variance in the model (2.6%, 1.4% and 7.8%, respectively).

With regard to acculturation related variables, a significant association was demonstrated between SQOL and the feeling of being accepted by the host country and host language proficiency. Thus, if a person feels more accepted or has a good command of the host language, this can increase their SQOL. A similar finding was reported for Bosnian refugees living in Norway, with refugees who perceived the majority's attitude toward themselves as positive reporting a higher life satisfaction (Van Selm, Sam, & Van Oudenhoven, 1997). Of course, the causal chain may operate in the opposite direction as well: if a person feels unsatisfied with their SQOL, this may lead to feelings of not being accepted in their host country (Van Selm, et al., 1997).

Being able to speak the main language of the host community is consistently identified as central to the integration process. Learning the language in the host society and securing employment are two of the most important issues for refugees (Corvo & Peterson, 2005). For example, English language difficulties were identified as the major cause of unemployment for the recently arrived Afghan, Iraqi and Bosnian refugees in Australia (Waxman, 2001). For the Yugoslavian refugees in Sweden, competency in the majority language was essential for labour market integration as well as social contact with Swedes (Kivling-Boden & Sundbom, 2001). In the UK context, not being able to speak English is seen as a barrier to social interaction, economic integration and full participation (Home Office, 2006; Ipsos MORI , 2010). For example, a study funded by the Greater London Authority (GLA) found that English language was the single most important factor when it comes to successful integration for refugees (Ipsos MORI , 2010). Refugees who reported good English speaking ability were more likely to find it easy to find information about accommodation when they arrived in London, to be currently employed, to feel able to influence decisions in their local area, and also more likely to feel part of their local area compared with the refugees with poor English speaking ability (Ipsos MORI, 2010).

In turn, these factors may further influence one's SQOL. An exploratory study evaluating the impact of Home Office funded services for refugees found most of these factors associated with QOL (Peckham, Wallace, Wilby, & Noble, 2004). Furthermore, social interaction provides the necessary opportunities for refugees to learn the host language. Research has shown that traumatic experiences and subsequent psychopathology, in particular PTSD, may inhibit normal daily functioning and the frequency with which refugees are exposed to acculturation situations, and thus reduce chances to experience the second language outside of the classroom environment (Steel,

et al., 2002). However, in the current study, both traumatic experiences and psychopathology were adjusted for in multiple regression analysis, suggesting an independent effect of language proficiency on SQOL. Language proficiency was also independent of the effects of other socio-demographic and post-migration factors. This finding is in line with previous studies that have suggested language proficiency to be a significant predictor of life satisfaction (Matsuo & Poljarevic, 2011; Tran & Nguyen, 1994). English competency was found to be one of the strongest predictors of one's life satisfaction in a sample of long-settled Bosnian refugees in the USA (Matsuo & Poljarevic, 2011).

In the aforesaid study (Peckham, et al., 2004), refugees also reported their own priorities for improving SQOL, with the most frequently selected issues being housing, health, the asylum application decision, employment and family reunion. This resonates with the findings of the present study that post-migration stressors were associated with poorer SQOL.

The results of the present study support the previous findings (Amir & Lev-Wiesel, 2003; d'Ardenne, et al., 2005; Olatunji, et al., 2007; Priebe, et al., 2009; Priebe, Jankovic Gavrilovic, et al., 2010; Rapaport, et al., 2005; Schnurr, et al., 2006; Schnurr, et al., 2009; Stam, 2007; Zatzick, Marmar, et al., 1997; Zatzick, Weiss, et al., 1997) which assert that the presence of PTSD and other mental disorders are negatively associated with the SQOL as currently experienced by refugees in this sample. The multiple linear regression analysis revealed a statistically significant negative relationship between a mental disorder and SQOL, showing that having PTSD or any other mental disorder increased the likelihood of having a lower SQOL independently of the current living conditions. The analysis also revealed that mental disorders

accounted for only a small proportion of variance in SQOL (7.8%). This suggests that SQOL is a related but semi-independent component of DSM-IV mental disorders. It also suggests that factors other than the existence of mental disorders affect SQOL. In the case of the present study, post-migration factors proved to be of more importance in determining SQOL. Using a multiple regression approach to analyse data from 11 clinical trials, Rapaport et al. (2005) reported that illness-specific symptom severity (including PTSD) was statistically significant but it accounted for only a small proportion of variance in SQOL (e.g. 14% for PTSD).

When discussing the practical implications of this finding, both possible directions of the relationship have to be considered. On one hand, one can contemplate that treating mental disorders may improve SQOL. On the other hand, it may be that low SQOL as a consequence of, for example, unemployment, poverty or inadequate housing, can contribute to the onset or maintenance of mental disorders. The evidence from longitudinal studies suggests that initial PTSD predicts poor SQOL at subsequent follow-up intervals (Holbrook, Hoyt, Stein, & Sieber, 2001; Morina, et al., 2010; Zatzick, et al., 2002). In a longitudinal analysis of Vietnam veterans, Schnur et al. (2006) reported that changes in PTSD symptoms were associated with changes in SQOL. There is also growing evidence that SQOL improves following treatment for PTSD (e.g., Morina, et al., 2010; Rapaport, Endicott, & Clary, 2002; Tucker, et al., 2001). A study investigating mental health and well-being amongst treatment-seeking survivors of war in Kosovo demonstrated that CBT treatment was associated with improvement in SQOL more than eight years after the war (Morina, et al., 2010). Treating mental disorders, therefore, might be an effective way of improving SQOL in war refugees.

The finding that both post-migration living conditions and PTSD and other mental disorders had an independent effect on SQOL is important in respect to possible intervention strategies. Intervention strategies focusing on both the improvement of post-migration living conditions and psychosocial and psychiatric treatment of PTSD and other mental disorders may therefore help improve SQOL and the effects of the two approaches may be independent of each other. However, the findings also imply that improvement of the post-migration living situation may impact even more on improvement of SQOL, which is in line with some previous research (Cardozo, et al., 2004; Laban, et al., 2008), and that perhaps changing the post-migration situation is likely to result in a greater SQOL improvement.

Whilst war experiences were significantly associated with SQOL in univariate analysis, this association disappeared once post-migration factors were adjusted for. This finding implies that the effect of war experiences on SQOL is fully confounded by post-migration factors, whereby war experiences increased the risk of poor post-migration living conditions, which in turn decreased SQOL. An earlier study has shown that the effect of trauma in reducing SQOL was to a large extent confounded by mental distress and only partly as a direct effect (Araya, et al., 2007). These findings suggest the importance of more immediate factors, both post-migration and clinical, in SQOL.

The analysis revealed substantial country differences in SQOL. The refugees in Germany reported being the least satisfied with their lives and those in the UK the most satisfied. This finding is not surprising considering substantial differences in trauma and migration related characteristics and mental health of the three samples (as described in Chapter 3). However, even after taking refugee characteristics into account, refugees in the UK remained significantly more likely to report a better SQOL than refugees in

Germany or Italy. Therefore, the cross-country variation in the present study could not be fully explained by individual-level variables, or at least the ones measured in the current study. It is possible that individual-level variables such as income, lifestyle deprivation, sense of coherence (Matsuo & Poljarevic, 2011; Watson, Pichler, & Wallace, 2010) and macro-variables (e.g. quality of society, quality of public services, welfare characteristics) (Watson, et al., 2010) as well as their interaction may be more relevant in explaining country differences. For instance, a report based on data from the 2007 European Quality of Life Survey (EQLS) and conducted in 31 European countries, found substantial differences in SQOL between the countries, with levels of life satisfaction being among the lowest in Italy (Watson, et al., 2010). Life satisfaction was also lower for the population in Germany as compared to the population in the UK. Some of the differences between countries were explained by differences in objective conditions in these countries: demographic characteristics, socio-economic factors, health and disability, social support and quality of society (Watson, et al., 2010). It is possible that some of the same factors may explain differences in SQOL of refugees resettling in these countries.

4.4.4. Summary

Research on war refugees has mainly focused on the impact of war and migration experiences on mental health and little attention has been placed on other areas of refugee well-being, such as QOL. This is despite research evidence suggesting a negative impact of war, migration experiences and subsequent mental disorders on QOL.

The results of the present study suggest that, despite relatively high levels of psychopathology, the refugees felt reasonably satisfied with their lives. Overall, participants, even those with existing mental disorders, felt the least satisfied with employment status and financial situation, suggesting that for the majority of the refugees the main concern was their employment and finances, rather than their mental health. These findings appear to support the argument that refugees may benefit more from social and material support than from psychological or medical interventions (Summerfield, 1999).

Moreover, the findings of multiple linear regression analysis further underline the need for the improvement of post-migration living conditions, as these objective socio-economic factors were found to be the most strongly associated with SQOL. Therefore, strategies aimed at improving the post-migration living situation of refugees are likely to lead to better SQOL as a consequence. These strategies should be complemented with strategies that focus on improving SQOL by reducing mental distress, since the goal should be to facilitate both recovery from the past trauma and integration of refugees into the host society whilst minimising post-migration stress.

Chapter 5

Course of PTSD in war refugees

5.1. Introduction

As outlined in the literature review in Chapter 2, community studies have documented high rates of PTSD in refugees even many years after the war ended and they resettled in the new country. Despite its high prevalence and apparent long-term nature, however, research on the course of PTSD once diagnosed in refugees is limited. Accordingly, little is known about the factors associated with PTSD persistence versus recovery.

Research on the prognosis of PTSD following events other than war suggests that the disorder is often a persistent condition, with most affected people recovering within the first 4-6 years post trauma after which the condition is more likely to become chronic and unremitting (Breslau, et al., 1998; Kessler, et al., 1995; Perkonigg, et al., 2005). For example, both Breslau et al. (1998) and Kessler et al. (1995) measured lifetime PTSD in large urban samples and reported that approximately 40% of PTSD cases recovered by 12 months post trauma. A further 30% recovered by 72 months after which point recovery rate tapered off with less than 5% of cases recovering thereafter. In a longitudinal study of adolescents and young adults, Perkonigg et al. (2005) found that 52% of the PTSD cases remitted during the 34-50 months follow-up period.

Community studies on war veterans considered longer periods of time and found remission rates of 55% in Vietnam War veterans after 14 years (Koenen, Stellman, Stellman, & Sommer, 2003), 69% in Israeli soldiers after 20 years (Solomon & Mikulincer, 2006), and 93% in Israeli Yom Kippur War veterans after 32 years (Shlosberg & Strous, 2005). Whilst these studies suggest that over time in most veterans symptoms may abate to the point of no clinical diagnosis, another study of Vietnam veterans seeking treatment almost two decades following war experience documented

the tenacious stability in symptomatology during the six-year follow-up period, with some symptoms even increasing over time (Johnson, Fontana, Lubin, Corn, & Rosenheck, 2004).

It is unclear to what extent these findings also apply to refugees with PTSD following war. The experience of war can be very different from that of other traumatic events, since war commonly presents a complex and prolonged experience of different traumatic events and atrocities (Priebe, Bogic, Ashcroft, et al., 2010). Moreover, the experience of war is very different for soldiers, who are trained to expect combat, and civilians, for whom such experiences can shatter their core assumptions about safety (Johnson & Thompson, 2008). As noted in Chapter 3, it has been found that preparedness for such experiences is a protective factor in terms of post-trauma responses and development of subsequent PTSD (Basoglu, et al., 1997). The additional hardship of migration and adaptation to a new culture and new way of life may pose further obstacles in natural PTSD recovery taking place in affected refugees.

Prospective studies on war-affected community samples with PTSD have been mostly conducted on refugees in Western countries, with time frames of up to three years after resettlement (Hauff & Vaglum, 1994; Lie, 2002; Roth, et al., 2006; Weine, Vojvoda, et al., 1998). The findings are inconclusive. Several of these studies have reported gradual improvement in PTSD symptoms over time (Hauff & Vaglum, 1994; Mollica, et al., 2001; Weine, Vojvoda, et al., 1998). Remission of PTSD symptoms was about 40% in Bosnian refugees one year after resettlement in the USA (Weine, Vojvoda, et al., 1998). Comparable remission rates of about 35% after three years were found among Bosnian refugees in Croatia (Mollica, et al., 2001) and somewhat higher rates of 56% in Vietnamese refugees in Norway (Hauff & Vaglum, 1994). In the former study a

fluctuating course of PTSD symptoms was found, with 16% of respondents being asymptomatic at the initial assessment and having developed PTSD and/or depression at the follow-up assessment.

Conversely, several other studies have indicated that PTSD symptoms may persist and even increase over time (Lie, 2002; Roth, et al., 2006), at least during the immediate period after war trauma and resettlement. For example, in Bosnian refugees resettled in Sweden the level of posttraumatic stress symptoms increased over a three year follow-up period (Lie, 2002). Increased rates of PTSD were also observed in a sample of refugees from Kosovo in Sweden, from 37% at baseline to 80% at 1.5 years follow-up (Roth, et al., 2006).

Much research on traumatized populations has explored pre-, peri-, and post-trauma predictors of the course of PTSD. The findings suggest that younger age (Adams & Boscarino, 2006; Drozdek, 1997; Hauff & Vaglum, 1994; Weine, Vojvoda, et al., 1998), older age (Kivling-Boden & Sundbom, 2002; Su, et al., 2010), male gender (Breslau, et al., 1998; Ehlers, Mayou, & Bryant, 1998; Roth, et al., 2006), lower education (Koren, Arnon, & Klein, 2001), good social support (Lie, 2002; Drozdek, 1997; Kivling-Boden & Sundbom, 2002; Koenen, et al; 2003), fewer traumatic experiences (Adams & Boscarino, 2006; Lie, 2002; Roth, et al., 2006), no or low severity of combat exposure (Hauff & Vaglum, 1994; Koenen, et al., 2003; Roy-Byrne, et al., 2004), fewer traumatic experiences since the main trauma (Lie, 2002; Perkonigg, et al., 2005) and during the follow-up period (Adams & Boscarino, 2006; Breslau, et al., 2008; Perkonigg, et al., 2005), being employed (Kivling-Boden & Sundbom, 2002; Lie, 2002), no psychiatric co-morbidity – particularly with depression - (Blanchard, et al., 1996; Freedman, Brandes, Peri, & Shalev, 1999; Mollica, et al., 2001; Perkonigg, et al.,

2005) and lower initial (baseline) PTSD symptom levels (Kivling-Boden & Sundbom, 2002; Koren, et al., 2001; Perkonnig, et al., 2005; van Wyk, Schweitzer, Brough, Vromans, & Murray, 2012) may be associated with recovery from PTSD or improvement of PTSD symptoms or both. Yet, most of these studies were on people with non-war related PTSD or veterans or with refugees shortly after a war experience and their resettlement in a host country. Hence, there is very little evidence on the subject of refugees who have been diagnosed with PTSD many years after a war experience and migration.

As outlined in Chapter 1, there is a controversy in the literature about the most appropriate interventions for refugees suffering from PTSD. A growing body of literature suggests that specific medical interventions, such as trauma-focused cognitive behavioural therapy (TFCBT) and eye movement desensitisation and reprocessing (EMDR) can be effective in alleviating posttraumatic symptoms and preventing relapse (Bisson, et al., 2007). Ehlers et al. (2010) critically reviewed evidence presented in meta-analyses and systematic reviews and concluded that trauma focused psychological treatments are superior to those that do not focus on the trauma in treating PTSD. Whilst there have been calls for the implementation of evidence based psychiatric treatments of refugees with war related PTSD, others have argued that such an approach may 'medicalise' distress, fix people in a role of victims and patients, and therefore undermine their self help potentials (Summerfield, 1999). The latter position proposes that practical improvements of the social and material situation would be more important and be the more preferred type of help than mental health care (Eastmond, et al., 1994; Nicholson, 1997; Porter & Haslam, 2005; Summerfield, 1999). So far, there has been little research evidence to support either position.

Study aims:

In the previous study (Chapter 3), it was established that PTSD was prevalent in war refugees even several years after a war experience and resettlement, with 33.1% meeting the diagnostic criteria for current PTSD and 52.4% meeting the criteria for lifetime PTSD. In addition, several pre-war, war and post-migration risk factors were examined for association with PTSD and it was found that the severity of war exposure was the strongest predictor of PTSD diagnosis. Older age and several post-migration stressors were also found to contribute to the onset and/or maintenance of PTSD.

The aim of the present study was to establish PTSD recovery rates and symptom change in war refugees who had been diagnosed with PTSD several years after war and to identify factors that contribute to recovery. In particular, it was explored whether using mental health or social services during the one-year follow-up period was linked to PTSD recovery.

The research questions were:

1) What is the recovery rate and symptom change in refugees with PTSD during the one-year follow-up period?

2) What socio-demographic, trauma-related, clinical factors and received health care and social interventions predict recovery from PTSD at one-year follow-up? What health care and social interventions have participants perceived as helpful in their recovery?

5.2. Methods

This was a prospective observational study conducted as part of the study described in Chapters 3 and 4. It was based on a cross-sectional study that identified people with PTSD in community samples of refugees, and used a prospective longitudinal design to establish recovery rates from PTSD and symptom change as well as identify predictors of recovery.

The links with larger study are described in section 3.2.1. The baseline recruitment method, inclusion criteria and assessment of refugees were described in detail in Chapter 3 (section 3.2.).

5.2.1. Follow-up recruitment method

Within the abovementioned baseline study, individuals with a current diagnosis of PTSD were identified and re-interviewed one year after the baseline interview (between March 2006 and December 2007). Attempts were made to re-interview all participants with a baseline PTSD diagnosis.

5.2.2. Measures

The majority of the measures used in the follow-up study have also been used in the baseline study described in Chapter 3. To avoid repetition, the reader is directed to consult Chapter 3 for such measures. All measures used are also presented in appendix D.

Socio-demographic data

See section 3.2.4. for description.

History of potentially traumatic experiences

The Life Stressor Checklist-Revised (LSCL-R)

See section 3.2.4. for description.

Post-migration stressors

See section 3.2.4. for description.

Current psychopathology

The Mini International Neuropsychiatric Interview (MINI)

See section 3.2.4. for description.

The Impact of Event Scale-Revised (IES-R)

The Impact of Events Scale-Revised (Weiss & Marmar, 2004) is a 22-item self-rating and self-administering scale measuring three core phenomena of PTSD: ideational and affective re-experiencing of traumatic events, defensive avoidance/denial of trauma related memories and emotions, and hyperarousal. These are measured on a 5-point Likert scale ranging from *0 = not at all* to *4 = extremely*. Separate subscales are scored that measure these dimensions, and a summary total score can be calculated. This scale is only related to such difficulties experienced within 7 days prior to the interview.

The IES-R has been found to have high internal consistency, with coefficient alphas ranging from 0.87 to 0.92 for intrusion, 0.84 to 0.85 for avoidance, and 0.79 to 0.90 for hyperarousal. Test–retest correlation coefficients ranged from 0.57 to 0.94 for intrusion, 0.51 to 0.89 for avoidance, and 0.59 to 0.92 for hyperarousal (Weiss & Marmer, 1997). The IES-R has previously been used with samples from former Yugoslavia (Hunt & Gekenyi, 2005; Ljubotina, Pantić, Frančišković, Mladić, & Priebe, 2007).

Manchester Short Assessment of Quality of Life - MANSA

Current social contacts were assessed on a single item of the Manchester Short Assessment of Quality of Life - MANSA (Priebe, et al., 1999). Participants were asked whether they had met a friend in the week prior to the interview, which has been suggested as a simple indicator of having social contacts (Priebe, Watzke, Hansson, & Burns, 2008).

Received social and health care interventions

Matrix for Recording Health Care and Social Interventions (MACSI)

The MACSI (Priebe, et al., 2004; Francisković, et al., 2008) has been designed to record the utilization of specific and non-specific health care and community based social interventions for people with mental health problems in a defined region over a given period of time. It has been built on existing instruments such as the European Service Mapping Schedule (Johnson & Kuhlmann, 2000) and the International Classification of Mental Health Care (de Jong, 2000) which are too detailed in parts and yet do not capture general community based interventions. The MACSI is a robust schedule and simple to administer. It can be used for different purposes, including the assessment of

how the utilization of health care and social interventions changes over time and differs between regions/countries. It can be used for research and routine evaluation. The findings can be transformed into cost estimates of received interventions for the sample in question.

The instrument has nine major categories of health care and social interventions, which are divided into a total of 16 sub-categories. These nine major categories include primary care, mental health care (outpatient or inpatient), specialist physical health care (outpatient or inpatient), housing (fully provided or support and allowances in independent accommodation), employment (sheltered employment, support in regular employment, training schemes or other support), leisure and social support (mutual support groups or leisure time, social support and contacts), pension and financial benefits, legal support, and information and advocacy. The categories and sub-categories of interventions are broadly defined and assumed to apply to most regions.

Each interviewee was asked about all interventions received during the follow-up period including the frequency, length of use, and country in which the intervention was received. Finally, participants rated usefulness of each service or intervention on a 10-point scale (1=not helpful at all, 10=completely helpful).

5.2.3. Interviews and procedure

At the baseline assessment, participants were informed that they might be contacted to participate in a follow-up study and their contact details were obtained so that they could be contacted if they were selected for the follow-up study (see appendix A-1).

One year after the baseline interview, attempts were made to re-interview all participants with baseline PTSD diagnosis. Recovery was defined as not meeting the diagnostic criteria of PTSD at the end of the one-year follow-up period.

Follow-up interviews were conducted face-to-face by trained interviewers, usually the same ones who undertook the baseline interview. However, when this was not possible, the interviews were conducted by another member of the research team. The interviews were carried out at participants' homes, community organizations or the research centres. The interview usually lasted about an hour depending on the participant's mental health state and the extent of traumatic experiences and service use. At the end of each interview the participant received £18 as a reimbursement for his/her time. All potential participants were informed about the rationale, aims and practical issues regarding the study (appendix C-1). Those who agreed to participate were asked to sign an informed consent form (appendix C-2) before the interview took place.

All interviews were conducted in one of the native languages: Bosnian, Croatian, Serbian or Albanian. Respondents were given the choice of being interviewed in any of the above languages or in the host country's language i.e. English, Italian or German. None chose the latter.

5.2.4. Statistical analysis methods

Descriptive statistics on baseline characteristics were calculated both for the whole of the eligible sample and those who actually took part in the follow-up study. Similarly, descriptive statistics were used to summarise participant follow-up data, including

social and health care service use and perceived helpfulness of these by the total sample as well as separately for the PTSD recovered group and those with persistent PTSD.

The distribution of all continuous variables was assessed with the Kolmogorov-Smirnov and Shapiro-Wilk tests. Because these tests tend to be overly sensitive to large sample sizes whereby increasingly smaller departures from normality can be detected, normality graphs and plots were also examined to make a final assessment of normality (Field, 2005). For normally distributed variables the mean and standard deviation are reported, whereas for variables that were non-normally distributed the mean, standard deviation, median and range are illustrated in all relevant tables in the results.

Eligible participants who were not interviewed at follow-up and the interviewed sample were compared on socio-demographic, trauma-related, migration-related and clinical baseline variables in order to assess the representativeness of the participating sample. The selection of statistical tests used to compare these variables between the different groups was based on the distribution of the data. Parametric tests (t-tests) were used for comparisons of normally distributed variables, whereas non-parametric tests (Mann-Whitney tests) were used for comparisons of non-normally distributed variables. Comparisons of categorical variables were performed with Chi-square tests.

Changes between the time periods for all outcomes were also assessed using t-tests for normally distributed continuous variables, Mann-Whitney tests for non-normally-distributed continuous variables and Chi-square tests for categorical variables.

The point-biserial correlation analysis was used to assess the relationship between PTSD diagnosis assigned using the MINI and the total IES-R score at the follow-up.

The point-biserial correlation was used as it measures the correlation between a continuous variable (IES-R score) and a dichotomous variable (PTSD diagnosis). To examine the level of agreement between the two measures in identifying PTSD cases, a cut-off IES-R score was applied. A cut-off average score of 1.5 or 33 for the total score for the IES-R has been recommended for determining a probable diagnosis of current PTSD (Creamer, Bell, & Failla, 2003).

Logistic regression was used to test the relationship between all explanatory variables and the outcome, i.e. whether or not participants recovered from PTSD at follow up. First, univariable models were fitted and each one was subsequently adjusted for baseline IES-R score.

Variables increasing the likelihood ratio test statistic by an amount corresponding to $p<0.10$ were included in the multivariable logistic model. A lenient threshold of $p<0.10$ was used to avoid excluding any potentially confounding variables. The candidate explanatory variables included baseline characteristics -including socio-demographics, trauma-related, migration-related and clinical variables- and use of social and health care interventions during the follow-up period. These variables were entered in four sequential blocks: eligible socio-demographic variables in the first block, trauma-related variables in the second, clinical variables in the third, and interventions in the fourth block. In considering the results of the multivariable model only variables with a $p<0.05$ were considered to be significant.

Before multivariable logistic analysis proceeded, explanatory variables were assessed for multicollinearity. First bivariate correlations were assessed. For normally distributed continuous variables Pearson's R correlations were used, whereas for non-normally

distributed continuous variables Spearman correlation coefficients (rho) were calculated to assess the linear associations between two continuous variables. Point-biserial correlations were used to assess the correlation between a continuous and a dichotomous variable. For categorical variables Chi square tests were applied to compare the proportions among different groups. In the next step, multicollinearity among the significant explanatory variables was assessed by inspecting variance inflation factor (VIF) and tolerance statistics.

Missing data analysis

Overall, 25 (11.6%) cases had missing data on at least one out of the 94 variables related to the multivariable logistic analyses presented in this chapter. The missing data value included data missing on all individual items within multiple item scales (Life Stressors Checklist-Revised and Impact of Event Scale - Revised). For all multiple item scales used in analyses, mean scores were computed for all participants where 80% or more of the scale items were answered, rather than deleting the existing information. The overall amount of missing data for each item ranged from 0.1% and 13.6%, and one case had more than 20% of data missing on individual scales. The main analyses were based on the sample with complete information on each variable i.e. the case with more than 20% data missing was excluded from the analysis.

To examine whether missing data may have biased the results of regression analysis, sensitivity analysis was conducted using the multiple imputation method as described in Chapter 3, section 3.2.6. In summary, a Markov Chain Monte Carlo method (MCMC) under a fully conditional specification (FCS) was used. For imputation of missing data in multiple item scales (Life Stressors Checklist-Revised and Migration Stressors List),

data were imputed for each missing data item (rather than the total scale score) and following this the scale mean score was calculated. The MI model included all variables that were included in the original regression model including the main outcome variable. Finally, multivariable regression analysis was repeated with the imputed data set.

5.3. Results

Within the study research question it was aimed to establish the recovery rate from PTSD and symptom change in refugees diagnosed with PTSD several years after war and to identify predictors of PTSD recovery.

5.3.1. Description of the sample

Out of 283 participants with PTSD at baseline, 68 (24%) could not be contacted or refused to participate, and 215 (76%) participants were re-interviewed (Germany=114; Italy=40; UK=61). Table 5.1. shows the selection processes in each country.

Table 5.1. Eligible participants and follow up rates in each country

	Germany	Italy	UK	Total
Eligible participants	140	56	87	283
Lost to follow-up	26	16	26	68
Interviewed	114	40	61	215
Participation rate %	81.4	71.4	70.1	76.0

Data on baseline characteristics for all eligible and re-interviewed participants are presented in Table 5.2. As it can be seen, a greater number of females than males were identified as having PTSD at baseline, more than half of both the eligible and the re-interviewed samples. Similarly, more than 2/3 of both samples had attained secondary or higher education. The great majority (3/4) of both samples were unemployed, living with a partner and had met a friend at least once in the week prior to the interview. The majority (4/5) did not actively participate in the war.

In terms of comorbidity, approximately 2/3 of both samples also fulfilled criteria for depression and 2/5 for anxiety disorder other than PTSD. The comorbidity between PTSD and substance use disorders was low in both samples.

Comparisons between participants and non-participants

The selection of tests for comparisons on continuous variables was based on the distribution of the data, as described in the methods. Variables traumatic experiences before and after the war, time since the most traumatic war experience, IES-R score and IES-R subscale scores were non-normally distributed and, thus, a Mann Whitney test was performed. Although Kolmogorov-Smirnov test of normality was significant for variable number of potentially traumatic experiences during the war, closer inspection of normality graphs indicated that the scores were reasonably normally distributed. For all normally distributed continuous variables groups were compared using t-tests. For all comparisons on categorical variables Chi square tests were applied.

The results of comparisons between characteristics of participants who were followed-up and those who were lost to follow-up are presented in Table 5.2. Re-interviewed participants were more often females (57.7 % vs. 39.7%; p=0.01) and had less often participated in war (14.0% vs. 33.8%; p<0.001). There was also a tendency for unemployed participants to be re-interviewed, although the statistical difference was only marginally significant (74.0% vs. 61.8%, p=0.053). There were no other significant baseline differences between the groups.

Table 5.2. Baseline socio-demographic, trauma-related and clinical characteristics of eligible participants, participants who were followed-up and those who were lost to follow-up[a]

	All eligible participants (N=283)	Lost to follow-up (N=68)	Followed-up (N=215)	Comparison lost and followed up groups *p* value
Socio-demographics				
Male	132 (46.6)	41 (60.3)	91 (42.3)	0.01
Female	151 (53.4)	27 (39.7)	124 (57.7)	
Age*	45.2 (10.9)	42.6 (11.3)	44.8 (10.3)	0.137
No or primary education at baseline	90 (31.8)	25 (36.8)	65 (30.2)	0.562
Secondary education at baseline	117 (41.3)	25 (36.8)	92 (42.8)	
Vocational or Higher education at baseline	76 (26.9)	18 (26.5)	58 (27.0)	
Employed at baseline	82 (29.0)	26 (38.2)	56 (26.0)	0.053
Unemployed at baseline	201 (71.0)	42 (61.8)	159 (74.0)	
Living with partner at baseline	218 (77.0)	48 (70.6)	170 (79.1)	0.147
Not living with partner at baseline	65 (28.4)	20 (29.4)	45 (20.9)	
Did not meet a friend in the last week	59 (21.2)	10 (14.7)	49 (22.8)	0.148
Met a friend in the last week	219 (78.8)	57 (83.8)	162 (75.3)	
Traumatic events				
Number of potentially traumatic pre-war events **	1.2 (1.3), 1 (0-7)	1.1 (1.4), 1 (0-5)	1.2 (1.3), 1 (0-7)	0.254
Number of potentially traumatic war events *	8.3 (3.5)	9.1 (3.9)	8.3 (3.5)	0.131
Time since most traumatic war event**	10.6 (3.2), 12 (3-15)	10.3 (3.4), 11.5 (4-15)	10.7 (3.1), 12 (3-15)	0.399
Number of potentially traumatic post-war events **	1.4 (1.5), 1 (0-10)	1.5 (1.7), 1 (0-7)	1.4 (1.5), 1 (0-10)	0.877
No active participation in war	230 (81.3)	45 (66.2)	185 (86.0)	<0.001
Active participation in war	53 (18.7)	23 (33.8)	30 (14.0)	
Mental health				
IES-R mean score**	2.6 (0.8), 2.7 (0.1-4.0)	2.6 (0.8), 2.7 (0.9-3.9)	2.6 (0.8), 2.7 (0.9-4.0)	0.900
IES-R mean intrusion score**	2.8 (0.9), 2.9 (0-4)	2.7 (0.9), 2.9 (0-4)	2.8 (0.9), 2.9 (0-4)	0.528
IES-R mean avoidance score**	2.4 (0.9), 2.5 (0-4)	2.4 (0.9), 2.4 (0.1-4.0)	2.4 (0.9), 2.5 (0-4)	0.709
IES-R mean hyperarousal score**	2.7 (1.0), 2.8 (0-4)	2.7 (0.9), 3 (0-4)	2.7 (1.0), 2.8 (0-4)	0.930
No comorbidity with depression	98 (34.6)	21 (30.9)	77 (35.8)	0.427
Comorbidity with depression	183 (64.7)	47 (69.1)	136 (63.3)	
No comorbidity with other anxiety disorders	165 (58.3)	42 (61.8)	123 (57.2)	0.532
Comorbidity with other anxiety disorders	117 (41.3)	26 (38.2)	91 (42.3)	
No comorbidity with substance use disorders	256 (90.5)	61 (89.7)	195 (90.7)	0.725
Comorbidity with substance use disorders	26 (9.2)	7 (10.3)	19 (8.8)	

[a]All results are presented as N (%) except those marked with * which are mean (SD) or those marked with ** which are mean (SD), median (min-max)

Changes in sample characteristics during the one year follow-up period

The socio-economic situation of participants remained largely similar over the one year follow-up period. Of those who had been employed at baseline, 17 (7.9%) lost their job, whilst 10 (4.7%) of the previously unemployed participants found employment. Of

those who had lived alone at baseline, 2 (0.9%) lived with a partner at follow up, and 7 (3.3%) who had lived with a partner now lived alone. During the follow-up period, 22 (10.2%) participants with a temporary residence status at the baseline were granted a permanent residence status.

In terms of comorbid disorders, 73 (53.7%) no longer met criteria for Major Depressive Episode, 21 (23.1%) for other anxiety disorders and 12 (63.2%) for substance use disorders.

Frequency of use and perceived helpfulness of health care and social interventions

Frequency of use and perceived helpfulness of health care and social interventions for the total follow-up sample is presented in Table 5.3. Only two participants reported not using any interventions during the follow-up period. Overall, 87.9% of the sample received two or more different types of interventions and 57.7% received three or more. 208 (96.7%) participants reported using primary health care services, 157 (73%) used specialist physical health care services, while 113 (52.6%) had a contact with mental health care services: 83 (38.6%) reported consultation with a psychiatrist**;** 13 (6%) consultation with a psychologist**;** 100 (46.5%) received pharmacotherapy and 15 (7.0%) psychotherapy.

In terms of social interventions, 186 (86.5%) participants reported using some type of social intervention. The most frequently used interventions were housing support (168, 78.1%) and financial support (147, 68.4%). Housing support was mainly support and allowances in independent accommodation (112, 52.1%) but a substantial number had fully provided housing (66, 30.7%). Forty-two (19.5%) participants reported using

employment support: 36 (16.7%) received some type of training scheme, 3 (1.4%) received support in sheltered employment, 1 (0.5%) in regular employment and 6 (2.8%) received other support, mainly support with finding a job. Forty (18.6%) participants used social and leisure support: 35 (16.3%) participated in organized activities regarding leisure time and social support and 5 (2.3%) joined a mutual support group. Twenty-one (9.8%) reported using legal help and 48 (22.3%) information and advocacy.

Table 5.3. Frequency of use and perceived helpfulness of health care social interventions for the total sample at one-year follow-up

	Frequency of use	Perceived helpfulness	
	N (%)	Mean (SD)	Median (Min-Max)
Primary health care	207 (96.3)	8.0 (2.22)	8.5 (0-10)
Mental health care	113 (52.6)	7.9 (2.75)	8.7 (0-10)
Physical health care	157 (73.0)	8.2 (1.96)	9 (0-10)
Housing support	165 (76.7)	8.6 (2.27)	10 (0-10)
Employment support	42 (19.5)	7.0 (3.45)	8 (0-10)
Social and leisure support	40 (18.6)	8.0 (2.59)	10 (0-10)
Financial support	140 (65.1)	7.1 (3.21)	8 (0-10)
Legal support	21 (9.8)	7.8 (3.34)	10 (0-10)
Information or advocacy support	48 (22.3)	8.6 (2.61)	10 (0-10)

In terms of perceived helpfulness of health care and social interventions, participants overall rated the interventions as helpful: the average helpfulness ratings for different types of interventions ranged between 7.0 and 8.6 on a 10-point scale, where 0 = not at all helpful and 10 = completely helpful. Participants found support with housing and information and advocacy as the most helpful. The least helpful were support with employment and financial support.

5.3.2. Addressing research question 3: PTSD recovery and factors associated with recovery

Recovery from PTSD and symptom change

At follow up 74 participants did not meet the diagnostic criteria for PTSD, indicating a recovery rate of 34.4%.

IES-R total scores and subscale scores were non-normally distributed at both of the two time points. Therefore, in order to test for changes over time in IES-R scores, Wilcoxon tests for related samples were used.

The levels of the IES-R total score and all three symptom clusters, i.e. intrusion, avoidance and hyperarousal, decreased significantly from baseline to follow-up. Comparisons between time points using Wilcoxon tests yielded significant differences in the IES-R total score between baseline and one-year follow-up (median [min-max], 2.7 [0.9-4.0] vs. 2.2 [0-4]) and for the subscales of intrusion (median [min-max], 2.9 [0-4] vs. 2.5 [0-4]), avoidance (median [min-max], 2.5 [0-4] vs. 2 [0-4]), and hyperarousal (median [min-max], 2.8 [0-4] vs. 2.3[0-4]) (all at $p<0.001$).

The proportion of improved patients and the degree of improvement between baseline and one-year follow-up assessment, measured in IES-R scores is illustrated in Table 5.4.

The point-biserial correlation analysis was used to assess the relationship between PTSD diagnosis established using the MINI and the total IES-R score at the follow-up.

The results of point-biserial correlation analysis indicated that the variables were strongly and positively associated (r_{pb} =0.521, p<0.001).

Table 5.4. Changes in severity of PTSD symptoms between the two time points

	Severity of PTSD symptom change between baseline and one-year follow-up	
	N	%
Worse or no improvement (IES-R, 0-4)	67	31.2
0.01 to 1 point improvement (IES-R, 0-4)	92	42.8
1.01 to 2 points improvement (IES-R, 0-4)	38	17.7
2.01 to 3.5 points improvement (IES-R, 0-4)	15	7.0

The MINI and IES-R demonstrated substantial agreement for discriminating between individuals with and without PTSD diagnosis at the follow-up. Using a cut-off IES-R score of 1.5 as an indicator of diagnostic levels of PTSD symptoms, 26.0% (N=56) of the participants of this study no longer met diagnostic criteria for PTSD. This suggests an agreement of 75.7% between the two instruments.

Factors associated with recovery from PTSD

Univariable associations between baseline factors and PSTD recovery

Table 5.5 presents the baseline socio-demographic, trauma-related and mental health characteristics of participants with PTSD at follow-up and those without (the recovered group), as well as the univariable association of these characteristics with recovery from PTSD (both unadjusted and adjusted for IES-R baseline score).

In univariable analyses, more traumatic experiences during the war, higher levels of posttraumatic stress symptoms at baseline, country of residence and being unemployed

were associated with maintenance of PTSD. On adjustment for baseline IES-R mean score, country of residence ceased to be significant whilst the remaining variables retained statistical significance.

Table 5.5. Baseline socio-demographic, trauma-related and mental health predictors of PTSD recovery at one year follow-up

	Still has PTSD (N=141)	**No longer has PTSD (N=74)**	**Unadjusted analysis**		**Analysis adjusted for baseline IES-R mean score**	
	N (%)	**N (%)**	**OR (95% CI)**	**p value**	**OR (95% CI)**	**p value**
Socio-demographics						
UK	38 (62.3)	23 (37.7)	1 [Reference]	0.030	1 [Reference]	0.341
Germany	83 (58.9)	31 (27.2)	0.62 (0.32 - 1.20)	0.153	0.65 (0.33 - 1.29)	0.222
Italy	20 (50.0)	20 (50.0)	1.65 (0.74 - 3.71)	0.223	1.06 (0.44 - 2.55)	0.890
Age	45.0 (9.6)	44.3 (11.5)	0.99 (0.97 - 1.02)	0.643	1.00 (0.97 - 1.03)	0.893
Male	61 (67.0)	30 (33.0)	1 [Reference]		1 [Reference]	
Female	80 (64.5)	44 (35.5)	1.12 (0.63 - 1.98)	0.701	1.13 (0.62 - 2.06)	0.680
None/primary education	43 (66.2)	22 (33.8)	1 [Reference]		1 [Reference]	
Secondary education	60 (65.2)	32 (34.8)	1.04 (0.53 - 2.04)	0.903	0.98 (0.49 - 1.99)	0.966
Vocational or higher education	38 (65.5)	20 (34.5)	1.03 (0.49 - 2.17)	0.941	1.05 (0.49 - 2.28)	0.895
Employed	28 (50.0)	28 (50.0)	1 [Reference]		1 [Reference]	
Unemployed	113 (71.1)	46 (28.9)	0.41 (0.22 - 0.76)	0.005	0.47 (0.24 - 0.90)	0.023
Living with partner	114 (67.1)	56 (32.9)	1 [Reference]		1 [Reference]	
Not living with partner	27 (60.0)	18 (40.0)	1.36 (0.69 - 2.67)	0.376	1.66 (0.81 - 3.41)	0.168
Met a friend during the last week						
No	31 (63.3)	18 (36.7)	1 [Reference]		1 [Reference]	
Yes	107 (66.0)	55 (34.0)	0.89 (0.45 - 1.72)	0.720	0.93 (0.46 - 1.87)	0.833
Permanent residence status	48 (61.5)	30 (38.5)	1 [Reference]		1 [Reference]	
Temporary residence status	93 (67.9)	44 (32.1)	0.76 (0.42 - 1.4)	0.347	0.82 (0.5 - 1.5)	0.507
Traumatic experiences						
Number of pre-war events	1.3 (1.3)	1.1 (1.2)	0.91 (0.73 - 1.14)	0.421	0.93 (0.73 - 1.17)	0.526
Number of events during war	9.0 (3.5)	6.9 (3.1)	0.82 (0.75 - 0.90)	<0.001	0.85 (0.77 - 0.93)	0.001
Time since most traumatic war event	10.8 (3.0)	10.4 (3.2)	0.96 (0.88 - 1.05)	0.395	0.95 (0.86 - 1.04)	0.291
No active participation in war	121 (65.4)	64 (34.6)	1 [Reference]		1 [Reference]	
Active participation in war	20 (66.7)	10 (33.3)	0.95 (0.42 - 2.14)	0.893	0.99 (0.42 - 2.35)	0.988
Number of post-war events	1.4 (1.5)	1.3 (1.4)	0.99 (0.87 - 1.12)	0.882	0.97 (0.79 - 1.19)	0.771
Mental health						
IES-R mean score	2.8 (0.7)	2.3 (0.9)	0.47 (0.33 - 0.68)	<0.001	na	
PTSD & depression comorbidity						
No	46 (59.7)	31 (40.3)	1 [Reference]		1 [Reference]	
Yes	94 (69.1)	42 (30.9)	0.66 (0.37 - 1.19)	0.167	0.79 (0.43 - 1.45)	0.444
PTSD & other anxiety disorder comorbidity						
No	76 (61.8)	47 (38.2)	1 [Reference]		1 [Reference]	
Yes	65 (71.4)	26 (28.6)	0.65 (0.36 - 1.16)	0.143	0.91 (0.49 - 1.70)	0.765
PTSD & substance use disorder comorbidity						
No	129 (65.8)	67 (34.2)	1 [Reference]		1 [Reference]	
Yes	12 (63.2)	7 (36.8)	1.12 (0.42 - 2.99)	0.793	1.71 (0.61 - 4.78)	0.301

Univariable association between health care and social interventions and PTSD recovery

Frequency of use of social and health care interventions during the follow-up period and their associations with PTSD recovery is shown in Table 5.6. Participants with persistent PTSD reported using mental health care and social interventions more frequently than those who recovered from PSTD (Mean=4.7 [SD=1.6] vs. Mean=3.8, [SD=1.6], respectively). The difference was particularly evident for the use of mental health care (78.8% vs. 21.2%) and specialist physical health care (69.4% vs. 30.6%). Having used mental health care, housing support, and financial support in the follow-up period was significantly associated with maintenance of PTSD. Use of specialist physical health care and support with employment were associated with maintenance of PTSD, although the associations were only marginally significant (p=0.052 for both). On adjustment for baseline IES-R score, only use of mental health services and employment support remained statistically significant.

Table 5.6. Associations of social and health care service use during the follow-up with PTSD recovery

	Still has PTSD	No longer has PTSD			Adjusted for IESR score	
	N=141	N=74	Unadjusted analysis			
	N (%)	N (%)	OR (95% CI)	p value	OR (95% CI)	p value
Did not use primary care	5 (71.4)	2 (28.6)	1 [Reference]		1 [Reference]	
Did use primary care	136 (65.4)	72 (34.6)	1.32 (0.25-7.00)	0.741	1.45 (0.26-8.01)	0.669
Did not use mental health care	52 (51.0)	50 (49.0)	1 [Reference]		1 [Reference]	
Did use mental health care	89 (78.8)	24 (21.2)	0.28 (0.16-0.51)	<0.001	0.36 (0.19-0.66)	0.001
Did not use specialist physical health care	32 (55.2)	26 (44.8)	1 [Reference]		1 [Reference]	
Did use specialist physical health care	109 (69.4)	48 (30.6)	0.54 (0.29-1.01)	0.052	0.56 (1.06)	0.074
Did not use social services	14 (48.3)	15 (51.7)	1 [Reference]		1 [Reference]	
Did use social services	127 (68.3)	59 (31.7)	0.43 (0.20-0.96)	0.038	0.53 (0.23-1.22)	0.135
Did not use housing support	24 (17.0)	23 (31.1)	1 [Reference]		1 [Reference]	
Did use housing support	117 (83.0)	51 (68.9)	0.46 (0.23-0.88)	0.019	0.62 (0.31-1.24)	0.175
Did not use employment support	108 (76.6)	65 (87.8)	1 [Reference]		1 [Reference]	
Did use employment support	33 (23.4)	9 (12.2)	0.45 (0.20-1.01)	0.052	0.42 (0.18-0.98)	0.044
Did not use social and leisure support	112 (79.4)	63 (85.1)	1 [Reference]		1 [Reference]	
Did use social and leisure support	29 (20.6)	11 (14.9)	0.67 (0.32-1.44)	0.309	0.82 (0.37-1.81)	0.623
Did not use financial support	36 (25.5)	32 (43.2)	1 [Reference]		1 [Reference]	
Did use financial support	105 (74.5)	42 (56.8)	0.45 (0.25-0.82)	0.009	0.59 (0.31-1.10)	0.098
Did not use legal support	127 (90.1)	67 (90.5)	1 [Reference]		1 [Reference]	
Did use legal support	14 (9.9)	7 (9.5)	0.94 (0.37-2.46)	0.912	0.85 (0.32-2.29)	0.753
Did not use information or advocacy support	109 (77.3)	58 (78.4)	1 [Reference]		1 [Reference]	
Did use information or advocacy support	32 (22.7)	16 (21.6)	0.94 (0.48-1.85)	0.858	0.86 (0.42-1.76)	0.681

Perceived helpfulness of different health care and social interventions by those who recovered from PTSD and those who still had PTSD at one-year follow-up is presented in Table 5.7. Apart from primary and physical specialist health care, housing support and information and advocacy, the PTSD recovered group perceived used interventions to be more helpful than those who continued suffering from PTSD at the end of the one-year follow-up period. The recovered group found legal support and mental health care most helpful, whilst help with employment and financial support were the least helpful. Those with persistent PTSD found housing and information and advocacy the most helpful, and employment and financial support the least helpful.

Table 5.7. Perceived helpfulness of health care and social interventions by those who had recovered from PTSD and those who still had PTSD at one-year follow-up

	Recovered from PTSD	N	Perceived helpfulness Mean (SD)	OR (95%CI)		*p* value
Primary health care	no	136	8.05 (2.08)	0.96	(0.85-1.09)	0.555
	yes	71	7.86 (2.48)			
Mental health care	no	89	7.78 (2.79)	1.12	(0.92-1.36)	0.247
	yes	24	8.52 (2.56)			
Specialist physical health care	no	106	8.24 (2.03)	0.98	(0.82-1.2)	0.824
	yes	47	8.16 (1.81)			
Housing support	no	116	8.78 (2.21)	0.88	(0.76-1.01)	0.067
	yes	49	8.05 (2.34)			
Employment support	no	33	6.81 (3.49)	1.09	(0.86-1.39)	0.472
	yes	9	7.74 (3.43)			
Social and leisure support	no	29	7.90 (2.64)	1.08	(0.81-1.44)	0.607
	yes	11	8.36 (2.54)			
Financial support	no	100	6.99 (3.26)	1.03	(0.91-1.15)	0.678
	yes	40	7.24 (3.13)			
Legal support	no	14	7.43 (3.65)	1.13	(0.82-1.56)	0.459
	yes	7	8.57 (2.70)			
Information or advocacy help	no	32	8.81 (2.75)	0.92	(0.74-1.15)	0.481
	yes	16	8.25 (2.32)			

Table 5.7 also shows the univariable association between perceived helpfulness and recovery from PTSD. There was no statistically significant association between perceived helpfulness of health care and social interventions and recovery from PTSD. The non-significant associations did not change after adjusting for severity of posttraumatic stress at baseline (results not shown). The association between perceived helpfulness of housing support and PTSD recovery was marginally significant (p=0.067), indicating that those who perceived housing support to be more helpful were less likely to recover. However, this association was attenuated and became non-significant after adjustment for baseline posttraumatic symptom severity (OR=0.17; 95% CI, 0.78-1.05; p=0.172), suggesting that the association was confounded by severity of posttraumatic symptoms at baseline. There was a moderately low variance in the perceived helpfulness scores, with between 69% and 88% of participants rating

above scale midpoint (>5) for each intervention and between 63% and 84% of the participants rating the helpfulness as ≥7. The mode for all intervention types was 10. This may perhaps explain the lack of association between perceived helpfulness and PTSD recovery.

Multivariable associations between baseline factors and use of health care and social interventions and PTSD recovery

Socio-demographic, trauma-related, migration-related, clinical and social and health care service variables that were significant (p<0.10) at univariable analyses were considered for multivariable logistic regression analysis.

Preliminary analysis

Possible collinearity between all predictor variables was explored first using bivariate correlation tests as described in methods section. The results revealed that using a housing intervention was highly correlated with use of pension or financial support (phi=0.729, p<0.001). Of the 147 participants who reported having used pension or financial support 145 reported also having used housing support. These two variables were consequently combined into a single variable ("housing, pension or financial support" variable) in multivariable regression analysis. No other two variables with a bivariate correlation of 0.7 or more (Tabachnick & Fidell, 2001) were detected. Multicollinearity among the remaining potential predictor variables was assessed by examining tolerance and the variance inflation factor (VIF), but none of the variables had tolerance value lower than 0.1 or exceeded VIF of 5 (Stine, 1995).

Multivariable associations between explanatory variables and PTSD recovery

In the multivariable hierarchical logistic regression model more traumatic war experiences, being unemployed at baseline and use of mental health services during the follow-up period remained significantly and inversely associated with PTSD recovery, in addition to the baseline severity of posttraumatic stress symptoms. The multivariable model is presented in Table 5.8.

Table 5.8. Multivariable associations between PTSD recovery and explanatory variables

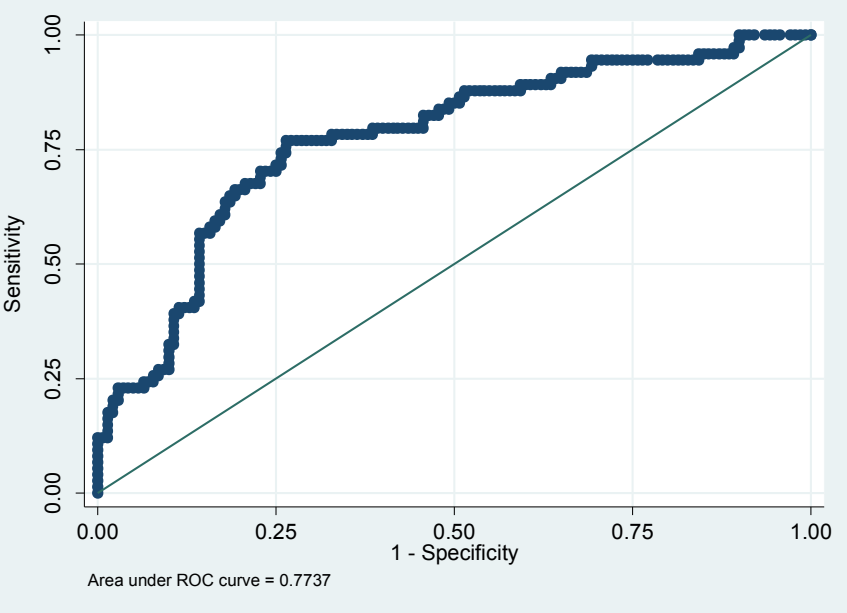
Block	Variable	OR	(95% CI)	*p* value
1	Number of traumatic events during war	0.86	(0.77-0.95)	0.005
2	UK	[Reference]		
	Germany	1.18	(0.46-3.08)	0.729
	Italy	.415	(0.12-1.45)	0.169
	Unemployed	0.37	(0.16-0.84)	0.018
3	IES-R mean score	0.55	(0.36 -0.85)	0.007
4	Used mental health care	0.34	(0.16 -0.75)	0.007
	Used specialist physical care	0.75	(0.35-1.62)	0.469
	Used employment support	0.43	(0.16-1.16)	0.095
	Used housing, pension or financial support	1.07	(0.42-2.73)	0.893

Note: Block 1 Nagelkerke R^2=0.117,$\chi^2_{(1)}$=19.0, p<0.001; Block 2 Nagelkerke R^2=0.155 (R^2change=0.038), $\chi^2_{(3)}$=6.6, p=0.086; Block 3 Nagelkerke R^2=0.217 (R^2change=0.062), $\chi^2_{(1)}$=11.1, p=0.001; Block 4 Nagelkerke R^2=0.280 (R^2change=0.063), $\chi^2_{(4)}$=11.9, p=0.018.

Results indicated that war experiences (Block 1), baseline severity of posttraumatic stress symptoms (Block 3), and use of social and health care interventions (Block 4) explained a significant amount of variance in the odds of PTSD recovery (11.7%, 6.2%, and 6.3%, respectively). The final model explained 28.0% of the variance.

The ROC curve (Figure 5.1.) indicated satisfactory discriminating ability of the predictive model, with an AUC of 0.77.

Figure 5.1. Receiver Operating Characteristic (ROC) curve for PTSD recovery Model as defined in Table 5.8.



Multivariable model validation with multiply imputed data set

A multivariable logistic model exploring predictors of PTSD recovery was repeated using the same variables in the multiple-imputation model (section 5.2.4.). Results from the multiple-imputation regression model were very similar to those using the main non-imputed data set. All the variables that were significant in the reported model without imputed missing values remained significant when variables with imputed missing values were used. In terms of the model performance, the multiply imputed regression model was slightly inferior, as indicated by a lower R^2 (R^2=0.256).

5.4. Discussion

5.4.1. Principal findings

The findings indicate that refugees diagnosed with PTSD many years after the war still have a considerable chance of recovery and symptom improvement. At the end of the one-year follow-up a third of the sample no longer met the criteria for PTSD. Accordingly, there was a significant improvement in all three posttraumatic stress symptoms clusters, i.e. intrusion, avoidance and hyperarousal.

Overall, the PTSD persistent group reported using mental health care and social interventions more frequently than the PTSD recovered group. At the same time, the PTSD recovered group perceived mental health care and social interventions as more helpful than those who continued suffering from PTSD at one-year follow-up. The recovered group found legal support and mental health care the most helpful, whilst help with employment and pension or financial support were the least helpful. Yet, no associations were found between perceived intervention helpfulness and PTSD recovery.

More traumatic war experiences, being unemployed at baseline, higher levels of posttraumatic symptoms at baseline, and using mental health services during the follow-up period were associated with poorer outcome in terms of PTSD diagnosis. Severity of war exposure accounted for the largest amount of variance in predicting PTSD recovery.

5.4.2. Strengths and limitations of the study

Strengths of the study

To the researcher's knowledge, this is the largest community-based prospective study on the course of PTSD in refugees who had experienced war trauma several years previously. It is the first study to comprehensively assess use of both health care and social interventions and to investigate the effects of these interventions on PTSD recovery in a sample of war refugees with chronic PTSD. The study used consistent assessment methods across three countries, and included civilians and people with combat experience. All interviewers were well-trained and spoke the mother tongue of the interviewees. Standardised instruments were used to establish PTSD and posttraumatic stress symptoms.

Limitations of the study

Despite the study strengths, in particular its prospective longitudinal design, important limitations need consideration.

Sampling method. The sample may have not been representative for war refugees due to the combination of registry and snowball sampling. This is linked to the non-availability of detailed population data, legislation and research regulations in the participating countries, which are problems encountered by other studies of refugee groups.

Participation bias. Although an acceptable follow-up participation rate was achieved, the findings still may be affected by participation bias. Comparison of responders and

non-responders indicated that the two differed on some variables i.e. gender, participation in war activities, and employment status. However, only employment status proved to be relevant to PTSD recovery. Considering these differences, recovery rate and symptom improvement were likely to be more favourable in the 24% of people who were not re-interviewed.

Inclusion criterion. The sample consisted only of PTSD cases preventing the possibility of assessing the fluctuating course of PTSD i.e. how many individuals who did not meet the PTSD diagnostic criteria at the baseline interval might have done so at the follow-up assessment (Solomon & Mikulincer, 2006).

Prevalence bias. The PTSD prevalent cases were identified through a cross-sectional study several years after war-trauma occurred and followed forward in time. This means that those identified for the follow-up possibly represent those with poorer diagnosis and more chronic PTSD (as explained in Chapter 3, section 3.4.2.). Thus, the factors identified as predictive of PTSD recovery are not necessarily factors associated with PTSD recovery in general but rather PTSD recovery in individuals suffering from chronic PTSD.

Recall bias and traumatic inflation. As discussed in Chapter 3 (see section 3.4.2.), there is a potential that recall of traumatic experiences could be associated with current PTSD severity and that this may consequently have amplified the association between the two i.e. that war trauma is associated with PTSD development. However, in the present study, traumatic experiences during the war were assessed at the baseline point and remained significantly associated with PTSD at the follow-up. This may suggest that

recall of traumatic experiences is independent of PTSD status, since the sample consisted only of PTSD cases. It may also suggest that there were some baseline differences in the severity of PTSD symptoms within the sample, so that those with higher severity at baseline, and potentially poorer prognosis at the follow-up, may have had inflated recall of trauma at the baseline. That is, it is possible that the association of traumatic experiences with the change in PTSD outcome is an artefact of exaggerated baseline scores for high severity PTSD cases.

Follow-up timing. The follow-up period started well after war experience without a pre-war or immediate post-war assessment against which to compare participants' longer term status. This long interval generated several other study limitations: (a) the potential for biased recall of war trauma exposures (Mollica, et al., 2007; Southwick, et al., 1997; Wessely, et al., 2003); (b) lack of clarity as to whether predictors of outcome (e.g., employment status) represent indicators of illness severity over and above baseline PTSD symptoms or factors that mitigate PTSD impact that lead to its resolution; and (c) limits opportunity for observation and conclusions regarding illness trajectory over the period since exposure to war trauma.

Assessment bias. The use of social and health care services in the longitudinal data was assessed using only a self-report measure. Details of the treatments were not recorded and it remains unclear to what extent they were evidence based. Furthermore, this was not a randomized controlled trial but an observational prospective study and the exact effect of any intervention is unclear since participants generally received a wide spectrum of social and healthcare interventions during the follow-up period. Yet, unlike for PTSD treatment in general, there is little specific evidence on the effectiveness of treatment in refugees with PTSD many years after war experiences. A naturalistic

design was used in order to take an inclusive approach and reflect as much as possible the actual treatment seeking behaviour and outcomes in those affected with chronic PTSD.

Explained variance. The predictive model explained only 28% of the variance, leaving the possibility that other variables not assessed in the present study might explain some of the remaining variance.

Impact of the research assessment. There are a number of benefits to participation in the research that may have influenced the study outcomes. For example, information regarding access and availability of local mental health services made available to the study participants may have encouraged them to seek psychological care during the follow-up period. Studies on treatment seeking following traumatic event have identified external barriers to accessing mental health services, such as lack of information about services, as common both in refugees and in veterans (Jankovic, et al., 2011; McFall, Malte, Fontana, & Rosenheck, 2000). This may be a particular problem for those with a higher level of PTSD symptoms, who are also more likely to seek services (Jankovic, et al., 2011). It is possible that those refugees most in need of services were also most likely to seek and receive services after they were provided the information on how and where to gain the access. This could have enhanced the association between PTSD persistence and mental health service use. However, this assumption seems unlikely to explain the stark improvement in PTSD in the present study since service use was associated with poorer PTSD outcomes.

It is also possible that participants experienced unanticipated therapeutic gains from the

interview itself, which may reflect significant recovery rates. There is evidence, although inconsistent (Schnurr, Ford, Friedman, Green, & Dain, 1997; Southwick, Morgan, & Rosenberg, 2000) that disclosure of traumatic experiences to friends, family, or providers, may reduce distress and PTSD symptoms (e.g., Bolton, Glenn, Orsillo, Roemer, & Litz, 2003; Davidson & Moss, 2008; Mueller, Moergeli, & Maercker, 2008), as it may promote processing and achieve integration and extinction of the memories, which is thought to be crucial in PTSD recovery (Foa & Kozak, 1986). It is possible that some participants found sharing their experiences with the researcher in a safe context helpful. Although a subset of participants reports strong negative emotions or unanticipated distress, the majority of participants in trauma-related studies report a favourable cost-benefit evaluation (Newman & Kaloupek, 2009). The participation benefits reported by other studies include self-identified insights, normalization of experienced emotions, improvement in well-being or a sense of relief from reflecting on the traumatic past (Dyregrov, et al., 2000; Kavanaugh & Ayres, 1998). In the present study, the therapeutic aspect may appear in the way that the interviewees had a chance to talk about and process their experiences and feelings, perhaps even for the first time (Elam & Fenton, 2003). The topics that they talked about, such as their experiences in the war, may be so private and personal that they may have not been able to discuss them even within their family. As noted, a small minority of participants report strong negative effects of participation in trauma-focused research. In particular participants with higher levels of psychological and physical symptoms may become more aware of their current health status (Verschuur, Spinhoven, van Emmerik, & Rosendaal, 2008) and this enhanced awareness of current health problems may be a mechanism accounting for a worsened self-assessed health status and greater service use following participation in a health survey (Parslow, Jorm, Christensen, & Rodgers). If this is the case, it is possible that for a sub-sample of participants with severe symptom severity

the participation had a ‘negative’ effect in that they became more aware of their own health problems and perhaps even engaged with services as a result and reported worsening of their symptoms at the follow-up.

On the other extreme, it is possible that, at least in part, “non-specific” effects were observed simply from participant’s interaction with the researchers (e.g., the Hawthorne effect). Participants were aware that the study was about the impact of war and migration on the mental health of refugees and how helpful different social and health care services have been in alleviating their psychological distress, having been informed about this in the invitation letter and told by the researcher during the baseline and follow-up interviews. They may have therefore felt that the researchers may have particular expectations or desired responses (Miller, 2004). It may be that during the baseline interviews refugees felt the need to demonstrate or point out their plight and suffering and may have been more likely to respond within the widely portrayed generic image of refugees as “passive” and “highly traumatized” victims of war, perhaps believing that these are the researcher’s expectations too.

A need to ‘please’ the researcher and/or to appear socially desirable could also have led participants to over-estimate the helpfulness of social and health care services and under-report symptom severity during the follow-up, which may explain the observed lack of association between service helpfulness and PTSD recovery. Furthermore, the participants were aware that the European Commission financed the research and local ethics committees approved its execution in each country, and may therefore have been reluctant to report negative appraisals of the social and health care credibility of the host

countries, despite assurances of confidentiality. A previously documented gratitude factor, which sees refugees grateful to the host country for their refuge (Dyregrov, et al., 2000; Richardson, et al., 2004; Tilbury, 2006), may have prevented refugees from being completely honest with the researchers and led them to provide more positive responses. However, reporting bias is arguably an inevitable feature of any participant-reported data.

Sample size. Whilst the study is one of the largest of its kind, the results are still based on a relatively small sample. The number of participants may not have been sufficient to detect a significant relationship for the explanatory variables and PTSD recovery. At the same time, no adjustments were made to significance levels to account for multiple comparisons. The Bonferroni adjustment, for example, has been advocated as a measure for reducing Type I errors for multiple testing (Dancey & Reidy, 2002) but has been also criticised for its shortcomings, which include inflating Type II errors (Perneger, 1998). In view of the small sample size it was felt that Bonferroni adjustments would increase the chance of a Type II error.

Exploratory study. The main research questions were of an exploratory nature and did not test specific hypotheses, so the statistical power and sample size have not been defined apriori.

5.4.3. Discussion of the findings and comparison with existing literature

Studies on the prognosis of PTSD following events other than war suggest an often persistent course, with most affected people recovering within the first 4-6 years post trauma after which the condition is more likely to become unremitting (Breslau, et al., 1998; Kessler, et al., 1995; Perkonigg, et al., 2005). Although the precise annual recovery rates were not reported in these studies, their findings suggest that fewer than 20% of individuals in whom PTSD persisted for six years or longer recovered later on. The recovery rate in the present study was 33.4%.

On the face of it, the study results suggest a remarkable rate of PTSD recovery, particularly given the length of time since exposure to war trauma and displacement and the likely duration of PTSD. One explanation for the more positive findings in the present study might be the different nature of the traumatic experience. In war people are often exposed to prolonged and repeated traumatic events, whilst people with non-war related PTSD are more likely to have experienced only one traumatic event. War-related PTSD might therefore take a different course with later recovery. Also, refugees with war-related PTSD may have higher levels of other risk factors, such as post-migration socio-economic hardship and adjustment in the host country. All of these factors may interfere with efforts to cope with and overcome posttraumatic stress and, therefore, prevent an earlier recovery. Although somewhat anecdotal evidence, many of the interviewed refugees stated that their mental health problems started soon after they resettled and their existential concerns in terms of safety, accommodation, food, financial support and family reunion ceased to exist. One could also speculate that another reason for the significant improvement in the PTSD rate was the stabilization of

the political situation in the Balkans in the mid 2000s and therefore a decreased sense of acute threat to family and friends who had stayed there (as well as not having reminders on the TV etc.). Previous reviews on mental health of refugees and other war-affected populations also report that refugees had much better outcomes when the conflict that displaced them had been resolved (Porter & Haslam, 2005; Steel, et al., 2009). Somewhat lower recovery rates than found in this study were found in previous studies of individuals with untreated (23%; Priebe, et al., 2009) and treated PTSD (14%; Priebe, Jankovic Gavrilovic, et al., 2010) approximately 10 years after the war in former Yugoslavia. Yet, these findings also suggest that somewhat positive prognosis observed in this study as well as Priebe et al. (2009) study may indicate that a natural recovery may occur for many refugees with PTSD and that those seeking treatment may simply differ from non-treatment seekers on variables other than those already measured in these studies. For example, other longitudinal studies have found that the degree of functional impairment is a strong predictor of PTSD recovery (Zlotnick, et al., 2004).

Alternative explanations for the more positive findings in the present study might be the potential fluctuating course of PTSD or the statistical process of regression toward the mean in a sample that was selected based on PTSD diagnosis at one time. The exact onset of PTSD was not established in this study. However, research generally suggests that delayed onset of PTSD in the absence of any prior symptoms is very rare (Andrews, et al., 2007; Drozdek, 1997). Longitudinal studies indicate that PTSD symptoms appear shortly after the traumatic event, subside in many survivors, and persist in others in the form of chronic PTSD (Peleg & Shalev, 2006). One may therefore assume that the onset of PTSD for most people in the present study had been relatively shortly after the war, and that the sample represents a sample of individuals with chronic PTSD. There is compelling evidence for fluctuation in symptoms of

chronic PTSD over time, characterized by relapses/reactivations and remissions (Solomon & Mikulincher, 2000; Mollica, et al., 2001; Yehuda, et al., 2009). For example, in a 20-year longitudinal study complete remission was observed in 4% of veterans, 17% had two remissions, and 24% had one remission (Solomon & Mikulincer, 2006). Three other studies with an explicit focus on long-term mental health treatment outcomes in refugees contain indications of the recurrent nature of PTSD in treated refugees (Birck, 2001; Boehnlein, et al., 2004; Drozdek, 1997). In a quasi-experimental study assessing the effectiveness of a PTSD treatment in Bosnian concentration camp survivors and now refugees, 73% of the treatment group no longer met a PTSD diagnosis at treatment end. However, at the three-year follow-up a considerable relapse was evident, as 83% of the treatment group had PTSD (Drozdek, 1997). This relapse may have had occurred because of the insufficiency of therapy or the tendency of chronically traumatized patients to relapse or both (Palic & Elklit, 2011). Given the apparently episodic nature of the course of PTSD, concluding that the condition is cured or in permanent remission based on the absence of symptoms for periods as long as a year may be biased, since symptoms appear very likely to return in subsequent years. The fluctuating course of PTSD also implies the possibility that a proportion of refugees who were PTSD-negative at the baseline assessment (and thus were not followed-up) could have tested positive at the second assessment and so the 'recovery rate' might in reality be very different.

Furthermore, whilst relying on the PTSD diagnosis in determining the course of PTSD may seem self-evident, some authors (Niles, et al., 1998; Yehuda, et al., 2009) have argued that use of a dichotomous diagnosis variable to represent PTSD status change over time may not be meaningful in chronic PTSD. With severe PTSD cases, PTSD may still be diagnosable even though symptoms may substantially abate, whilst with

less severe cases an individual's symptom levels may hover around diagnostic cut-offs, falling below at one point and above at another. In these cases, use of a dichotomous diagnosis variable to represent PTSD can allow minor fluctuations in symptoms to appear greater than they really are (Niles, et al., 1998). Considering that higher baseline posttraumatic stress symptoms were predictive of PTSD at the follow-up, it is likely that the 'recovered' group represents the group of individuals with less severe PTSD whose symptoms tend to naturally fluctuate. Even if disorder was not detected at follow-up, it does not necessarily mean that it was not present at a sub-clinical level, meaning that statements about temporal relationships and causality are still tentative.

The selection process for this study increased the chance that PTSD symptomatology and PTSD rates would appear to decrease over time, whether or not they actually decreased in the whole refugee group studied. In a longitudinal study of holocaust survivors with and without post-traumatic stress disorder (PTSD), Yehuda et al. (2009) observed a worsening of trauma-related symptoms over time in persons without PTSD at baseline, but an improvement in those with PTSD at baseline. By virtue of selection, participants in the present study had to experience sufficiently high severity to meet diagnostic criteria for PTSD, and thus the symptom severity and rate of PTSD would likely appear to decrease over time due to the process of regression to the population mean (Streiner, 2001), with or without any decrease among unselected participants.

It is, therefore, unclear whether the recovery observed in the present study reflects true recovery or merely a fluctuation in the expression of an ongoing disorder. If PTSD symptoms are more or less continually present until some point after which they no

longer occur, the current findings suggest that a substantial proportion of even the most chronic PTSD cases stand a chance of natural recovery even after many years of suffering. If, on the other hand, the symptoms of PTSD fluctuate in magnitude over time, the finding that a third had no longer fulfilled criteria for diagnosable PTSD during a one-year follow-up many years after war exposure may mean that they were simply in temporary remission. In order to obtain a better picture of the prognosis as a whole, the whole group studied (or at least a random sample of PTSD non cases) should have been assessed in the follow-up. Furthermore, it would have been appropriate to carry out assessments at other points in time to obtain a fuller picture of PTSD fluctuation over time.

The findings on predictors of recovery are consistent with some previous research reported in the literature. The best predictors of PTSD recovery were the severity of war exposure (Lie, 2002; Roth, et al., 2006) and the severity of the initial posttraumatic stress symptoms (Priebe, Jankovic Gavrilovic, et al., 2010; Roth, et al., 2006; Vojvoda, et al., 2008; van Wyk, et al., 2012).

The univariable association between using mental health services and poorer outcomes is not surprising since people with higher symptom levels are more likely to receive treatment and have a less favourable prognosis. However, the association remained highly significant even when it was adjusted for the influence of symptom levels at baseline. Thus, using mental health services predicted a poorer outcome, independently of the severity of PTSD at baseline. Possible explanations for the increased rate of PTSD in the treatment group may be inefficacy of the treatments available to refugees, confounding factors that were not assessed, qualitative dimensions of traumatic

experiences, treatment related factors, secondary gain, the possibility that treatment may actually make some individuals worse, and chance.

A review of brief psychotherapy interventions for PTSD found cognitive–behavioural treatment (CBT), exposure-based treatment, Eye Movement Desensitization and Reprocessing (EMDR), and psychopharmacotherapy to be most effective; however, treatments of combat-related PTSD showed the poorest outcomes i.e. no improvement at the end of the treatment (Bradley, Greene, Russ, Dutra & Westen, 2005). Treatment resistance of war-related PTSD has been shown to persist for years. Ten years after the traumatic experience, one third of patients with a combat-trauma or war-related PTSD in Croatia were still in treatment, with 82% remaining diagnosed with PTSD (Arbanas, 2010). This finding resonates with the findings of recent reviews of psychosocial PTSD treatment studies (Nickerson, Bryant, Silove, & Steel, 2011; Palic & Elklit, 2011) and randomized controlled trials of treatment of PTSD (Crumlish & O'Rourke, 2010) in adult refugees, whose authors concluded that, even though there seems to be a range of treatments for traumatized refugees with promising effects (particularly CBT and Narrative Exposure Therapy [NET]), no treatment was firmly supported and many studies reported that very few refugees actually are PTSD free at the end of the treatment. One of the main issues in reported treatment studies was the lack of intention-to-treat analysis, with most studies basing their conclusions on completers' data. There is some evidence that those who do not initially get better tend to drop out of the treatment. This, of course, means that the treatment effects may be over-reported (Bradley, et al., 2005). The evidence from another review suggested that trauma-focused treatments specifically designed for post-conflict and refugee population such as Narrative Exposure Therapy may be effective in treating PTSD in war refugees (Robjant & Fazel, 2010). Nevertheless, the reviewers highlighted that the existing

evidence is largely limited in terms of sample size, comparison trials with other evidence-based treatments (e.g. TFCBT, EMDR), and potential assessor bias as the majority of the trials have been conducted by the researchers who developed the NET (Robjant & Fazel, 2010).

In a group of tortured refugees that received a multidisciplinary treatment for an average of eight months, there was no change in PTSD symptoms and health-related QOL at the 9-months follow-up (Carlsson, et al., 2005), whilst at the 23-month follow-up about one-third of the patients improved significantly, although only a few showed complete recovery for PTSD, depression, and anxiety. Drozdek (1997) reported a significant worsening of PTSD symptoms in Bosnian refugee men three years after treatment, whilst those who refused treatment fared worse at the six months follow-up but by the end of the three years follow-up had somewhat better outcomes. The study finding also echoes the findings of observational studies assessing treatment outcomes of patients with PTSD several years after war experiences, which showed little improvement following treatment (Ljubotina, et al., 2007; Priebe, Jankovic Gavrilovic, et al., 2010). Therefore, it appears that, despite numerous treatment approaches and schemes, subsets of PTSD patients develop a chronic unremitting disorder with a lifelong course (Cramer, Elliott, Forbes, Biddle, & Hawthorne, 2006).

The negative impact of mental health care on PTSD recovery might also be explained by confounding factors that were not assessed, such as aspects of the patients' symptomatology that are not captured in the IES-R, which was used as a baseline measure of illness severity in this study. For example, pre-treatment levels of anger (e.g. Forbes, Creamer, Hawthorne, Allen, & McHugh, 2003; Taylor, et al., 2001) and shame (Ehlers, Clark, et al., 1998) have been linked to poor outcome in some studies of PTSD

treatments, as has complex PTSD or Disorders of Extreme Stress Not Otherwise Specified (DESNOS) (Ford & Kidd, 1998). In previous studies, people affected by the war in the Balkans were indeed found to have some symptoms of complex PTSD. However, very few (Morina & Ford, 2008) or no participants (Weine, Becker, et al., 1998) met the full criteria for complex PTSD in those studies, but the comorbidity with complex PTSD in the present sample is unknown. Complex PTSD is associated with reduced emotional awareness and heightened alexithymia, which, it has been argued, can prevent emotional engagement with the trauma during trauma-focused treatment and can thus prevent patients from benefiting from therapy (Lanius, Bluhm, & Frewen, 2011). Furthermore, complex PTSD is associated with difficulties in emotion regulation. It has been argued that patients with these conditions are likely to experience extreme painful emotions in response to trauma-focused treatment, and that their inability to effectively regulate their emotional responses may in fact lead to a worsening of psychological distress as a result (Linehan, 1993). In the present study PTSD comorbidity with other common mental disorders (depression, substance use disorders and other anxiety disorders) was assessed but psychiatric comorbidity did not predict recovery, which is inconsistent with some (Zlotnick, et al., 2004) but not all previous research (Perkonigg, et al., 2005). Being in treatment often implies a more severe state of psychopathology, which could then present as a later indicator of disorder severity. Any of the number of potentially confounding psychological symptoms not assessed in the present study may have reduced treatment success.

Most studies of traumatic events provide good evidence that the more extreme the trauma, the worse the psychological outcome. As noted previously, other studies have indicated that exposure to physical abuse, especially torture, may particularly increase the risk for mental disorders and increased severity of psychological symptoms (e.g.

Steel, et al., 2009). The present sample reported a wide range of traumatic experiences, which were equated and dealt with as the sum of traumatic experiences in determining predictors of treatment seeking and PTSD recovery. Their severity in terms of their sum indeed affects the recovery. However, the traumatic experiences have qualitative differences and reducing them to additive numbers may mask their importance in treatment seeking and treatment outcome.

A number of treatment related factors, such as the type of treatment received, duration of treatment, or relative competence of the therapist may have also influenced the treatment outcome. Details of the treatments were not recorded in the present study and it remains unclear to what extent they were evidence based. Also, there was a high comorbidity in the present sample and it is unclear whether the treatment received was aimed at alleviating a comorbid disorder and not PTSD specifically. The results suggested high recovery rates of other mental disorders, in particular depression and substance use disorders. The length and treatment completion rate was also unknown. In a recent meta-analysis of psychotherapy for PTSD, the treatment completion rate was negatively associated with study outcomes (Bradley, et al., 2005), raising the possibility that patients who did not get better in the present study may have dropped out of the treatment before its completion.

In addition, language barriers may have affected the effectiveness of the treatment. Refugees often lack adequate proficiency in the language of the host country and therapists rarely have access to language interpreters. Consequently, language difficulties may be a significant barrier to accessing mental health services but also to effective consultations leading to potential misdiagnosis and inadequate treatment (Papadopoulos, et al., 2004; Priebe, et al., 2011; Palmer & Ward, 2006). For example,

The Health of Londoners Project identified language *"as the biggest single obstacle to access and as a major issue for providing healthcare to refugees"* (Aldous, et al., 1999, p. 50). Interpreting itself could be a hindrance to effective outcome due to issues of trust, confidentiality, disempowerment and lack of mental health training for interpreters (Priebe, et al., 2011; Palmer & Ward, 2006). Furthermore, once refugees receive treatment they are likely to have access to inferior kinds of therapy such as physical treatment methods, mainly in the form of pharmacological treatment, rather than alternative forms of treatment such as psychological and cognitive-behavioural interventions (Fernando, 2002). This corroborates with the findings of the present study whereby majority (90%) received pharmacological treatment and less than half received other type of treatment.

At the same time, the possibility cannot be excluded that in some cases treatment may have a negative effect, possibly because patients find some forms of treatment difficult and overwhelming (Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002; Pitman, et al., 1991) or because it strengthens the attention and focus of patients on the experience of symptoms and thus prevents helpful alternative ways of coping and forgetting. Implementing some trauma-focused treatment therapies, such as exposure therapy, when an individual is in situation of ongoing threat, such as living with uncertainty of future safety (e.g., not knowing whether one will be deported from the host country) may be ineffective or even worsen symptomatology (Nickerson, Bryant, et al., 2011). There is some evidence that occasionally patients tend to get worse in the beginning of the treatment, when the details of traumatic events are usually discussed and distressing images and recollections are confronted (Basoglu, Ekblad, Baarnhielm, & Livanou, 2004; Ljubotina, et al., 2007). Educative, action-oriented, non-exposure-based treatments, such as might be found in rehabilitative forms of treatment, have been

found to be more preferred treatments than introspective, trauma-related components for veterans with chronic PTSD (Johnson & Lubin, 1997) .

Nevertheless, frequent utilization and high assessment of helpfulness of health care services, including mental health care, demonstrate the importance of health care in the well-being of refugees. Nearly all participants reported having had contact with a health care provider during the past year and over 50% of the sample had contact with a mental health care provider. Similarly, 46% of participants retrospectively reported using mental health care services over a 12 month period in a representative sample of Cambodian refugees with probable diagnoses of PTSD, major depression, or alcohol use disorder two decades after resettlement in the USA (Marshall, et al., 2006).

Finally, although the study employs a longitudinal design, the results cannot be used to imply causality between the service use and PTSD status. Whilst the baseline symptom severity was adjusted for in the analysis, it is unclear exactly when these levels changed during the one-year follow-up. It may be that worsening of the symptoms preceded service use, or that service use resulted in worsening of PTSD symptoms. For example, when people experience worsening of PTSD symptoms, they may be more likely to engage with services. Alternatively, use of services may have caused worsening of the symptoms.

Particularly high rates of service use in the present study were evident for refugees with persistent PTSD. This finding is in line with previous research on treatment seeking behaviour in trauma survivors which also reported that PTSD diagnoses and symptom severity are related to increased medical and mental health service use (Elhai, North, & Fruehm, 2005). A review on factors associated with treatment seeking after traumatic

events (Gavrilovic, Schützwohl, Fazel, & Priebe, 2005) concluded that the most important factors associated with treatment-seeking appeared to be more severe psychopathology, the type and level of the traumatic event, and socio-demographic characteristics, in particular female gender. Kartha et al. (2008) found that trauma exposure was independently associated with greater mental healthcare utilization among patients presenting to the primary care clinics, with PTSD explaining only a portion of this association.

The finding that refugees with persistent PTSD used specialist physical health care services more frequently is consistent with other studies that have shown that chronic PTSD is associated with increased use of health care services (Deykin, et al., 2001; Drozdek, Noor, Lutt, & Foy, 2003; Gavrilovic, et al., 2005; Schnurr, Friedman, Sengupta, Jankowski, & Holmes, 2000). Several studies have also shown that chronic PTSD is associated with poorer physical health (Schnurr & Green, 2004; Calhoun, Bosworth, Grambow, Dudley, & Beckham, 2002; Wagner, Wolfe, Rotnitsky, Proctor, & Erickson, 2000; McFarlane, 2010). These studies have indicated a link between PTSD and certain cardiovascular disorders (Bedi & Arora, 2007; Dedert, Calhoun, Watkins, Sherwood, & Beckham, 2010), frequent somatic complaints (Boscarino, 2004), and increased use of tobacco, alcohol and other addictive substances (Pfefferbaum & Doughty, 2001) as all contributing to greater use of primary and specialized health services. Possibly, in order to avoid the stigmatization that entails going to a psychiatrist (Palmer & Ward, 2006; Papadopoulos, et al., 2004), individuals with symptoms of PTSD may decide to seek help through primary health care and often with physical complaints rather than psychological. Finally, because PTSD involves avoidance of thinking about traumatic experiences, individuals may selectively attend to

the physical symptoms that often accompany PTSD (McFarlane, Atchison, Rafalowicz, & Papay, 1994; Bryant, Marosszeky, Crooks, Baguley, & Gurka, 1999).

The present study also shows that the relationship between PTSD status and specialist physical health care use was fully explained by baseline PTSD symptom severity. This may suggest that those with a worse severity of PTSD symptoms at baseline tended to use health care services more often, perhaps reflecting a traditional and more acceptable mode of help seeking (Lin, Carter & Kleinman, 1985), but were also less likely to recover. Otherwise, it may be that those with poorer physical health (and therefore higher service use) are also more likely to have poorer mental health and a poorer recovery prognosis, due to their physical health.

A somewhat surprising finding of this study, especially given the discouraging results of impact of mental health care use on PTSD recovery, was that the refugees in this sample, both those who recovered and those who still suffered from PTSD, had very positive perceptions about the helpfulness of the mental health care they received. In addition, they were also relatively satisfied, although less so, with the general medical care they have received. This is important given the relatively high rates of medical service use by refugees with PTSD in the study.

One possible explanation for this finding is that refugees may be reluctant to report symptom improvement during PTSD treatment for fear of risking being deported from the country, but do not feel threatened by expressing their satisfaction with the mental health services they received. It has been argued that secondary gain in terms of residence status may act counter-therapeutically: it may be in the immediate interests of a refugee with temporary residence status to simulate symptoms or, in genuine cases, to

remain symptomatic so as to improve the chance of achieving a more permanent status or simply to stay in the country (Crumlish & O'Rourke, 2010). As previously noted, in Germany for example, suffering from PTSD and being in treatment can lead to extension of a refugee's residence permit. It cannot be ruled out that, despite successful treatment, some participants preferred to 'keep' their symptoms and keep their right to stay in the country. Having incentives to remain unwell can be a powerful factor in maintaining psychological symptoms both on a conscious and unconscious level. Yet, in the present study participant's baseline residence status showed no association with the PTSD status at the one-year follow-up - that is those with temporary residence status were as likely to recover from PTSD as those with permanent residence status. It may be possible that change in residence status during the follow-up period affected the outcome. Whilst this was not addressed directly in the analysis, the raw data indicate that out of 22 (10%) participants whose residence status changed from temporary to permanent, half (N=11) no longer had PTSD diagnosis at the end of the follow-up. An alternative explanation is that while refugee's PTSD symptoms may be treatment resistant, they recognize the benefits of their care that go beyond amelioration of specific symptoms. This treatment satisfaction may also reflect improvement in symptoms of comorbid mental disorders, as previously discussed. A high treatment satisfaction was also reported in a longitudinal study of severely traumatized refugees receiving multidisciplinary treatment, although no clinical improvement was observed (Carlsson, Olsen, Kastrup, & Mortensen, 2010).

Whilst use of mental health care was associated with PTSD maintenance, use of social care interventions had neither a protective nor a risk value for recovery from PTSD in this group. It should be noted that only 7 and 9 out of 74 participants in the recovered group reported any instances of using legal and employment support, respectively, and

thus the range of responses was highly restricted. This restriction probably contributed to the lack of significant findings in predicting PTSD recovery.

Unlike medical or trauma-focused approaches, social interventions focus primarily on stressful living conditions such as the destruction of social networks and the resulting loss of social and material support. Altering these conditions, it is believed, may foster people's inherent capacity to recover (Miller & Rasmussen, 2010), cause improvement in psychological symptoms and, in some cases, be enough to reduce symptoms below the threshold of clinical disorder (Bolton & Betancourt, 2004). In the present study, none of the social resources examined was associated with recovery. There was some evidence that social inclusion in the form of employment predicted PTSD recovery, a finding also reported in previous research (Carlsson, et al., 2006; Eastmond, et al., 1994; Kivling-Boden & Sundbom, 2002; Lie, 2002). Lack of association between social support (i.e. marital status and contacts with friends) and PTSD recovery is contrary to the findings in previous studies (Carlsson, et al., 2006; Drozdek, 1997; Kivling-Boden & Sundbom, 2002; Lie, 2002). None of the organized types of social interventions i.e. support with housing, employment, social and leisure time, finances, legal issues or advocacy and information showed association with PTSD recovery. This finding should not be interpreted to imply that social interventions do not impact on the well-being of refugees. As described in the introduction chapter, lack of stable and adequate housing, poverty, loss of social status, unemployment or under-employment, immigration problems, language barriers, and social isolation are the recurrent themes in refugee post-migration life (Gorst-Unsworth & Goldenberg, 1998; Misra, Connolly, & Majeed, 2006; Palmer & Ward, 2006; Papadopoulos, et al., 2004; Phillimore & Goodson, 2008). All of these issues are frequently perceived as a major cause of stress and poor mental health by refugees themselves (Misra, et al., 2006; Palmer & Ward, 2006;

Papadopoulos, et al., 2004; Palmer & Ward, 2006), who often identify practical solutions to such issues as the most imperative in reducing their distress (Ager, Malcom, Sadollah, & O'May, 2002; Palmer & Ward, 2006). In a study evaluating services aimed at helping refugees to settle and integrate into the UK, the Home Office reported that the majority of interviewed refugees found these services helpful. The most helpful were welfare benefits and English classes, whilst support with housing and employment were the least helpful (Peckham, et al., 2004). Similarly, in the present study participants perceived interventions mostly as very helpful, suggesting that the perceived benefits may not be directly related to PTSD recovery but rather other aspects of refugee life, including other mental disorders.

A relatively low perception of helpfulness of employment and financial support might be related to inadequacy of the services in improving a refugee situation. For example, the present data indicate that most unemployed participants remained unemployed during the follow-up. It may be assumed that those unemployed were in receipt of welfare benefits, which are usually below the poverty line. Refugees rely –often for many years- on means-tested welfare assistance. Whilst such assistance may be welcome and beneficial at the initial resettlement phase, over time this may result in permanent dependency on public assistance, social isolation and a subsequent passive way of life for the individual. In a qualitative study of a small group of refugees in a London Borough, being unemployed and receiving government assistance in the long-term was perceived as a negative experience by the refugees themselves (Craw, Jefferys, & Paraskevopoulou, 2007). Several studies reviewed for the present thesis also showed that prolonged dependence on welfare has a negative impact on long-term mental health (Chung & Bemak, 1996; Hinton, et al., 1998; Kivling-Boden & Sundbom, 2002). Furthermore, even for those few who had found employment it is

unclear whether they were under-employed or in low-pay work. Other studies have reported that refugees in employment had also often faced long periods of unemployment (or under-employment) in the past and tended to work more often in low-skilled and low-paid jobs (Phillimore & Goodson, 2008). It is important to emphasize that, although employment is generally positive for mental health, under-employment is a potential risk to psychological well-being (Kivling-Boden & Sundbom, 2002; Phillimore & Goodson, 2008). Many of the participants had taken part in short training courses to improve their skills and help them search for jobs, prepare CVs and present themselves in interviews. The quality of training and lack of outcomes of such courses have been criticised by other refugee groups (Craw, Jefferys, & Paraskevopoulou, 2007).

Although most of the participants who received health care or social interventions reported that they experienced it as very helpful, perceived helpfulness was not associated with a positive change in PTSD status. A study of satisfaction with PTSD care among veterans also indicated that treatment effectiveness and satisfaction were largely unrelated (Fontana, Ford, & Rosenheck, 2003). Otherwise, perhaps the lack of rating variability could have accounted for the lack of significance for the perceived helpfulness and PTSD status, since the majority of the participants rated helpfulness of the interventions with the highest score.

Findings also indicated that demographics (i.e., age, gender, and education) were not significant predictors of outcome, which is in line with some previous studies on refugees (Boehnlein, et al., 2004; Drozdek, 1997; Lie, 2002).

5.4.4. Summary

Despite its high prevalence rates and apparent long-term nature, little is known about the course of PTSD once diagnosed in refugees. Likewise, little is known about the factors associated with PTSD recovery versus maintenance. Using a prospective longitudinal design, the present study assessed recovery rate and symptom change in refugees suffering from PTSD several years after war trauma. The study also investigated the influence of socio-demographic, trauma-related, clinical factors and social and health care interventions on the PTSD course.

Whilst the findings might give hope to the large number of war refugees who still suffer from PTSD many years after the traumatic experiences, they provide no evidence in support of a wider implementation of psychiatric and psychological treatments for patients with PTSD several years after the war. Nevertheless, the present study provides some evidence that social inclusion of refugees, such as employment, may have a positive effect on PTSD recovery.

Chapter 6

Summary and general discussion

This thesis examined the prevalence, course, and predictors of mental disorders and SQOL in long-settled war refugees. In short, the rationale for the study came from a) reports of increased rates of mental disorders in war refugees; b) inconclusive evidence on the long-term mental health of war refugees; c) the view that there are more consequences of war trauma and displacement than PTSD alone; and d) scant evidence on factors and interventions that might be associated with PTSD recovery. The thesis aimed to investigate the prevalence of mental disorders and to identify pre-migration and post-migration factors associated with these disorders in long-settled war refugees (Chapters 2 and 3); assess SQOL and factors associated with SQOL (Chapter 4); and assess recovery rate, symptom change and identify factors influencing recovery in refugees with persistent PTSD (Chapter 5).

The present chapter provides a summary of the main findings of the thesis and a discussion of several cross-cutting issues. It is divided into four main sections. A brief description of the main findings concerning the research questions is given in the first section, followed by a general discussion in the second section, implications for policy, clinical practice, and future research in the third section, and a general conclusion of the thesis is given in the fourth section.

6.1. Summary of the main findings

In order to direct policy planners and implementers towards best practice in long-term refugee care, it is necessary to know how many refugees suffer from mental health problems even many years after war experience and resettlement and which refugees are most at risk of long-lasting poor mental health.

The present thesis showed that mental disorders, particularly depression and PTSD, were highly prevalent in this (Chapter 3) as well as other studies (Chapter 2) in long-settled war refugees. The review in Chapter 2 identified a large variability of prevalence rates of depression, PTSD, and unspecified anxiety disorder between studies, resulting mainly from methodological differences and to some degree from contextual factors, such as the region of refugee origin and resettlement. Greater exposure to pre-migration traumatic experiences and post-migration stress were the most consistent factors associated with both depression and anxiety disorders (including PTSD), whilst poor post-migration socio-economic status, such as unemployment, financial stress, poor host language proficiency and lack of social support, was associated with depression only. The review concluded that more methodologically rigorous and consistent research on long-term mental health of refugees was needed and a suggestion was made for a cross-country study of similar groups of refugees which would help disentangle the influence of methodological versus contextual factors on mental health outcomes.

The study in Chapter 3 further confirmed that prevalence rate estimates of mental disorders may vary even for the same group of refugees who resettled in different countries. Overall, refugees in Germany tended to report the highest rates of mental disorders and those in Italy the lowest. At the same time, socio-demographic characteristics and experiences before, during and after the war and migration showed consistent association with mental disorders across countries. Specifically, lower education, more potentially traumatic experiences during and after the war, more migration-related stress, not feeling accepted by the host population, and having a temporary residence status were independently associated with higher rates of both mood and anxiety disorders. Additionally, mood disorders were correlated with female gender, older age, and being unemployed. Those who took part in war activities had a

lower risk of anxiety disorders, whilst older age was associated with PTSD only. Male gender, younger age and not living with a partner were the only factors associated with higher rates of substance use disorders. Except for substance use disorders, both war factors and post-migration stressors directly contributed to the rates of mental disorders. Post-migration factors accounted for more variance than other factors in the rates of mood, anxiety and substance use disorders, whilst war factors did so for PTSD.

The findings in Chapter 4 indicated that, despite the relatively high prevalence of mental disorders, refugees were reasonably satisfied with their SQOL, and this was particularly the case for family relationships and living situation. Yet, they were largely dissatisfied with their employment status and financial situation. In line with this finding, poor post-migration living conditions i.e. a higher number of migration-related stressors, being unemployed, not living with a partner, not feeling accepted by the host country and poor host language proficiency were most strongly associated with lower SQOL, followed by clinical factors. Country differences remained even after pre-migration and post-migration factors were adjusted for in the analysis. Refugees in the UK reported being the most satisfied with their SQOL and those in Germany the least satisfied.

Chapter 5 assessed the longitudinal course of PTSD and symptom change in refugees with PTSD several years after war trauma. The findings demonstrated that refugees experienced substantial improvements in PTSD diagnosis and symptom severity over the one-year follow-up period, with about a third of the sample no longer meeting the PTSD diagnostic criteria. Less war experiences, lower baseline posttraumatic stress symptom severity and being employed predicted PTSD recovery. Whilst refugees found

social and health care interventions helpful overall, there was no evidence that using these interventions was associated with PTSD recovery.

6.2. General discussion

The present thesis provided a comprehensive overview of mental health sequelae and well-being in refugees from the war in former Yugoslavia who had resettled in three West European countries. While findings in relation to specific studies have already been discussed at the end of each chapter, there are several themes that emerge with regard to all of the studies which should be further discussed.

6.2.1. A need to look beyond PTSD in refugees

Research has for the most part focused on psychopathological reactions, and in particular PTSD, in war refugees. Although PTSD certainly warrants great concern, the present thesis findings suggest that such an approach may run the risk of a narrow view of posttraumatic stress reactions to war trauma and displacement as experienced by refugees. This, in turn, may make it difficult to identify effective resettlement programs and treatment plans. Without repeating the criticisms of PTSD that were described in Chapter 1 (see 1.4.2.), two points seem to be particularly important to discuss in the light of the findings of the present thesis.

Recognizing a wider range of psychopathology among refugees

The first point refers to the exclusive focus on PTSD whilst largely ignoring the wider range of mental disorders and psychological symptoms experienced by war refugees. With the concept of Complex PTSD, Herman (1992) emphasized that the current PTSD concept does not capture the severe psychological sequelae experienced by people exposed to prolonged and repeated trauma, such as war trauma. Consistent with this view, the findings of this thesis (Chapters 2 and 3) suggest that presenting PTSD as a single disorder resulting from war exposure is misleading. The findings indicate that, although PTSD was widely common in the refugee population even many years after war exposure, other mental disorders were as common as or even more common than PTSD. Depression in particular was even more common than PTSD. Beyond PTSD and depression, the impact was concentrated in particularly high rates of other anxiety disorders. The high number of mental disorders and high comorbidity further support the notion of the complexity of long-term consequences of war trauma and displacement, which may not be captured by PTSD diagnosis alone (Herman, 1992).

Non-psychiatric forms of well-being: SQOL

The second point refers to an exclusive or primary focus of refugee research on war trauma and PTSD in the light of evidence that refugees experience an amalgam of social and economic concerns (Summerfield, 1999). The focus on PTSD would seem to imply that war trauma and PTSD represent the most pressing concern within refugee communities. Certainly, as summarized in the earlier review (Chapter 2) and the original study (Chapter 3), the data do show an elevated prevalence of mental disorders among a diversity of refugee populations, including those from former Yugoslavia.

However, this does not mean that refugees themselves perceive mental health as among their most pressing concerns. In fact, the present study (Chapter 4) provided evidence that refugees may actually be more concerned about other stressors, particularly unemployment and their poor financial situation. This was not surprising given that the majority were unemployed and potentially dependant on welfare assistance. That is, for the majority of refugees, struggle for economic survival was of more concern than were their mental health problems, if they had any. These additional sources of stress may contribute to the development or maintenance of mental disorders (Chapters 2, 3, and 5), but may also affect refugees' overall well-being, irrespective of existing psychopathology (Chapter 4).

This is not to suggest that refugees suffering from PTSD or other mental disorders do not find these symptoms distressing. In fact, refugees suffering from PTSD were chiefly concerned with their mental health and had the most impaired SQOL (Chapter 4), perhaps indicating particularly debilitating effects of the disorder on the overall functioning and well-being of those affected (Olatunji, et al., 2007; Schnurr, et al., 2009). But, even for these refugees, the stress of unemployment and their poor financial situation still presented an important concern. What these findings may suggest is that there is a discord between what the research and wider society perceive as important for refugees' well-being and what the refugees actually perceive as the most important themselves.

The finding that the majority of refugees may prioritize resolution of their socio-economic situation and that a poor socio-economic situation may have an adverse effect on PTSD recovery calls for a more holistic approach i.e. trauma-focused and psychosocial, in addressing mental health needs (Miller & Rasco, 2004; Miller &

Rasmussen, 2010). Such an approach may be both curative and preventive, i.e. trauma-focused interventions may address mental health needs of those already experiencing mental distress and prevent the development of enduring mental disorders, while addressing post-migration stressors may help prevent the development of new disorders among refugees and enhance the capacity for recovery of those already suffering from mental distress.

Although only limited to refugees with persistent PTSD, the evidence presented in Chapter 5 suggested that even when social and health care interventions are provided to refugees, they may not adequately address their needs. For example, refugees in the present study found help with employment and finances the least helpful, even though these aspects were their greatest concern (Chapter 4). Although it would be difficult to comment on how these interventions were developed and what they consisted of, the findings would suggest that the available interventions were not tailored necessarily to the needs of this population. One way to better understand the needs of specific refugee groups would be to involve refugee members in all phases of the intervention process, from the conceptualization and development of community interventions to their implementation and evaluation (Miller & Rasco, 2004). Alternatively, it could be argued that these interventions may not be effective simply because a sub-sample of refugees with chronic PTSD may be unlikely to remit regardless of psychological, psychiatric or social efforts offered to them.

6.2.2. Post-migration context counts

This thesis also demonstrated that the tendency to focus on war trauma as the sole agent in the development of PTSD and other mental disorders might mean that secondary stressors go unrecognised, such as those stressors refugees experience due to

displacement and acculturation. Although war trauma did indeed prove to be an important factor in predicting development and maintenance of PTSD, it was found to be less important in the development of other anxiety and mood disorders, in both the present studies (Chapters 3 and 5) and other studies (Chapter 2). Instead, post-migration living conditions proved to be of greater importance for mood, anxiety and substance use disorders as well as for SQOL (Chapter 4). When taken together findings of the current study indicate that several post-migration stressors, including country of residence, unemployment, lack of acceptance by the host society, poor host language proficiency, not cohabiting, and temporary residence status, were as strong as war trauma or even stronger in predicting mental disorders and SQOL in this (Chapters 3-5) as well as in other studies (Chapter 2). Factors associated with mental disorders and SQOL assessed in Chapters 3, 4, and 5 are illustrated in Table 6.1.

Table 6.1. Factors associated with mental disorders and SQOL across Chapters 3, 4 and 5[a]

	Mood disorders	**Anxiety disorders**	**PTSD**	**PTSD recovery**	**Substance use disorders**	**SQOL**
female gender	+	0	0	0	-	0
older age	+	0	+	0	-	0
lower education	+	+	+	0	0	0
pre-war trauma	0	0	0	0	0	+
war trauma	+	+	+	+	0	0
civilian	0	+	+	0	0	0
post-war trauma	+	+	+	0	0	0
migration stressors	+	+	+	0	0	+
unemployment	+	0	0	-	0	+
not cohabiting	0	0	0	0	+	+
temporary residence	+	+	+	0	0	0
feeling accepted	-	-	0	0	0	+
host language fluency	0	0	0	0	0	+
country of residence	+	0	+	0	+	+
mental disorder	0	0	0	0	0	-
using MH services	0	0	0	-	0	0

[a]'+' and '– 'signs indicate whether a factor was positively or negatively associated with a disorder, whilst '0' indicates the factor had no effect of either.

These findings are not startling in the light of existing knowledge. As outlined in Chapter 1, the general dialogue in understanding and addressing refugee mental health

needs presently is ongoing between trauma-focused and psychosocial approaches. Several other authors (e.g. Rasmussen, et al., 2010; Steel, et al., 1999) proposed an integrated approach that recognizes both the unique and shared contributions of war and post-migration factors to the mental health of refugees, which is in line with the present study findings. What this thesis does offer that is new is direct evidence that the same group of refugees resettled in different contexts can fare differently and that, to some extent, this difference may be due to the specificity of resettlement circumstances in these contexts.

Several resettlement factors appear to be of particular importance in the refugee's mental health and quality of life and require a more detailed discussion. These are: unemployment, temporary residence status, feeling accepted, and the resettlement country.

Refugee well-being and unemployment

Results from this study suggest that unemployment had an adverse impact on several important clinical and social outcomes. Unemployed refugees were more likely to suffer from a mood disorder and to have impaired SQOL. Furthermore, whilst unemployment did not appear to have an impact on the development of chronic PTSD, unemployed refugees suffering from PTSD were less likely to recover than those who were employed. These findings are consistent with numerous refugee studies about the influence of employment on their mental health, particularly depression, and quality of life (e.g., Beiser & Hou, 2001; Blight, Ekblad, Persson, & Ekberg, 2006; Chung & Kagawa-Singer, 1993; Igreja, et al., 2009) in that having a job contributes to the development of a refuge's well-being, and provides structure and meaning to their lives.

The evidence also suggests a bidirectional relationship between employment status and mental health. Just as the difficulties with employment may cause poor mental health, poor mental health may lead to decreased functioning and inability to cope with the demands of employment (Sanderson & Andrews, 2006). It is also possible that the relationship is even more intertwined so that the experience of extreme distress may impede refugees' ability to function effectively in their daily lives. Functional impairment may in turn result in the inability to work, which may in turn further affect mental health, which again may affect ability to work even further (Hubbard & Pearson, 2004). For example, in terms of PTSD recovery it could be argued that those who recovered had an initially lower level of PTSD and were thus more able to function and find/keep employment. Alternatively, it could be argued that working serves as a coping strategy that reduces levels of PTSD. Whilst the former is certainly a possibility in the cross-sectional study (Chapter 3), the prospective finding that employment was associated with PTSD recovery even after baseline symptom levels were adjusted for in the analysis (Chapter 5) suggests employment as a contributory factor in the recovery.

Being unemployed without a primary source of income or with very limited welfare benefits, in particular if over a long-term period, would be expected to produce depression (Chung & Kagawa-Singer, 1993). Accordingly, evidence from longitudinal studies suggests that patients with depression and other severe mental disorders may benefit from work-focused interventions (Adler, et al., 2006; Burns, et al., 2009). It also seems likely that employment improves quality of life by enhancing such subjective elements as self-esteem, social support and positive affect, as well as objective factors such as income and, thus, possibilities for a range of positive experiences, such as social contact and leisure activities. Considering the aetiology of PTSD that is rooted in

experiencing a traumatic event, it is not surprising that there was no association between the development of PTSD and unemployment. Yet, employment is recognized as an essential component of the PTSD recovery model (Glynn, Drebing, & Penk, 2009). It is easy to understand why. For most individuals, basic life requirements are met through employment. Besides income, employment provides a means to economic independence for refugees, many of whom have spent years depending on welfare benefits. This may be particularly important to refugee men (Beiser & Hou, 2001; Blight, et al., 2006; Kivling-Boden & Sundbom; 2002; Miller, Worthington, et al., 2002; Warfa, et al., 2012), whose loss of the role as the main bread winner in the family, as was usually the case in the country of origin, may challenge their masculinity and increase guilt and shame about failure to provide for one's family. The economic independence may also help refugees regain a sense of control over their lives, which is often lost during a traumatic experience. For example, Carballo et al. (2004) found in a study among Bosnian displaced and non-displaced war survivors that there was an overwhelming loss of perceived power and self-esteem. Over 25% of displaced people, for example, said they no longer felt they were able to play a useful role; even in non-displaced populations approximately 11% of those interviewed said that they had lost their sense of worth. Employment also promotes a sense of purpose and achievement, social status, social interaction and sense of belonging (Boardman, Grove, Perkins, & Shepherd, 2003; Cook, 2006; Honey, 2004; Kirsh, 2000; Koletsi, et al., 2009; Palmer 2007; Phillimore & Goodson, 2006), and is often quoted as one of the key markers of refugee integration in the host society (Ager & Strang, 2008).

Unemployment is therefore an important factor in the integration process, mental health and quality of life of refugees. Yet, numerous studies have demonstrated that

unemployment levels among refugees in Western Europe are extremely high (e.g. Sargeant & Forna 2001; Bloch, 2002; Warfa, et al., 2012) and that unemployment and/or underemployment is acknowledged by many refugees as a major source of post-migration stress (e.g., Korac, 2001; Miller, Worthington, et al., 2002; Phillimore & Goodson 2006; Warfa, et al., 2012). Studies on Bosnian refugees also confirm that even those with a sufficient level of education and professional skills are often unemployed and can rarely apply for jobs appropriate to their education and previous professional experience (Colic-Peisker, 2005; Dimova, 2006; Korac, 2003).

Indeed the cohort of refugees in Germany and the UK interviewed for this study was predominantly unemployed, despite their high level of education. Unsurprisingly the refugees participating in this study were also the most concerned with their unemployment/underemployment and consequent financial difficulties. Whilst in some European countries there are government strategies aimed at fostering refugee employment (e.g., in the UK; Home Office, 2000, 2005), in most countries there are no employment policies specifically aimed at refugees. Instead, governments' employment strategies for refugees are often broader policies for the unemployed or are incorporated into integration policies for ethnic minorities and immigrants (Jonker, 2004). Such strategies often do not adequately address the particularities of refugee experiences or needs. For example, unlike other work-migrants who arrive to the country with work documentation, refugees often flee their country without personal belongings, including any documentation, which may be a problem when seeking employment. The inadequacy of existing employment strategies for refugees from former Yugoslavia is probably reflected in high unemployment rates observed in the present study. This is further supported by the lack of helpful employment support reported by the PTSD

subsample (Chapter 5). A qualitative study carried out with the same sample as included in the epidemiological study (Chapter 3), found that although a high proportion of the refugees received support with employment, most refugees did not find the support particularly helpful (Zepinic, Bogic, & Priebe, 2012). This was despite the fact that the majority of refugees wished to have received or to receive in the future support with employment. This indicates that refugees generally want to work and have productive and self-sufficient lives. Refugees in this sample, in particular those who were highly educated, found financial support, such as welfare benefits, a welcome intervention upon their arrival to the country, but found it a disabling and counterproductive solution to integration in the long term. Instead they wished for qualification recognition and further education or retraining to better their chances of employment (Zepinic, et al., 2012).

Whilst employment may be one of the key determinants of the successful resettlement and psychological well-being of refugees, it is often dependent upon several other factors such as a recognition of legal status, access to language and vocational education/training, and a recognition of previous academic and professional qualifications (Cebulla, Daniel, & Zurawan, 2010; Jonker, 2004; Phillimore, et al,. 2007). In most European countries, refugees are not permitted to work as asylum seekers or could only apply for a work permit after a certain period. During the asylum procedure, opportunities to follow language tuition, vocational training or education, are often limited (Jonker, 2004). Some refugees may wait several years for a decision and in the process become long-term unemployed, with little opportunity to develop or use their skills and abilities. This long waiting period of uncertainty and inactivity can impact on their subsequent integration in society and work once granted refugee status

(Jonker, 2004; Phillimore & Goodson, 2001). Furthermore, even when granted refugee status and given permission to work, many refugees are unable to produce proof of previous qualifications and even when they can potential employers may not recognize their qualifications (Jonker, 2004; Hurstfield, et al. 2004; Korac, 2001; Rosenkranz, 2002). Additionally, lack of exposure to work limits refugees' socialisation with the host society and their opportunities to learn language (Beiser & Hou, 2001). For example, Beiser and Hou (2001) found that despite more refugee women attending language proficiency courses than men, women who remained at home and unemployed were less likely to master the language than men. Lack of language proficiency was a reason that refugee women's employment options were limited (Beiser & Hou, 2001).

Consequent to all these barriers, a great number of refugees across Europe face problems of unemployment, underemployment and downward mobility despite their high level qualifications and professional experiences. Unemployment, as well as afore-mentioned barriers to employment, is therefore an important issue to address in refugees resettled in a Western country, and it should be a priority for both local policy makers and therapists working with this patient group in order to help improve the integration process, mental health and the quality of life of these refugees. As this study suggests, keeping people in a welfare benefit "trap" and unemployed increases the risk of poor mental health and impaired quality of life, and prolongs and/or worsens prospects of recovery. Therefore, structural interventions should support early access to employment and avoid underemployment. Failure by governments to address these barriers to socio-economic integration can result in the marginalisation of refugees and impact negatively not only on refugees but also on society as a whole (ECRE, 2005).

Refugee well-being and temporary residence

Previous research on refugees from former Yugoslavia shows that in the early 1990s refugees experienced difficulties in obtaining permanent residence status in most of the receiving countries (Dimova 2006; Valenta & Ramet, 2011). As already noted in Chapter 1, most European countries initially granted refugees only temporary protection, but later moderated their policies and granted permanent residence status to the majority of refugees. Some countries, such as Germany, however never granted permanent residence to refugees and pressed the majority of refugees to return to their country once the war ended. The refugees in Italy were also granted only temporary protection but, unlike those in Germany, were never under threat of forced expulsion. Even in the countries that granted permanent settlement, such as the UK, this was usually done following months and years of asylum procedure. This study shows that the vast majority of refugees from former Yugoslavia continue to have only temporary residence status even a decade after their resettlement, at least in Germany and Italy.

Residence status is an important issue to address as was shown by the results in the present study: temporary residence status was a significant risk factor for mood and anxiety (including PTSD) disorders. Impact of temporary residence has been evidenced in other refugee studies too (e.g., Momartin, et al., 2006; Palmer & Ward, 2006; Steel, et al., 2006; Steel, et al., 2011). For example, a study comparing temporary visa holders with compatriot refugees granted permanent residence identified temporary visa status as the strongest predictor of anxiety, depression and particularly PTSD (Momartin, et al., 2006). In a longitudinal study, Ryan et al. (2008) found that only those who attained a positive legal status outcome by the follow-up assessment showed a decline in distress

level.

At the same time, no association was detected between PTSD recovery and residence status. This lack of association suggests that residence status may have had more effect in the beginning of the resettlement in the new country when it may be a powerful contributing factor to development of chronic PTSD. However, once PTSD becomes chronic, positive change in the residence status alone could not change PTSD status. This is also not surprising, given that majority of those with temporary residence have lived with this uncertainty for almost a decade, during which time those who really suffered because of it may have left the country, may have achieved the permanent residence status, or may have learnt to cope with it. Other studies have also shown that gaining a residence status may decrease the PTSD symptom severity but not to the point of clinical recovery (Drozdek, Kamperman, Tol, Knipscheer, & Kleber, 2013).

The experience of uncertainty surrounding their status means that for many months and sometimes years refugees live with a fear that they may be returned to their country of origin. Findings of a study by Basoglu et al. (2005) demonstrated that fears or threats regarding safety and loss of control over life were the most important facilitating factors for the development of PTSD among people from former Yugoslavia. Likewise, Laban et al. (2005) suggest that achieving security and improving the handling of the post-migration stress is a vital component of the treatment in refugees. The temporary nature of the protection status and persistent anxiety over the deportation possibility may be maintaining the post-traumatic stress reactions and keeping refugees in a state of chronic anticipatory stress (Palmer & Ward, 2006; Steel, et al., 2011). For example,

Bosnian refugees with a temporary protection visas in Germany were found to have experienced a "permanent state of anxiety" as a result of their temporary status (Luebben, 2003). A study of Iraqi asylum seekers in The Netherlands found that a long asylum procedure was a significant risk factor for a mood, anxiety and somatoform disorder (Laban, et al., 2004) as well as poor quality of life (Laban, et al., 2008). Likewise, the interplay between experiencing traumatic events and continued uncontrollable events in the resettlement, such as their residence status, may augment feeling of helplessness and increase levels of anxiety and depression (Gillespie, Peltzer, & Maclachlan, 2000; Palmer & Ward, 2006).

Apart from permanent uncertainty, temporary residence status is also an obstacle for successful integration as it often carries limited socio-economic rights, such as restricted or no employment and/or education rights, restriction on movement, inadequate accommodation (e.g. living in reception centres), limited health care rights, and restrictions on family reunification (Jonker, 2004; UNHCR, 2007). According to Ager and Strang (2008), key indicators of integration and successful settlement include ability to access adequate employment/education, housing, and health care services; assumptions and practice regarding refugee rights and citizenship; meaningful social connection with both family and like-ethnic group and the host community; and barriers to such connections, particularly stemming from lack of language and cultural competence. The link between poor mental health and absence of those indicators is evident in refugees with temporary residence status. For example, depression is more likely to be present in refugees with low income or receiving welfare benefits (Chapter 2), or in those who are unemployed (Chapters 2 and 3). As in this study (Chapter 4), low host language proficiency has been identified in many other studies as a predictor

of impaired quality of life (Matsuo & Poljarevic, 2011; Tran & Nguyen, 1994). Lack of social support both in terms of one's own family and wider society (e.g. unwelcome host society) has been shown to have an adverse effect on refugees' mental health (Chapters 2, 3, and 4). And as discussed earlier, unemployment is one of the key risk factors for a mood disorder (Chapter 3), poor SQOL (Chapter 4), and PTSD persistence (Chapter 5). Thus, long periods during which refugees are restricted from leading full and active lives as members of the new society may be damaging to mental health and provoke conditions such as depression, anxiety, dependency syndrome, lack of self-confidence, hindering employment and social skills after recognition (UNHCR, 2007; Zepinic, Bogic, & Priebe, 2012).

Strang and Ager (2010) suggest that the level of 'wantedness' by the host society is reflected in the resettlement regulations and support measures available to refugees. Temporary residence and all associated restrictions precluding social inclusion and integration of refugees might indicate to refugees that they are not fully part of the host society – they are outsiders, excluded from the core aspects of mainstream society- and that most of them will be eventually returned home. Such "non-integrative" resettlement policy may also emphasize the difference between "nationals" and "refugees" and make the wider society less welcoming and accepting of the refugees. This study showed that refugees in Germany, the country with the "strictest" and the least socially inclusive refugee resettlement policies refugee, had the worst outcomes in terms of mental health and SQOL. They also felt the least welcome/accepted by their host society. It is beyond the scope of this study to establish whether this feeling of unwelcome is based on the restrictive resettlement opportunities or on the actual negative experiences with the wider society. Regardless, the study findings suggest that feeling unwelcome by the

host society was a risk factor for both mood and anxiety disorders as well as for impaired quality of life. They also show that many refugees under temporary protection stay in the host countries for extended periods of time and that casting refugees into the role of "permanent outsiders" may impede their integration into the society and prolong and exacerbate mental illness and impaired quality of life.

Mental health and context of reception

Overall, the findings presented in Chapters 2, 3, and 4 suggest that refugee's 'choice' of a resettlement country had a considerable effect on how likely that refugee was to suffer from a mood disorder, PTSD or substance use disorder (Chapters 2 and 3) or experience impaired SQOL (Chapter 4), even a decade after displacement. In particular, the findings suggest that refugees residing in Germany were more likely to report having PTSD, a substance use disorder, and lower SQOL than refugees residing in Italy or the UK. Refugees in Italy were the least likely to report having a mental disorder, whilst refugees in the UK were the most likely to report a better SQOL. Therefore, the findings suggest that refugees resettled in Germany have particularly poor social and clinical outcomes.

As discussed in Chapter 3, some of these country differences may be explained by differences in both pre-migration and post-migration characteristics of the samples. For example, refugees in Germany appeared to have particularly dismal circumstances. They reported much higher rates of war experiences, particularly those of an interpersonal nature believed to be the most potent for onset and maintenance of mental disorders (e.g., Priebe, Bogic, Aschcroft, et al., 2010; Steel, et al., 2009). Furthermore,

they were also the most likely to experience significant post-migration difficulties, such as unemployment and inadequate accommodation. On the other hand, refugees in Italy tended to be younger, more often married or cohabiting, employed, more fluent in the host language, report less war experiences, and be more often veterans. Finally, whilst refugees in the UK had similar unemployment rates as those in Germany, they were the least likely to report experiencing post-migration stressors or not feeling accepted by their host community. These seemed to be important differences and predictors for different risks of mental disorders in the three countries, with post-migration factors, in particular unemployment and temporary residence status, having the largest impact on significantly increasing the odds of mood, anxiety or substance use disorders and war trauma increasing the odds of PTSD. Likewise, post-migration context proved to be of the greatest importance for refugees' quality of life. Accordingly, post-migration factors, in particular unemployment and temporary residence status, had the largest impact in reducing country differences in rates of mental disorders. However, the effects of the host country remained for mood and substance use disorders, PTSD, and SQOL even after an array of afore mentioned pre-migration and post-migration factors were taken into consideration in the analysis, suggesting that factors other than those already assessed in the present study may individually or in combination explain the observed country differences.

Ultimately, the findings indicate that refugees in Germany had the worst outcomes, both in terms of mental disorders and SQOL. Indeed, one of the reasons for such poor outcomes when compared to refugees in Italy and the UK may be more severe war traumatization of this particular cohort. Although this explanation cannot be completely rejected, it is difficult to explain why this cohort would be particularly traumatized as compared to refugees in the other two countries. In Chapter 3, it was suggested that this

may be due to the requirement of refugees in Germany to remember (and possibly, often with exaggeration) their past war experiences (Dimova, 2006; Kühne & Rüßler, 2000) and, thus, never being able to "leave" the past behind. Evidence shows that provision of opportunities to look forward rather than reiteration of painful past experiences helps mitigate mental health (Beiser & Wickrama, 2004). As discussed, the safest way of getting a residence permit and staying in Germany was by providing evidence of severe traumatization. Therefore, refugees who managed to stay in Germany despite the mass deportations during the 1990s may be mostly those who were suffering from a mental disorder and receiving a treatment. Another explanation for the highly traumatized sample in Germany could be that refugees intentionally presented more traumatic experiences and mental health problems hoping that this would increase their chances for a resident permit. In Chapter 5, it was argued that this explanation is unlikely since those with temporary residence status were as likely to recover from PTSD as those with permanent residence status. Moreover, assessment of rate of PTSD recovery for refugees in Germany who had their status changed during the follow-up period and those who had not, showed no difference between the two groups (27.2% vs. 27.3%, respectively; data not shown).

An alternative explanation for country differences could be the different resettlement conditions encountered by refugees in each country. This and previous research on refugees from former Yugoslavia indicate that the resettlement policies of receiving countries may be an important structural factor influencing well-being of refugees (Colic-Peisker & Tilbury, 2003; Eastmond, 1998). Some authors argue that of all the refugees from former Yugoslavia who tried to find refuge in the developed Western world, probably the most unfortunate were those who migrated to Germany (Koser & Black, 1999; Dimova 2006). Adverse reception procedures across the EU, including the

use of reception centres, payment in kind and voucher schemes, restrictions on work entitlements, and geographical restriction on movement, are explicitly geared to the "deterrence" and 'non-integration' of asylum seekers (Silove, et al., 2000). Significantly, Germany exhibits all of these features (Zetter, et al., 2002). Dimova (2006) argues that German reception/resettlement policies toward the refugees from former Yugoslavia have traumatized refugees. First, refugees struggled for years to renew their residence permits in Germany and lived under constant threat of detainment and deportation. Second, refugees were denied access to the labour market and further education or retraining, and after many years of unemployment a possibility of finding a job appropriate to their education and professional skills was virtually impossible (Dimova, 2006). In sum, these problems hampered their integration and prolonged and exacerbated mental disorders and reduced quality of life. In the present study, refugees in Germany saw resettlement conditions as particularly detrimental to their mental health (as reported elsewhere, Zepinic, et al., 2012). Uncertainty about residence status and associated fear of being deported, inadequate accommodation, restriction of movement and consequent feeling of being imprisoned by the government, general practice of payment in kind (food parcels and standard issue of items of clothing, often matching for all refugees in the centre making them recognizable), and unemployment and dependence on welfare benefits were noted by refugees as the most damaging to their mental health (Zepinic, et al., 2012).

Slightly better outcomes of refugees in the UK may reflect resettlement policies that are somewhat more geared toward integration of refugees into the wider society. For example, the majority of refugees were given permanent permission to stay in the country, usually in the form of citizenship, by the time the study took place. They also felt more accepted by their host society than did refugees in either Germany or Italy,

although overall they did not feel entirely accepted. Furthermore, only a minority of refugees in the present study reported having difficulties in obtaining a work permit, as they could apply for permission to work after six months in the UK (although, in 2002, asylum seekers had their right to work withdrawn). Refugees are supported through welfare benefits until they enter the labour market. Despite the fact that the refugees in the UK were permitted to work, high unemployment rates observed in this and other studies (Bloch, 2002; Priebe, et al., 2009) suggest that they seem to experience great difficulty in entering the UK labour market (Bloch, 2002) and that any existing government employment initiatives have been less than successful. The inability to find work and the consequent reliance on welfare may not be a temporary problem for refugees. For example, a study of the refugees from former Yugoslavia in the UK found that almost 80% were still on welfare benefits a decade after war and displacement (Priebe, et al., 2009). While the welfare may provide a safety net for the majority of refugees, there is also evidence that it does not encourage the development of social networks and is associated with low levels of labour market participation (Eastmond, 1998; Wren 2003), dependency and long-term unemployment (Clasen, Gould, & Vincent, 1997; Harrell-Bond, 1999), and poor mental health (Chung & Bemak, 1996). Correspondingly, refugees in the UK reported the highest rates of major depression and were under similar risk for mood disorders as refugees in Germany. As argued in Chapter 3, it is possible that long-term welfare dependency and unemployment may create passivity and "learned helplessness" and push refugees into an "aid-recipient" and sick role as their legitimate role in society (Harell-Bond, 1999). Such "passive" resettlement style is thought to be less successful in recreating the feeling of a "normal life" and one's personal competence and results in poorer integration in the host society (Colic-Peisker & Tilbury, 2003).

Conversely, Italy has a more "laissez-faire" approach to refugee resettlement, where welfare is perceived largely as a familial responsibility, and where services for refugees are largely provided by charities and voluntary organizations (Korac, 2001, 2003). As discussed in Chapter 1, refugees for the most part have not encountered any kind of organized reception system, but were immediately granted the legal right to work with their temporary residence permit to stay. The lack of a reception system compelled refugees to become self-sufficient and independent (Korac, 2001). Fewer barriers to the labour market may have helped foster the development of social networks with compatriots but also host society and greater independence among refugees (Korac, 2003). Thus, it could be argued, that the characteristics of the policy context in Italy provided opportunity for refugees from former Yugoslavia to actively approach their reconstruction of life in the new country. Furthermore, although the refugees in Italy mostly had a temporary residence status, it did not create excessive pressure on refugees by way of prolonged uncertainty about their right to stay or fear of expulsion (Korac, 2001).

This cross-country comparison is a particular strength of the current thesis. Several community-based studies reported on mental health and SQOL of long-settled refuge group(s) resettled in one country (Chapter 2), but only a few have compared mental health and SQOL of refugees from the same country of origin who have resettled in different countries (D'Avanzo & Barab, 1998; Priebe, et al., 2009; Warfa et al., 2012). Ultimately, cross-study comparisons of refugees residing in different countries have produced widely different prevalence rates of mental disorders but, so far, it has not been possible to disentangle whether these differences were true differences or just artefacts of sample and methodological differences of these studies (see Chapter 2). The findings of this thesis indicate that even for the refugees originating from the same

country, findings on prevalence rates of mental disorders and SQOL are context specific and should be estimated for each resettlement country separately (Chapters 3 and 4). Refugees in countries that had a more socially inclusive resettlement approach (e.g. provision of employment opportunities, more accepting host society, provision of more secure residence status) tended to report lower rates of mental disorders and better SQOL. Furthermore, the thesis showed that, while predictive models differ for different disorders, they are consistent across countries. This means that the same risk factors may be considered to estimate the risk of mental disorders in a similar group of refugees resettled in different countries. At the same time, these risk factors explained a rather small amount of variance in mental health status and mostly did not account for country differences, suggesting that other factors not already measured in the present thesis may further explain the country differences.

Summary

Unlike pre-war and war factors, post-migration factors have significant implications for refugee interventions given their role in the aftermath of trauma and the potential ability to manipulate these factors to prevent development and/or maintenance of mental disorders following war trauma and displacement. The findings of this thesis support the notion that provision of humane and effective resettlement services, including offering opportunities for work and language learning, clarifying refugee claims in a timely manner, and ensuring a more welcoming wider society should be of benefit to both refugees and receiving societies, in the short as well as long-term (Silove & Ekblad, 2002). However, most refugee assistance programs seem to fail to facilitate social interventions imperative for successful refugee adjustment (Westermeyer, Callies, & Neider, 1990). Instead, and as described in section 1.3. in Chapter 1, most

governments hosting refugees have resorted to adopting deterrence policies, based on restrictions and deprivations, including restrictions on movement, employment, housing, and health care, all of which have been found to adversely affect refugee mental health. One could speculate that by framing the "problem" within the individual (as a PTSD condition) and as a consequence of non-preventable war trauma, governments and wider society are absolved of the responsibility to address the socio-economic context that played a role in the development and/or maintenance of refugee psychopathology (di Tomasso, 2010). The improvement of long-term mental health in refugees is thus, to a large extent, a matter of the political will to make provision for the necessary changes regarding the reception and treatment of refugees.

6.2.3. Predictors of chronic PTSD and recovery

As debatable as the PTSD concept may be, the present thesis found plausible predictors of development of chronic PTSD and its recovery. The thesis findings indicated that overall about a third of those who developed PTSD following war recovered within the first 10 years (Chapter 3) and another third recovered during the one-year follow-up period (Chapter 5). In Chapter 5 it was noted that one must interpret recovery rates cautiously due to methodological shortcomings such as non-random sampling, poor response rates, recall bias, but also due to the fluctuating course of PTSD, which was not possible to address in the present study with only two assessment points and a sample consisting only of PTSD cases. Therefore, for the present sample it is not possible to establish whether the recovery was a temporary remission or a full recovery. Nevertheless, the findings across countries indicated that within-country recovery rates were similar across the two assessment points. There was some variation in recovery rates between-countries (between 27% and 50%), with the lowest recovery rates in

Germany and the highest in Italy for both time points. Similar recovery rates and similar between country differences were reported for former Yugoslavian refugees with untreated PTSD in Germany and the UK also 10 years following the war (Priebe, et al., 2009), which may corroborate the validity of the current findings.

Whilst several pre-war, war and post-migration predictors were identified for development of chronic PTSD (Chapter 3), only a limited number of war and post-migration factors was found to influence PTSD recovery (Chapter 5). Most of the factors that were associated with the development of PTSD were not associated with its remission and vice versa. War trauma was the strongest and the only common predictor for the development of and recovery from PTSD. Pre-war (older age, lower education) and post-migration factors (post-war traumatic experiences, post-migration stress, temporary residence, and host country) predicted development of chronic PTSD, whereas only employment at baseline predicted PTSD recovery.

Recent research has also indicated that there may be different variables associated with the development of PTSD as compared to the maintenance of the disorder. Schnurr, et al. (2004) examined the risk factors for PTSD among Vietnam veterans and found that the development of PTSD was correlated with pre-trauma, trauma and post-trauma factors; however, PTSD maintenance was related to trauma and post-trauma factors only. In another study of Vietnam veterans, PTSD development was found to be uniquely correlated with discomfort in disclosing traumatic experiences, while amount of community involvement and minority status correlated with the course of PTSD (Koenen, et al., 2003).

The above findings would, therefore, suggest that trauma-focused psychological and psychiatric interventions could help in prevention of development of chronic PTSD in refugees but also in their recovery. However, the present study provided no evidence that mental health interventions had any beneficial effect on refugees with a chronic PTSD diagnosis, which is in line with some previous research (e.g. Mooren, de Jong, Kleber, & Ruvic, 2003; Priebe, Jankovic Gavrilovic, et al., 2010). The findings also suggested that psychosocial interventions aimed at reducing post-migration stress might be beneficial to PTSD recovery. Employment was indeed related to PTSD recovery; however, other social interventions failed to have any effect.

Conventional mental health interventions have primarily been trialled with Western survivors of discrete traumatic events (e.g. assaults, motor vehicle accidents) (Spinazzola, Blaustein, & Van der Kolk, 2005). Concerns have been raised that such interventions may be limited in treating war refugees who have often been exposed to repeated trauma and are often in the situation of ongoing stress in a new environment (Basoglu, 2006). Furthermore, these interventions are predominantly trauma-focused and person-focused and as such tend to overlook the role of post-migration social and economic factors. One could speculate that lack of a holistic approach in addressing mental health needs of refugees upon arrival may contribute to the development of chronic PTSD as well as to the limited efficacy of current mental health interventions to alleviate chronic posttraumatic stress in refugees.

As noted in Chapter 5, recent reviews and meta-analyses invariably have concluded that the absence of high-quality data preclude any definitive conclusions being drawn about preferred therapies for refugees experiencing ongoing stress reactions (e.g., Crumlish & O'Rourke, 2010; Robjant & Fazel, 2010; McFarlane & Kaplan, 2012; Nickerson,

Bryant, et al., 2011; Tol, et al., 2011). At best, the data that exist provide provisional evidence supporting the use of trauma-focused therapies for the treatment of PTSD amongst refugees.

Many researchers have expressed their concerns about the current "one size fits all" approach when treating refugees due to the multiplicity of factors impacting within different refugees' experiences. These researchers argue that use of Western trauma-focused treatment approaches may not be applicable to refugees for whom current post-migration stressors often take precedence over their mental health concerns. Instead, they advocate for a more holistic approach that addresses psychosocial issues and focuses on socio-economic and cultural factors (e.g., Jordans, Semrau, Thornicroft, & van Ommeren, 2012; McColl, McKenzie, & Bhui, 2008; Ward & Palmer, 2005). In the UK, the Royal College of Psychiatrists have officially acknowledged that existing services in the UK do not meet the needs of refugees with psychological difficulties, mainly because of the lack of consideration of ongoing post-migration stressors as well as cultural issues (The Royal College of Psychiatrist, 2007).

Both refugees and therapists agree that the psychological, social, legal, medical, and economic aspects of the refugee's functioning are intertwined and need to be considered together, as opposed to assessing and treating only the psychological aspects (Mirdal, Ryding, & Essendrop-Sondej, 2012; Vrana, Campbell, & Clay, 2013). For example, in a qualitative study of a clinical sample of refugees, their therapists and interpreters, all three groups stressed the necessity of supplementing psychotherapy with psychosocial interventions, social support, and more didactic and systematic interventions (Mirdal,

Ryding, & Essendrop-Sondej, 2012). Lab, Santos and Zulueta (2008) also highlight how crucial social intervention can be in the early stages of therapy, particularly for refugees. They describe a phased approach to working with refugees, where the first phase involves provision of safety through psychoeducation, affect regulation, medication, the establishment of a cohesive support network and the building up of a good therapeutic alliance, for example by helping with practical issues, such as housing and immigration matters. The next phase is 'trauma remembering and/or processing' through evidence-based psychological therapies. The final phase is the reintegration phase where the patient reconnects with 'normal life' through engaging with previously excluded activities or people (Lab, et al., 2008). Several other authors have also argued that until current post-migration stressors are addressed the refugees are unable to focus on the actual therapy and recovering from war trauma (Ehntholt & Yule, 2006; Mind, 2009; Misra, et al., 2006). Unlike trauma-focused interventions, psychosocial interventions focus primarily on stressful post-migration socio-economic conditions such as loss of social networks and unemployment. It is argued that altering these conditions may foster refugee's inherent capacity to recover and cause improvement in symptoms among persons with and without specific disorders (e.g. Miller, Omidian, Rasmussen, Yaqubi, & Daudzai, 2008; Miller & Rasmussen, 2010; Rasmussen, et al., 2010).

Many researchers (e.g., Bala, 2005; Onyut, et al., 2004; Pumariega, Rogers, & Rothe, 2005; Weine, Feetham, et al., 2004) have argued for the need for cultural competence in the provision of services, as this would increase both the likelihood that such services would be utilized and their overall effectiveness. Some of the cultural issues identified by these researchers include tendency of Western therapists to conduct therapy in an

environment that connotes one has a "mental problem", which is highly stigmatized in some cultures; use of individual therapy that removes the refugee from his or her family or normal social supports, when in many cultures individuals primarily use existing personal social networks to solve personal and social problems; and failing to incorporate or at least recognize culturally-specific methods of healing. Development of culturally appropriate services should involve refugee community groups (e.g., McColl, et al., 2006; Palmer & Ward, 2006). However, there is little evidence of consultation with refugees themselves about their mental health needs (e.g., Ward & Palmer, 2005; Watters, 2001). Watters (2001) described a survey of the provision of mental health services for refugees throughout Europe and noted that consultation with refugees was found to be 'extremely rare'. Similarly, Ward and Palmer (2005) found that less than 50% of mental health trusts in London provide specialist services that are designed with the needs of refugees in mind and there was a general lack of awareness of the complex needs of refugees.

Encouragingly, several innovative intervention and treatment practices have been recently developed specifically for refugees and other war-affected populations both in low- and middle- income and high-income settings (e.g., Boothby, Crawford, & Halperin, 2006; Neuner, Schauer, Roth, & Elbert, 2002; Sonderegger, Rombouts, Ocen, & McKeever, 2011; Weine, et al., 2003; Weine, et al., 2008; Wessells, 2009; Wessells & Monteiro, 2006) and appear to be effective in reducing symptoms of PTSD (e.g. Neuner, Schauer, Klaschik, Karunakara, & Elbert, 2004; Neuner, et al., 2002;) but also other mental health (Scholte, et al., 2011; Sonderegger, et al., 2011) and social problems (e.g. Boothby, et al., 2006; Sonderegger, et al., 2011; Weine, et al., 2003; Weine, et al., 2008). Several promising treatment procedures that have been used with refugees are

holistic in nature (e.g., Bala, 2005; Sonderegger, et al., 2011; Weine, et al., 2003; Weine, et al., 2008), in that they apply trauma-focused treatment components in conjunction with culturally sensitive and culturally relevant knowledge and activities, as well as practical support with long term reintegration (e.g. legal support, community acceptance and forgiveness for child soldiers) and self-sufficiency (e.g., studentship, apprenticeship). Others, such as Narrative Exposure Therapy (NET), are adapted to specific traumatic experiences of war populations (e.g. Neuner, et al., 2002). For example, Neuner et al. (2002) reported success in reducing PTSD symptoms with Narrative Exposure Therapy (NET) in a severely traumatized Kosovan refugee, but also in other refugee populations (Neuner, Schauer, Klaschik, et al., 2004; Neuner, et al., 2010). Other promising therapies include therapies utilizing art therapy (Fitzpatrick, 2002) and group interventions focusing on empowerment and support may be effective in treating PTSD and depression in refugees (Curling, 2005; Kira, Ahmed, Mahmoud, & Wasim, 2010; Manneschmidt & Griese, 2009). It has been suggested that art therapies may be particularly successful in use with refugees because they mask the clinical nature of the therapist-refugee interaction, while group therapies may allow refugees to develop social supports and validate their common experiences in a less formal therapeutic setting (Begic & McDonald, 2006).

In the UK, "Therapeutic Casework Model" of psychosocial intervention has been developed by the Refugee Council specifically to meet the mixture of practical and emotional difficulties faced by refugees (Keefe & Hage, 2009; Refugee Council, n.d.). The model combines trauma therapy (e.g. NET) and practical help, which are presented together due to the circular nature of emotional and practical problems. Practical help involves advocacy (e.g., with legal, housing, employment, and health care services) and

practical advice (e.g., advice about rights and entitlements, services, the system in the UK). Whilst the model inherently appears promising, the model's effectiveness has not been evaluated to date.

Considering the importance of employment in PTSD recovery for the present sample as well as the association of employment with mental disorders among refugees in other studies (Chapter 2), it can be argued that clinical interventions focusing on facilitating employment of refugees would be beneficial to the PTSD recovery. Competitive employment rather than sheltered employment has previously been shown to enhance both vocational rehabilitation and recovery outcomes such as reduction in psychiatric symptoms, improved quality of life, satisfaction with vocational services, leisure and finances, and increased self-esteem (Bond, Drake, & Becker, 2008; Bond, et al., 2001). For example, evidence from a new study examining an evidence-based supported employment program called Individual Placement and Support (IPS) suggests that veterans with PTSD who participated in the program were nearly three times more likely to gain competitive employment than those who received a standard vocational rehabilitation program (Davis, et al., 2012). Despite the evidence that having a job protects and/or improves refugees' mental health and may even lead to clinical recovery (Carlsson, et al., 2006; Eastmond, et al., 1994; Kivling-Boden & Sundbom, 2002; Lie, 2002) and that employment schemes have positive outcomes in severely mentally ill individuals in general population (e.g., Bond, et al., 2001) and veterans (Davis, et al., 2012), the evidence on the effectiveness of employment schemes in the treatment of refugees suffering from a mental disorder is absent.

Several specific treatments have been evaluated in a few smaller studies with refugees

from former Yugoslavia and some promising treatment models have emerged. Weine et al. have recently developed some of the most creative and holistic approaches to intervention and treatment for refugees (e.g., Weine, Feetham, et al., 2004; Weine, et al., 2003; Weine, et al., 2008) and these may be the most promising for treatment of refugees from former Yugoslavia, such as those described in the present thesis. The researchers argue that most of the trauma-focused approaches focus on individual refugees and their mental health problems, in isolation from refugee's family and wider social network (Weine, et al., 2008; Weine, Muzurovic et al., 2004). In terms of the refugees from the former Yugoslavia, this may be a barrier to service use but also to therapeutic effectiveness, since people from former Yugoslavia view themselves as embedded in a larger network of family and community members, and primarily rely on their own families for support and guidance through social and emotional problems (Weine, et al., 2003; Weine, et al., 2008). In the present thesis, family relationships were seen as one of the strongest aspects of refugees' life (Chapter 4). Furthermore, mental illness was highly stigmatized in former Yugoslavia, probably because the treatment was mostly inpatient and outpatient mental health care was very uncommon (Mooren & Kleber, 2001). Thus, for most refugees seeking mental health services, even for trauma, was associated with the shame of being chronically mentally ill (Jankovic, et al., 2011; Weine, et al., 2000). Accordingly, in the present study only half of the PTSD sufferers reported being in contact with a mental health professional (Chapter 5). For these reasons, Weine et al. (e.g., Weine, et al., 2003; Weine, et al., 2008) argue for a multi-family oriented treatment approach that focuses on identifying strengths and competencies in family members or the unit as a whole. Examples of this approach are the Coffee and Family Education and Support for Bosnian Families (CAFES) intervention (e.g. Weine, et al., 2008) and TAFES intervention for Kosovan refugees (tea replacing coffee for cultural suitability; Weine, et al., 2003). These interventions

are community-based multi-family education and support interventions that are manualised and facilitated by Bosnian/Kosovan refugees themselves. Multiple family discussion groups aim to help families identify strengths and resources to help refugees overcome stressors associated with trauma and exile, increase refugees' awareness of trauma-related mental health issues, and to link refugees with resource organizations that will help them access needed care and services. A major benefit of these projects is that they build upon a natural strength within Bosnian/Kosovan culture (i.e., families), it empowers refugees by including them in their design and facilitation process, and allows refugees to address important mental health issues in a culturally non-threatening environment i.e. over coffee/tea in a community environment with their family, just as it has always been done in Bosnia/Kosovo. Whilst the intervention does not address directly trauma, the results so far indicate that participating families showed increases in social support, utilisation of mental health services, positive changes in trauma mental health knowledge and attitudes, and family hardiness (Weine, et al., 2003; Weine, et al., 2008).

Finally, it has been shown that testimony psychotherapy may also lead to the reduction of PTSD and depressive symptoms in refugees from Bosnia (Weine, Kulenovic, et al., 1998). Testimony psychotherapy is a brief individual psychotherapeutic method for working with survivors of state-sponsored violence, which aims to construct a detailed and coherent report of the survivor's life story, including an explicit description of the traumatic events. The written testimony created by the patient in cooperation with a therapist can also be used for documentary and shared with others.

As noted in Chapter 5, it is not clear what type of treatment approach was used to treat

refugees suffering from PTSD. However, data do indicate that just over half of those diagnosed with PTSD received mental health care during the one-year follow-up period. Of these, the vast majority (90%) received pharmacotherapy and mostly only consulted with psychiatrist (75%); only a minority reported seeing a psychologist/counsellor (12%) or being in psychotherapy (13%). It is possible that some of the innovative interventions described above may have been more effective in engaging the refugees into mental health treatment and treating posttraumatic stress. For example, culturally relevant multi-family therapeutic approach may have been particularly effective with this population. Yet, none of the refugees reported receiving any type of family therapy. Furthermore, considering the plethora of psychosocial risk factors recorded in the present sample, in particular unemployment and unresolved residence status, it is likely that psychosocial interventions focusing on improvement of these conditions may result in more positive results in terms of PTSD recovery but also other mental disorders.

6.3. Implications of the findings

The following sections will discuss the policy, clinical and research implications based on the findings presented in Chapters 3, 4, and 5. Overall, the findings from all three chapters suggest that increased risk for mental disorders and impaired quality of life in refugees even many years after war and resettlement may result from exposure to war trauma but also from ongoing adverse post-migration living conditions refugees experience in the resettlement countries. The findings also indicate that existing mental health interventions may be inadequate in treating PTSD in this population and that social interventions, such as provision of employment, may be more effective.

These findings emphasize the importance of policy makers in reviewing existing refugee resettlement policies with the aim of enforcing more socially inclusive policies so that the impact of social factors, such as unemployment and temporary residence status, is minimized. They also highlight the importance of adopting a more holistic approach when treating war refugees - an approach that takes into consideration both trauma and socio-economic concerns of the refugee being treated, in a culturally appropriate way. Finally, more high quality evidence-based research is needed on both long-term mental health needs of refugees and the most effective interventions to address these needs. The specific implications for each stakeholder will be discussed below.

6.3.1. Implications for policy

Risk factor analyses conducted in Chapters 3, 4, and 5 have shown the importance of post-migration stressors on refugee mental health and quality of life. It is evident that the government resettlement policies have a considerable impact on these post-migration stressors and, subsequently, on mental health, quality of life, and long-term integration prospects of refugees. Therefore, recipient countries of refugees could influence the post-migration challenges faced by incoming refugees by improving resettlement policies and their effectiveness in promoting long-term mental health of refugees.

As recipient country characteristics can differ considerably, in particular in terms of their resettlement policies and programs provided for refugees, the types of stressors that different refugee groups face once resettled may also vary significantly. In addition, the cultural and individual characteristics of the refugees themselves and their compatibility with the host culture and the nature of the resettlement program can impact the degree to which individuals experience stressors in the recipient country. The results of the present study on risk factors in culturally similar groups of refugees appear to be generalizable, at least across countries that share some cultural and political features as Germany, Italy and the UK do. Thus, policies for the provision of health and social care in each country can target similar risk groups.

Whilst the role of traumatic experience should not be overlooked when determining the mental health of refugees –the current thesis showed that war trauma predicts both onset of PTSD and other mental disorders and maintenance of PTSD- the present findings suggest that tackling the contextual circumstances of the refugee experience in

the host country may be more beneficial in preventing as well as recovery from a mental disorder. Specifically, resettlement policies aimed at improving social and material conditions of refugees by assuring more welcoming social environments and greater opportunity for employment may not only promote successful integration into the society but may also improve mental health and reduce use of specialized mental health care (Miller & Rassmusen, 2010) as well as physical health care. Inadequate reception as well as integration policies can exacerbate or perpetuate the effects of war trauma.

Therefore, host countries might benefit from sharing best practices on resettlement and integration of refugees. The EC Directive 2003/9/EC (the 'Reception Conditions Directive') laying down minimum standards for the reception of refugees in the European Union (EU) is seen as a first step towards the harmonisation of the conditions for the reception across the EU and development of high standards of protection for refugees. The Reception Standards Directive seeks to ensure that those seeking asylum within the EU will have a dignified standard of living for the duration of their asylum claim. Practically, the Directive regulates a range of material support including housing, food and clothing as well as non-material conditions for reception such as detention, education, vocational training and schooling, health care, employment and support for persons with special needs. Despite considerable efforts to harmonize reception conditions for asylum seekers in the EU, the adoption of Directive 2003/9/EC reflects domestic interests, producing a great variation in reception practices across and within member states (Rosenberger & König, 2012). For instance, research on the refugee situation in Austria, Germany, and the UK indicates no significant change to a long-term trend of reduced support for applicants, despite the obligations to implement the Directive (Rosenberger & König, 2012).

For the most part, current EU asylum policies have been restrictive, with the aim of deterring asylum seekers from reaching the EU borders and settling. Such policies include increased border controls, reducing access to welfare and employment, the dispersal of asylum seekers, a more effective 'removals' system for 'failed' asylum seekers, an increase in the detention, isolation and separation from family, and residence status insecurity. These policies are socially exclusive and create barriers for successful integration of refugees (ECRE, 2008). This approach highlights the inherent contradiction between EU refugee integration strategies and restrictive government policies that promote social exclusion of this population. For example, in the UK integration strategies focus on employment and, in particular, the employability of refugees. Yet, restrictive UK government policies, such as prohibited access to employment for the first 12 months as well as English language classes for the first six months, all negatively affect access to the labour market (Bloch, 2007). Whilst the government accepts that integration 'begins on day one', it also argues that integration 'in its fullest sense can take place only when a person has been granted refugee status so that they can make plans, including those for employment' (Home Office, 2005, p.14). The findings of the present study indicate that such a restrictive approach to refugee resettlement can have lasting and debilitating effects on refugees but also on the societies within which they resettle.

Based on the present findings, there are several key recommendations that can be made for policy makers: a) empowering refugees through socially inclusive policies, b) timely resolution of residence status and rights, and c) improvement of living conditions through facilitating access to the labour market, creating a welcoming society, and provision of host language courses.

Empowering refugees through socially inclusive resettlement policies

On a more general level, the current findings suggest that resettlement policies that encourage active participation of refugees in shaping their future and improving their circumstances in the new society lead to an overall more successful integration, better mental health and quality of life in the long-term. That is, in countries with more socially inclusive policies, such as provision of employment and permanent residence, refugees tend to fare better in the long term.

It is increasingly acknowledged that traditional refugee assistance policies have the potential to undermine the existing capacities of individuals to cope with crisis and to impede the refugee from actively participating in and taking control of their own lives (Berry & Sam, 1997; UNHCR, 2001c). This is particularly the case for refugees who stay displaced for an extended period. For example, UNHCR has suggested that the challenges of protracted refugee situations could be tackled "if refugees were given the chance to...make a positive contribution to their host country during their enforced exile", an objective that could be achieved through "a new strategy to shift the focus from provision of care and maintenance assistance to empowerment of refugees to attain self-reliance" (UNHCR, 2001c, p.2). Reports have shown that refugees' own goals largely match this view, in that they desire to contribute to the host society, rather than always being the recipients of government support and charity (Atfield, Brahmbhatt, & O'Toole, 2007; Phillimore, et al., 2007).

Furthermore, restrictive policies on education, accommodation, movement, and employment are functioning to socially exclude and marginalise refugees (Mind, 2009) but also to strip the refugees of the possibility to be active agents in the reconstruction

of their lives. Whether for motives of assistance or deterrence, the outcome can be development of dependency, involving a sense of loss of control and self-confidence, which over time may create "learned helplessness" and adoption of more passive coping strategies, a behaviour that may for some become relatively permanent (Berry & Sam, 1997). In contrast, policies that promote self-reliance and integration hold considerable promise in helping refugees create new meaningful roles in the host society, independence, social interaction and sense of belonging that are both personally meaningful and central to building durable solutions for refugees.

Thus, resettlement policies should be planned with the view that refugees may stay in the country for an extended period or even permanently. Policies and interventions facilitating settlement and full participation in the receiving society should address the issues of active integration in the community by promoting strategies for empowering refugees through self-reliance (e.g., employment, education and vocational schemes, language courses) and social inclusion (rights equity).

Timely resolution of residence status and rights

Government policy makers should consider an efficient residence status determination procedure. As shown in the present study, the majority of refugees reside in the host countries under a temporary protection even a decade after their resettlement. Living in a 'legal limbo' with continuing fear of repatriation prevents refugees from being fully participating members of their host society and provokes poor mental health.

A temporary legal status also often means restrictions in socio-economic and sometimes health care rights of refugees and, as such, can be one of the main obstacles to successful integration of refugees. For example, refugees may not be permitted to work or access education and vocational training until their asylum status is resolved, which promotes welfare dependency and hinders future employment. Berry (2012) argues that the perception of refugees as temporary residents reduces the incentive for refugees, society and the government to actively work towards their integration and that accepting the permanent nature of refugees will allow them to re-establish a life in the receiving state.

Thus, every effort should be made to grant refugees a secure residence status and residence rights in a timely manner, without compromising the quality of status determination procedure. Furthermore, it is recommended that refugees be given equal rights to social and health services as citizens, ideally upon their arrival.

Improvement of living conditions

The participants in the study reported significant difficulties in their socio-economic living conditions. This was particularly the case for unemployment (chiefly in Germany and the UK), poor host language fluency, unwelcome host society, separation from family, financial difficulties, and inadequate accommodation. Overall, the findings suggest that the higher the number of such post-migration stressors the more likely a refugee is to suffer from a mental disorder or impaired quality of life. The adverse impact of a number of these factors was evidenced directly in the analysis and the implications of these findings are discussed in more detail below.

Facilitating access to labour market

A high percentage of refugees in the present study were unemployed (51%) and this was particularly the case for refugees in Germany and the UK. Accordingly, the refugees were the most concerned with their employment status and financial difficulties. Even in Italy, where refugees had the lowest unemployment rate (26%), the unemployment rate was well above the average unemployment rate in Italy of 8% during the same period (OECD, 2012). As in the other two countries, refugees in Italy were also the least satisfied with their employment status and financial difficulties. Even though not directly assessed in the study, underemployment of refugees in Italy (e.g., Korac, 2001) could potentially explain their dissatisfaction. Further analysis showed that unemployment was one of the most important risk factors for mood disorder and impaired quality of life. Additionally, being employed was a significant factor in recovery from PTSD.

Access to employment has somewhat improved for refugees since the 1990s. Presently (May, 2013), asylum seekers in the EU countries should, as a general rule, have access to the labour market one year after they have filed an asylum application, which is in line with the Reception Conditions Directive. However, even if granted permission to work, refugees are often only entitled to do jobs that no other national or EU unemployed citizen can perform, or they may be entitled to do only a limited number of hours. The result of such restrictive employment policies is that most refugees are unable to find work and stay dependent on welfare benefits (Mansouri, Leach, & Nethery, 2009). In practice there may be other obstacles too. The temporary nature of

their visa, reluctance of employers to hire refugees because of their temporary visa and potential lengthy administrative procedures, a lack of familiarity with the host labour market, no access to English language classes, employment assistance programs, or vocational training, all severely limit the opportunity to find work (Bloch, 2007). In a study of refugee doctors, Stewart argues that it is crucial 'not to allow time to pass when people could become de-skilled because once in an unskilled position or on welfare it will become increasingly difficult to re-enter the medical profession' (Stewart, 2003, p.2009).

Therefore, restrictions on refugees' employment should be lifted at the earliest possible time of the resettlement. Ideally, access to the labour market should begin when a refugee files an application for protection. The work permit should pose no restrictions on type of work or hours permitted to work, with the employment rights being equal to those of the nationals.

Independent of the legal right to work, however, in all EU countries, including those where direct or early access to the labour market is granted, asylum seekers encounter great difficulties in finding employment and, if employed, are often underemployed. Given the many difficulties preventing access to the labour market, it is of crucial importance that EU governments undertake practical efforts to facilitate access to the labour market from the start of arrival, making resources for facilitation available, independent of whether the legal right is granted early on. Practical support could include provision of good quality information to support and inform refugees of what they are entitled to and help them to navigate the labour market, recognition of previous

experience and qualifications, access to higher education, provision of language courses, provision of vocational training and retraining, as well as employment schemes and placements. Likewise, creating awareness among employers of the skills and economic potential of refugees by providing more factual information on refugees' skills and qualifications, as well as information on the employment rights of refugees, would reduce discrimination on the part of employers. Support in these areas could make refugees more job-ready; a lack thereof could foster prolonged dependency on welfare assistance and reduce refugees' chances of recovering from a mental disorder. Dependence on welfare assistance also means high costs for the host country, which can also contribute to negative public opinion towards refugees and discrimination against them. Therefore, facilitating refugee's access to the labour market from the start of arrival is in the interests of both refugees and the host country.

Creating a welcoming society

In some European countries there is a distinct climate of intolerance and xenophobia towards refugees, demonstrated by the tone of the asylum and immigration debate in public fora and in the media. The development of an inclusive and welcoming society is a key pre-requisite to the successful integration of refugees (ECRE, 2005). The potentially negative impact of an unwelcome society is clear in the present study. Where refugees felt unwelcome by the host society they were more likely to report a mood or anxiety disorder and to report overall poorer quality of life.

Strategies to improve a host society's reception of refugees will require a multifaceted

approach, that will involve action by governments, politicians, the media and educational institutions. Governments and politicians should shift current debate focus on deterrence of refugees to a more positive focus on the need and value of refugee protection. They should aim to combat refugee myths by providing examples of the positive contributions refugees are making to countries of asylum.

Media efforts and widespread public awareness can be powerful approaches in combating negative stereotypes of refugees by ensuring an accurate and balanced portrayal of refugee issues. In the EU countries, it has primarily been left to non government organisations (NGOs) to combat discrimination against refugees. For example, 'Time Together Mentoring', a volunteer mentoring scheme run by the Refugee Council in London and Scotland, attempts to help refugees integrate better in the UK but also to create a positive experience of the host society by providing mentoring schemes (Time Bank, n.d.). 'Celebrating Sanctuary', in a festival setting, aims to explain refugee status, give an idea of life as a refugee and give positive experiences in respect of refugees to the wider community through music, dance and drama (Celebrating Sanctuary, n.d.). 'The Refugee Awareness Project' (Get The Facts About Asylum) aims to raise awareness within the host communities of the reality of being a refugee in the UK (Refugee Action, n.d.). Volunteers and project coordinators give interactive workshops and talks in schools, museums, places of worship, sports clubs, offices, and wherever they are invited. Their free sessions are designed to help the audience learn to distinguish fact from fiction about refugees and to give people an opportunity to ask questions about refugee policy and refugees' experiences in the UK. An interactive approach to improving the relationship between the host society and refugees is also adopted at the *Centro Interculturale Mondinsieme* in Reggio Emilia in

Italy (Comune di Reggio Emilia, n.d.). This Centre offers an open space that facilitates contact between native residents and newcomers (including refugees) where they can exchange ideas and generate dialogue about the changing face of Reggio Emilia society. The Centre publishes a regular column in the local paper highlighting the achievements and day-to-day positive contributions of new immigrants to the local society. While these initiatives have proven to be beneficial to improving the relationship between refugees and the host population, they are mostly implemented on a small scale. In order to affect wider society, the EU governments and media should implement effective non-discriminatory information and integration campaigns nationally (Berry, 2012).

Educational institutions can also play an important role in informing individuals about refugees and shaping more positive attitudes of individuals and public perceptions. School-based programs that endorse the multicultural curricula approach and the anti-racist approach have been shown to lead to more positive attitudes of children towards refugees (Turner & Brown, 2008). UNHCR also recognizes importance of education in creating a more welcoming host society and provide a wide range of educational materials, ranging from lesson plans, teacher manuals to videos and teaching toolkits (UNHCR, UNHCR Educational Resources for Teachers , n.d.)

Provision of host language courses

Language ability is vital for both social and economic aspects of resettlement and integration (Beiser & Hou, 2001). In the present study, poorer host language was associated with impaired quality of life. This is not surprising given that without the ability to communicate in host language, all other tasks, such as interacting with the

host community, accessing public services and entering gainful employment, become more difficult or impossible. It is likely that host language proficiency indirectly affects the mental health of refugees by compromising factors that are known to affect mental health, such as employment, social interaction, and feeling accepted by the host society.

Despite the existing evidence on the benefits of acquiring proficiency in the host country's language, many EU countries fail to provide language courses to newly arrived refugees. The recent restriction on all asylum seekers in the UK preventing them from accessing free English courses prior to them being in the UK for six months is an example of a resettlement policy that may potentially be counterproductive to both refugees and the host society. Such policy may subsequently deter refugees from taking host language classes as they will become accustomed to living in the country without speaking the language, it will take them longer to fully engage with the host society and to find meaningful employment, and generally undermine their efforts to integrate. Because of the poor language and inability to find employment, they are more likely to become welfare dependent (or at least until they are given the opportunity to learn the language) and potentially be at risk of poor mental health and impaired quality of life. As such, they are also likely to utilize more frequently health and social care services of the host country. In such a way, it can be argued, the host country is not only losing the socio-economic potential offered by incoming refugees but is also creating a highly dependent population.

Some EU countries provide language courses for asylum seekers, arguing that this is important to enable their participation and integration in society regardless of the outcome of their asylum procedure. Unfortunately, most EU countries exclude asylum seekers from language courses until their asylum status is resolved and they have been

legally accepted as refugees (ECRE, 2007). Bearing in mind that most refugees remain in the host country for years, if not permanently, and the socio-economic advantages of the host language fluency, refugees should be granted access to the host language classes free of charge. Language courses should generally be provided upon start of the asylum procedure.

Implementing the above recommendations in the current asylum policy may not only be beneficial to refugees but also to the host society, especially in terms of having more effective long-term refugee resettlement that results in enhanced productivity and ultimately, reduces the burdens and costs to the current health and social care. Facilitating a positive resettlement process and actively addressing post-migration stressors early in the immigration process can help to ensure that refugees will become contributing members of society in the long term (Beiser & Hou, 2001).

6.3.2. Implications for clinical practice

Considerable resources on the treatment of war-refugees are currently being expended across the world and the clinical need is unlikely to diminish in the near future with no visible sign of decline of wars and armed conflicts. The findings of this study suggest that there is a need for treatment services for a considerable minority of refugees even many years after the war experiences and resettlement. High rates of mental disorders may warrant screening programmes in primary care to identify those in need of treatment.

Whilst the data indicates recovery for a large number of refugees who still suffer from PTSD many years after experiencing war, they provide no evidence in support of a

wider implementation of existing psychiatric and psychological treatments for refugee patients with PTSD several years after the war. Furthermore, whilst the thesis was unable to establish a relationship between social care interventions and symptom improvement, the finding that social factors such as employment are strong predictors of mental disorder incidence and recovery suggests that a focus on improving socio-economic conditions and societal integration has the potential to be important in symptom resolution. However, it is unclear whether existing social care interventions are effective, and they may need to be improved to better cater for the refugee context.

Holistic approach to treating refugees suffering from a mental disorder

Addressing socio-economic factors within a clinical context

Whilst great emphasis is placed on a trauma-focused approach addressing mental health needs of refugees, clinicians need to be aware of the significance of contextual factors. The present findings suggest that traditional trauma-focused mental health interventions that focus narrowly on improving posttraumatic stress symptoms are likely to be less effective, if not detrimental, than more holistic interventions that address the impact of both trauma and daily socio-economic stressors on refugees' mental health and their overall psychosocial well-being. Specifically, the data suggest that effective interventions are likely to be those that focus on helping refugees gain a meaningful employment and enhance social support networks, which may be of greater relevance to a refugee patient. Clearly, the complex socio-economic needs of refugees range far beyond the traditional remit of clinical interventions. However, if clinicians are to ethically approach the treatment of refugees, it is necessary for them to adopt a more holistic focus in service provision than that to which they are accustomed.

First of all, clinical treatment of refugees requires that clinicians understand and address daily stressors confronted by the refugees. A provision of compulsory training to all relevant clinical staff on understanding the refugee experience as well as potential solutions to some of the practical issues they face would be beneficial not only to the improvement of refugee's living conditions but also to effective engagement in mental health treatment and more positive treatment outcomes. During the early stages of treatment the focus may have to be on ensuring that basic needs are being addressed, such as solving residence status and financial problems (Ehntholt & Yule, 2006; Lab, et al., 2008). The clinician's strategy may include acknowledgment and discussion of the impact of these factors on the client's mental health but may also involve more practical help and advocacy, such as writing and presenting legal reports for clients as evidence supporting their claim towards asylum status. Findings of this study suggest that help in finding avenues into employment and in developing social networks and support should be key parts of a mental health care plan and should improve the treatment outcomes. Particularly for depression and PTSD, there may have to be an emphasis on managing these social factors, such as support through engagement with local communities and employment schemes. Information on host language classes and identification of local as well as refugee community groups that will provide social support to the refugee client are also vital.

Second of all, given the numerous socio-economic stressors refugees may be experiencing and the breadth of expertise that holistic interventions are likely to entail, it may be necessary for clinicians to liaise with and facilitate referrals to various statutory and non-statutory agencies whose services are more appropriate for the problem. Specifically, it may be necessary to foster multi-disciplinary collaboration that

will support trauma recovery but also social recovery of refugees in their new country. Strategies that might be helpful in addressing the refugees' needs better include strengthening of collaboration between health, social, voluntary, legal and refugee community services. Access to social workers, support workers or advocates who can assist refugees with their daily needs and concerns and provide them with greater support in accessing social resources need to be more widely available if refugees are to be adequately supported. These professionals may provide stability so that the refugees can later address their mental health needs with a trained clinician.

At the same time, evidence also suggests that integrated services that are provided at the same location, and preferably in a non-clinical context, may be even more efficient. For example, Cook, et al. (2005) found that when clinical and vocational staff worked together in multidisciplinary teams at the same location using a unified case record and regular meetings, participants were more likely to work competitively and work longer hours. Citing the evidence from a new study examining evidence-based supported employment for veterans with PTSD, the study authors suggest that community mental health providers consider an employment specialist as part of the multidisciplinary treatment team to promote recovery for clients with PTSD (Davis, et al., 2012). Although this treatment approach was not specifically developed for refugees, it can provide guidance to clinicians working with this population. In the situations where refugees are not allowed to work, they should be given opportunities to engage in activities that combat isolation and boredom (e.g. providing activities such as art, music, physical exercise, etc.) (Palmer & Ward, 2006). A one-stop service, such as the "Therapeutic Casework Model", may be particularly helpful to refugees who are generally at the disadvantage of understanding how the host country system works and

who frequently have had their trust in others shattered. Working with the same clinician/team can help refugees form meaningful relationships and establish trust (Kinzie, et al., 2012).

Identifying and addressing socio-economic concerns of refugees ensures that the intervention aim is in alignment with the needs and priorities of the refugee client. This can lead to the creation of a trusting and safe relationship between a refugee client and clinician (Ehntholt and Yule, 2006), which is of central importance in addressing issues of mass traumatization in refugees (Kinzie, et al., 2012). Once basic needs for safety and trust are met, refugees are more likely to engage successfully with mental health treatment (Ehntholt & Yule, 2006; Mind, 2009; Misra, et al., 2006).

Mental health interventions focusing on trauma

Resolving the socio-economic situation may sometimes be enough for refugees to recover or, at least, provide them with a space to focus on their war trauma and recovery therapy. Whilst the evidence of a positive impact of psychiatric and psychological interventions was not observed in the present study, these interventions could still be important in addressing PTSD. Clinicians should screen for PTSD symptoms in refugees and, if present, should aim to address them since they are associated with a lower SQOL. However, existing psychiatric and psychological interventions may not be effective and could even be harmful if delivered without attention to the nature of the trauma and the refugee context. The innovative therapeutic approaches briefly described in the discussion seem promising for use among refugees such as those in our sample. Community-based multi-family treatment models may be

particularly culturally appropriate and may have some therapeutic benefits in trauma recovery, including increase in social support and access to mental health service use (e.g., Weine, et al., 2008). Given the adverse interpersonal effects of PTSD, family based treatments are also conceptually compelling. Trauma-focused therapies, such as NET and testimony therapy may be more successful in reducing PTSD symptoms in this population than traditional trauma treatments (Neuner, et al., 2002). While these emerging approaches offer promising new conceptualizations of treatment of refugees, they lack the data that would allow a conclusive evaluation of their effects in this population. The published evidence is based on case reviews (Neuner, et al., 2002), pilot studies (Weine, Kulenovic, et al., 1998), and small empirical evaluations (Weine et al., 2003, 2008). The absence of evidence on their effectiveness does not invalidate these interventions but rather indicates the need for further evaluation through rigorous experimental design and the use of randomized control groups. Development of culturally appropriate interventions also requires a greater long-term involvement of refugees and/or their representatives in service development and evaluation of service provision.

As noted in the final discussion, depression was as common as PTSD among refugees from former Yugoslavia and there was a high comorbidity between the two conditions. First, this finding indicates that depression should not be considered as a marginal condition compared to PTSD, which is often the case in the trauma-focused mental health field. Focusing on trauma during the therapy may miss the symptoms of depression and lead to a further sense of loss and depressed mood (Kinzie, et al., 2012). Second, whilst present study failed to find association between the comorbidity of PTSD with depression and later PTSD recovery, other studies have shown that the comorbidity is likely to impact upon the treatment outcome unless it is identified and

addressed (Green, et al., 2006; Kar, 2011). Comorbid PTSD and depression is associated with greater disorder severity (Kessler, et al., 2005), higher health service utilization compared to those with individual conditions (Kramer, Booth, Han, & Williams, 2003), and different treatment response (Green, et al., 2006). The consensus guideline for PTSD (Foa, et al., 1999) has suggested that the presence of depression should change the treatment practice for PTSD. A more recent study (Strachan, Gros, Ruggiero, Lejuez, & Acierno, 2012) showed that a modified approach to delivering behaviour therapy for comorbid PTSD and depression in war veterans could produce significant results. The assessment for depression and PTSD comorbidity may help identify those in need of more complex treatment and consideration of distinct clinical aspects of a comorbid condition might help improve specific intervention strategies for this population (Morina, et al., 2013).

Therefore, clinicians should consider a) holistic perspective encompassing both trauma and post-migration stressors, b) evaluation of interventions currently designated as efficacious for the treatment of PTSD for their capacity to effectively treat war refugees, who often suffer from more complex symptom presentation, including severe comorbid psychopathology, c) making modifications to existing approaches to address the specific nature of war trauma and refugee culture and context - research is needed to establish what those modifications should be, d) further evaluation of alternative culturally sensitive treatment approaches that were developed with and for refugees (e.g., multi-family therapy), and e) screening for comorbid conditions such as depression and other anxiety disorders and considering how those may affect treatment.

Other clinical implications

The results of the present study support an association between PTSD and a higher rate of health service utilization and suggest the potential importance of screening for PTSD in medical clinics as well as increased collaboration between primary and specialized physical care and mental health care professionals.

Finally, for those with ongoing PTSD, and probably treatment resistant PTSD symptoms with a relatively poor prognosis, clinicians should focus on symptom managing techniques and broader coping strategies to help them improve their functioning and overall quality of life.

6.3.3. Implications for research

The findings of the present study have several implications for further research in this and other refugee groups residing worldwide. Firstly, studies on refugees in general, and the present study included, face difficulties with accessing refugee populations to participate in mental health research, which force researchers to make certain concessions in the interest of advancing knowledge about refugees' mental health. This makes snowball sampling appealing. However, obtaining a random sample of refugees is the ideal method if one is to ensure a valid, reliable, and generalizable assessment of mental health consequences of war and migration. The difficulties in achieving this in practice seem to be partly inherent to the phenomenon itself rather than being a failure of the methodology (Jancovic Gavrilovic, et al., 2010). Accessing a random sample of refugees is often limited because of the legislation and research regulations prohibiting researchers' access to personal data without a prior consent, such as Data Protection Act

1998 in the UK (see Chapter 3). These legislations aim to safeguard individuals from any unwarranted distress that may be caused by invasion of privacy. While these concerns are important, it should be pointed out that in order to inform an appropriate public health response to the mental health needs of refugees it is necessary to know the prevalence of mental disorders in this population. To do that, it is necessary to have representative samples and high response rates and, thus, access to refugee population data. The present data indicate that adverse events and distress in this type of research are extremely rare. In fact the findings suggest that there is a tendency to overestimate refugees' distress and underestimate their positive experiences from study participation. Furthermore, only few people complained about being contacted directly by a researcher. Taken together, these data support the argument put forward by other researchers (Iversen, Liddell, Fear, Hotopf, & Wessely, 2006) that it is necessary to grant researchers access to personal data to enable them to contact people for consent when conducting epidemiological research that can also help the community at large.

Even though random sampling may not be practicable until the research regulations are changed on accessing personal data, on the basis of the present research it can still be concluded that there are disabling mental health problems that disproportionately affect these populations and that need to be researched. One possibility is to focus more on qualitative studies in exploring the subjective views of refugees as well as of mental health professionals about mental disorders and the perceived effectiveness of different forms of treatment. Another possibility is to combine random and snowballing sampling methods as they may be complementary in studying posttraumatic stress in refugees (Jancovic Gavrilovic, et al., 2010).

Secondly, longitudinal research is needed to study long-term mental health of refugees, assess changes in mental health over time and identify factors that predict positive change. Such studies would preferably start the assessment upon the refugee arrival into the country and follow-up for periods longer than the initial resettlement phase, for example longer than five years. The existing longer term longitudinal studies have all been conducted with Southeast Asian refugees in the United States, but other refugee populations in different contexts should be assessed if a generalizable data is to be acquired. Longitudinal studies would also help disentangle the potentially bi-directional effects of post-migration living conditions and mental health in the long term. Given the evidence of a gap between mental health needs and service use for long-settled refugees, it would also be of interest to examine longitudinal relationships between social and health care service use and mental disorders other than PTSD. Whilst the findings suggest no relationship between service use (other than mental health care) and PTSD in refugees several years after war and migration, it is unclear what effect these interventions (including mental health care) would have on refugees' mental health if received earlier on in resettlement.

Thirdly, while the present study identified several risk factors associated with mental disorders and PTSD recovery, the variance explained by these predictive models was relatively small. This raises questions regarding factors that may account for the remaining variance. Future research should assess for other factors that may contribute to the predictive models. For example, several risk factors, such as cognitive responses to traumatic events (Bryant & Guthrie, 2007; Ehlers & Clark, 2000), previous psychiatric diagnosis and a family psychiatric history (Brewin, Andrews, & Valentine, 2000; Ozer, et al., 2003), were all found to be associated with PTSD in general population, but have not been specifically investigated with refugee groups. An in-

depth qualitative study of a group of refugees with similar socio-demographic characteristics and a high degree of war experiences but with varying mental health outcomes i.e. a group that never had any posttraumatic symptoms, one that has always had some symptoms, and one that had initial symptoms but now recovered, could help explore why and how some people develop post-traumatic stress in response to war experiences and others do not, and why and how some people overcome initial symptoms of posttraumatic stress following war, drawing on their own views and explanations. It would further help to understand how people with positive long-term outcomes overcame initial symptoms. Both quantitative and qualitative in-depth studies may be also required to understand the long-term impact of specific war experiences on mental disorders and eventual recovery.

Fourth, while the present results provide evidence of heterogeneity in prevalence rates of mental disorders across countries, they also raise questions regarding factors that may account for the observed differences. The predictive models for the same disorders were consistent across the countries but did not fully explain country differences. Therefore, to estimate the mental health needs of refugees (even those coming from the same country), researchers need to establish rates of mental disorders for every refugee group separately. The findings of cross-country similarities and differences observed in the present study should be confirmed in other studies of refugees coming from the same region that had resettled in different countries. As host country characteristics and resettlement policies can differ considerably, future research may explore the impact of the recipient society further with more specific measures of social and economic inclusion.

Fifth, developing evidence based interventions in mental health care of war refugees should lead to more effective and appropriate treatment of this population. Refugee groups should be involved in all stages of the intervention process, from the conceptualization and development to implementation and evaluation. The recent proliferation in treatments of traumatized refugees suggests that researchers are beginning to address the need to develop and evaluate alternatives to the existing trauma treatment models developed for victims of civilian trauma in the high-income Western countries. While there are numerous innovative treatments emerging, empirically validated evidence of their efficacy is overall lacking. However, culturally sensitive interventions that include both trauma-focused and psychosocial elements appear to be particularly promising. Trauma-based treatments developed specifically for refugees, such as NET, have the strongest preliminary evidence. Other holistic treatments, such as community-based multi-family therapy, Therapeutic Casework Model, employment schemes (e.g., IPS) lack good quality empirical evidence of their efficacy but are nonetheless conceptually compelling. There has also been a myriad of emerging PTSD treatments in high-income countries that are not specific to refugee populations but which show promise in treating PTSD. Some of these are interpersonal psychotherapy, behavioural activation, trauma management therapy, mindfulness, and several internet-based and pharmacological treatments (for a full review see Cukor, Spitalnick, Difede, Rizzo, & Rothbaum, 2009). To determine the efficacy of such interventions, randomised control trials are required. Once the treatment efficacy has been determined, the treatment should be 'tested' in the 'real life context', which is particularly important for refugees who come with varying levels of trauma exposure and who are exposed to variety of resettlement stressors.

Sixth, the discrepancy between participants' perception of helpfulness of social and health care interventions and the actual effect of these interventions on PTSD recovery was a very interesting finding in the present study. That is, although the interventions were perceived as helpful they did not seem to impact on mental health outcomes of refugees. This needs to be explored further. In particular, helpful components should be identified to develop potentially new effective interventions for refugees. Again, to better understand the needs of refugees and identify components that refugees find effective, refugee groups should be involved from conceptualization and development to implementation and evaluation of the intervention.

Finally, researchers have for the most part focused on identification and measurement of psychopathological responses. Yet, it is important to acknowledge that the majority of those affected by potentially traumatic events do not inevitably develop adverse psychopathological reactions and some of them even report benefiting from their experience (Bonanno, 2004; Fontana & Rosenheck, 1998; Kopinak, 1999). For example, Kopinak (1999) reported that a sample of Bosnian refugees in Canada was experiencing positive health and function, largely due to interactions between life events and cumulative personal, psychosocial, and cultural characteristics over time that modified the risks associated with war trauma and forced displacement. It is argued that a pathologising perspective on refugees' mental health may increase access to needed services or benefits by bringing attention to the predicament of refugees, but may also overshadow the considerable resilience and innate strengths of most refugees in the face of extreme discrete psychological and social challenges (Ager, 1999; Summerfield, 1999, 2000; Watters, 2001). Whilst it is important to recognize mental health needs of refugees and provide culturally appropriate and effective services when needed, this 'external' support should be designed in a way that strengthens refugees' resilience and

facilitates their existing coping strategies. Research may learn about resilience from those free of mental illness but also from those with ongoing mental illness who may be nonetheless managing to cope.

6.4. Conclusion

This thesis provided a new insight into refugee mental health, because it addressed the six deficits in the literature: first, the data used was from a non-clinical sample; second, the sample had been comprised of individuals who had experienced their last war trauma approximately 10 years prior to the research taking place; third, the analysis was specifically directed toward identifying the impact of pre-war, war and post-migration factors on mental health outcomes; fourth, the study also considered a non-psychiatric form of well-being i.e. SQOL; fifth, the results gave an insight into the possible impact of different resettlement contexts on a refugee population with similar cultural background and war experiences; and sixth, it included people with persistent PTSD who have often been excluded from the selective research samples and prospectively identified factors and interventions that might be associated with PTSD recovery after so many years.

The study addressed a subject that is of great practical relevance to Western European countries which are hosting a large number of refugees. These countries need systematic empirical data to advance their mental health and social care systems in order to care for refugees with PTSD and other mental disorders. The study provided such data and listed several implications relevant to creating guidelines for best practice in refugee care.

Most importantly, the study developed models for predicting mental health outcomes in refugee populations over a long period of time. The resulting models can, to some extent, form a basis to anticipate long-term service needs and costs in future refugee populations in European countries and possibly elsewhere. Moreover, this is the first

large-scale study to develop predictive models for mental health outcomes in war refugee populations from the same region that resettled in different countries. The comparison of predictor models between countries provided information on generalisability of the prediction of needs in refugee populations from one resettlement country to another.

This is the first study that empirically tested the relative contribution of social and health care interventions to PTSD recovery. The findings are important not just for policy planning, but also for directing future research activities.

The study investigated in retrospect a period of approximately 10 years that have elapsed since the war experiences of many refugees. This period of time is long enough to assess long-term outcome and service needs, whilst at the same time short enough to find a sufficient number of participants who can remember the events and whose mental state is not too much affected by old age complications. Also, the cultural difference between Western Balkan countries and Western European countries is relatively smaller than between the countries of origin of other refugee groups and European countries. All these factors make refugees from Balkan countries an ideal group for systematic research of the long-term outcome of posttraumatic stress and the role of social and health care interventions in influencing it. Thus, the study provided the chance to develop a model for predicting service needs of refugees, which is highly relevant for Western European countries that are likely to host further refugee groups in the future. Even if the model cannot be directly applied to predict precise service needs in other specific future refugee populations, the results outlined some mechanisms and important factors that may be applied to understand and anticipate long-term mental health problems and service needs in further refugee populations.

From the results of this thesis and the above discussion, some general conclusions can be drawn: First, there is a need for a more methodologically consistent and rigorous research on mental health of long-settled war refugees. Second, the existing evidence, including the present study, suggest that a large proportion of war refugees may suffer from a mental disorder even several years after a war experience and resettlement, which may be due to both war experiences and social and material conditions in resettlement. Third, whilst the predictive models for each disorder are consistent across resettlement countries, they do not explain the country differences. Therefore, the prevalence rates of mental disorders, even for a very similar group of war refugees, may be context specific and need to be established for each resettlement country separately. Future research should identify what other factors may account for these differences. Fourth, existing social and health care interventions aimed at helping refugees recover from their war trauma and displacement may need to be modified to better cater for their needs. Empirical evidence on the effectiveness of both social and health care interventions on mental health of refugees is still widely lacking and sufficient resources should be allocated to rigorous efficacy research. New interventions should promote employment and societal integration of refugees and, therefore, support them in building the 'normal life' that they once knew.

Appendices

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Appendix A:

Baseline letter of invitation and consent form

A-1

Baseline letter of invitation and consent form

Barts & The London School of Medicine and Dentistry

Queen Mary, University of London

Invitation to Participate in a Research Project

Components, organization, costs and outcomes of health care and social interventions for people with posttraumatic stress following war and conflict in the Balkans

We invite you to take part in the research which we think is very important. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take enough time to decide whether you wish to take part in this research. We thank you for reading this information.

What is the purpose of this study? We want to find out more about what health care and community based services are used by people that have experienced psychological stress of war and migration related to conflicts in the Balkans, and more importantly, how helpful different services have been in alleviating possible psychological stress. We believe that our research will yield insights into strengths and weaknesses of different health care and community based interventions. This knowledge will help design more effective health and social care policies for people with posttraumatic stress.

Why have I been chosen? We would like to ask you to participate in the research if you have experience of war and migration related to conflicts in the Balkans, and are between 18 and 65 years of age.

Do I have to take part? It is up to you to decide whether or not to take part. If you decide to take part, we will ask you to keep this information sheet and to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What will happen to me if I take part? If you decide to take part in the research, we will ask you about stressful events you have experienced (what were these events, when they happened, what was your reaction), whether you have suffered or are suffering from any psychological difficulties since the war and/or migration, about medical and social interventions you may have received since the war and how helpful they have been, and about your quality of life (how satisfied are you with your life as a whole, with friendships, accommodation, with your employment etc.).

What you will tell us is very important and covers a number of topics, thus an interview may last up to 2 hours. In the course of the interview you can make breaks, you do not have to answer all the questions if you do not wish and you can stop the interview at any time.

The researcher that will talk to you is _____(*place of birth* _____). If you would like to know the ethnic origin and/or religious beliefs of the researcher we will provide you with the information before the interview.

If you do not wish to be interviewed by this researcher, other researcher from our team that speaks Bosnian/Croatian/Serbian (or Albanian) will talk to you (if you wish that can be a researcher who speaks English only and interview will be conducted in English).

If you consent, part of the interview that refers to use and effects of the health care and community based interventions will be tape-recorded. If you do not want this part of the interview to be tape-recorded, a researcher will take notes.

We will contact some people again in 12 months time. We do not know now which people we will contact. If we do contact you again, we will ask again for your consent.

What are possible benefits and disadvantages of taking part? You may value the opportunity to reflect on your experiences concerning the war and/or migration, as well as the medical and social help that you may have received since. It will give us important information on how to improve our services so that people in similar situation could receive more effective help. There is a possibility that you may find discussing stressful /traumatic events distressing. For this reason, you may stop the interview **at any time and you can refuse to answer any question**. We will also give you information if you feel you need some kind of psychological help because of your traumatic experiences. If this is the case, the best way is first to contact your GP and s/he will refer you to the adequate service. We will provide you with a list of specialised services throughout the country that may be helpful to your GP. Some of these services you may also contact directly.

If you wish, a friend, relative or any person of your choice can be present during any interview.

Where will the interview take place? The interview will take place at our Unit (Academic Unit, Newham Centre for Mental Health) or at the office of your community organisation or social service. However if this is not convenient, we can arrange interview at your home or at any other place that is convenient for you (i.e. coffee shop).

Will my taking part in this study be kept confidential? All the information during the study will be strictly confidential. The only people who may see information about your part in the study are the research team. If you require any more information about the study you may contact *Professor Stefan Priebe*. Your name will not be in any information that leaves the team base so that you cannot be recognised from it. If your interview is recorded on tape (without your name), the tape will be destroyed 2 years after the end of the project (1.8.2009). You may withdraw from the study at any time, and any tape recording will be destroyed immediately. Confidentiality of what you tell us is very important to us.

What will happen to the results of the study? The results will be analysed and written up in a research report to show in what way experience of war and migration affects people, what medical and social services are used and how effective they are in alleviating posttraumatic stress. Results will probably be published in 2008, and you can get a copy from the researcher. If you take part, your name will not appear in any report. To ensure confidentiality, your name will not appear in the database.

Who is organising and funding the research? Bart`s and the London School of Medicine has received funding from European Commission.

What happens if something goes wrong? We will take every precaution in the course of this study. If through our negligence any harm to you results, you will be compensated. Even if the claim is not our fault, we will consider any claim sympathetically and you may be entitled to compensation. If you are not happy with any proposed compensation you may have to pursue your claim through legal action.

What happens if you are worried, if you have any questions about the research or if there is an emergency? You will be able to contact the researcher to discuss your concerns:
Name **:** *Professor Stefan Priebe* ***Address*****:** Academic Unit, Newham Centre for Mental Health, London E13 8SP, UK ***Telephone number***: 020 7540 4210

If you decide to take part in the study, you will be given a copy of this information sheet and the signed consent form to keep.

Please find bellow-enclosed information on how to get help regarding psychological problems that you have experienced following your traumatic experiences.

Thank you for your interest in research

<u>Treatment options for traumatic stress</u>

There are many types of treatment for traumatic stress. Research supports the effectiveness of medication, anxiety management, cognitive therapy (focusing on thoughts and beliefs), and exposure therapy (helping the person confront painful memories that are still frightening, through talking about or imagining them) for reducing symptoms of posttraumatic stress. Interpersonal or psychodynamic psychotherapies, which focus on the meaning of the event and how the experience has affected relationships with other people, may also help understand the source of the current problems and how

these relate to the traumatic experiences. A combination of psychotherapy and medication is often helpful for depression and anxiety following traumatic experiences.
No single treatment is effective for everyone, and sometimes it takes time to find the right treatment.

Where to go for help

If you feel that you need help because of your traumatic experiences, we suggest that you first contact your GP. Bellow is the list of specialised services that provide help for people that have experienced traumas. Depending in which part of the country you live in, you might be able to contact some of these centres directly or you will need to be refereed by your doctor.

Aberdeen: Centre for Trauma Research, Bennachie, Royal Cornhill Hospital, Aberdeen AB25 2ZH
Tel: 01224 681818 ext 53881, Contact: David Alexander (men052@abdn.ac.uk)

Cambridge: Addenbrooke's Hospital and the Cognition and Brain Sciences Unit, 15 Chaucer Road, Cambridge, CB7 2EF
Tel: 01223 355 294, Contact: Tim Dalgleish (tim.dalgleish@mrc-cbu.cam.ac.uk)

Cardiff: Department of Liaison Psychiatry, Cardiff & Vale NHS Trust, Monmouth House, University Hospital of Wales, Heath Park, Cardiff, CF14 4XW
Tel: 029 2074 3940, Contact: Jonathon Bisson (BissonJI@cf.ac.uk)

Catterick: Defence Services Psychological Injuries Unit, Duchess of Kent Psychiatric Hospital, Catterick, North Yorkshire DL9 4DF
Tel: 01748 87 3616, Contact: Hazel Pilgrim (hazepilg@dsca.mod.uk)

Edinburgh: The Rivers Centre, Royal Edinburgh Hospital, Morningside Park, Edinburgh, EH10 5HF
Tel: 0131 537 6797; Fax: 0131 537 6104, Contacts: Chris Freeman (c.freeman@which.net), Claire Fyvie

Glasgow: Glasgow Psychological Trauma Consultation Group (child survivors) University of Glasgow, Department of Child and Adolescent Psychiatry, Royal Hospital for Sick Children, Yorkhill, Glasgow, G3 8SJ
Tel: 0141 201 0223; Fax: 0141 201 9261
Contacts: Joanne Barton (jb11x@clinmed.gla.ac.uk) Christine Puckering (christine@mellowparenting.demon.co.uk)

Leeds: Leeds Community & Mental Health Services, Morley health Centre, Morley, Leeds LS27 9NB
Tel: 0113 2954618, Contacts: Norman Macaskill, Richard Winspear

Lincoln: Baverstock House, St Annes Road, Lincoln, LN2 5RA
Tel: 01522 560617, Contact: Roderick Orner (rorner@cix.co.uk)

Lisburn: Stress Disorders Clinic, Department of Psychiatry, Lagan Valley Hospital, Lisburn, Co. Antrim, N. Ireland, BT28 1JP
Tel: 02892 665141, Contact: Oscar Daly (oscar_daly@dltrust.n-i.nhs.uk)

London:

- Traumatic Stress Services, South London & Maudsley NHS Trust, Denmark Hill, London SE5 8AZ
  Contacts (The Centre for Anxiety Disorders and Trauma): David Clark(d.clark@iop.kcl.ac.uk), Anke Ehlers(a.ehlers@iop.kcl.ac.uk).
  Contacts (Adult trauma): Rachel Canterbury (r.canterbury@iop.kcl.ac.uk), Felicity De Zulueta (f.dezulueta@iop.kcl.ac.uk) - Tel: 020 7919 2969.
  Contacts (Children): Bill Yule (w.yule@iop.kcl.ac.uk) - Tel: 020 7848 0217.
  Contacts (Section of Trauma Studies, 38 Carver Road, London SE24 9LT): Metin Basoglu (metin@basoglu.u-net.com), Maria Livanou (m.livanou@iop.kcl.ac.uk), Homa Noshirvani. Tel: 020 7738 4967
  Contacts (Other): Martin Baggaley (m.baggaley@btinternet.com), (University Hospital Lewisham) Tel: 020 8333 3000.
- Post-traumatic Stress Service, Department of Clinical Psychology, Lakeside Mental health Unit, West Middlesex University Hospital, Twickenham Road, Isleworth TW7 6AF

Tel: 020 8321 6440
Contact: Vartouhi Ohanian(vohanian@fsmail.net)

- The Tavistock Clinic, 120 Belsize Lane, London, NW3 5BA
  Tel: 020 7435 7111
  Contact: Caroline Garland
- The Traumatic Stress Clinic, (Camden and Islington Mental Health and Social Care Trust; University College London),
  73 Charlotte Street, London, W1T 4PL
  Tel: 020 7530 3666; Fax: 020 7530 3677
  Contacts (Adult service): Gwen Adshead (RAK@wlmht.nhs.uk), Chris Brewin (c.brewin@ucl.ac.uk), Deborah Lee.
  Contacts (Refugee service): Mary Robertson (Mary.Robertson@cichs-tr.nthames.nhs.uk), Stuart Turner (s.turner@traumaclinic.org.uk).
  Contacts (Child and Family service): Annette Mendelsohn, Guinevere Tufnell (Guinevere.Tufnell@cichs-tr.nthames.nhs.uk).
  Contacts (Other): Dora Black (DoraBlack@compuserve.com), James Thompson (reju611@ucl.ac.uk).
- Traumatic Stress Service, St George's Hospital, Clare House, Blackshaw Road, London SW17 0QT
  Contacts: Gill Mezey (gmezey@sghms.ac.uk), Ian Robbins (irobbins@swlstg-tr.nhs.uk)
- Medical Foundation for Victims of Tortute, Spar House, 104 -108 Grafton Rd, London NW5 4BD
  Tel: 0207 813 9999
- Institute of Psychotrauma, William Harvey House, St Bartolomew'S Hospital London EC1 EA Tel: 0207 601 7019

Manchester: The Department of Clinical Psychology, Withington Hospital, Manchester M20 8LR
Tel: 0161 291 4319, Contact: Nicholas Tarrier (NTarrier@fs1.with.man.ac.uk)

Northampton: The Ferguson Unit (a secure psychiatric unit for women, many with trauma histories), St Andrew's Hospital,
Billing Road, Northampton, NN1 5DG.
Tel: 01604 616695, Contact: Fiona Mason (FMason@standrew.co.uk)

Oxford: The Warneford Hospital, Warneford lane, Oxford, OX3 7JX
Tel: 01865 226330 (MH), 01865 226430 (MM)
Contacts: Mike Hobbs (Mike.Hobbs@oxmhc-tr.anglox.nhs.uk), Martina Mueller (martina.mueller@oxmhc-tr.anglox.nhs.uk)

Reading: Berkshire Traumatic Stress Service, Department of Clinical Psychology, Erleigh Road Clinic, Erleigh Road, Reading, Berks RG1 5LR.
Tel: 0118 9296400, Contact: Suzanna Rose (suzannar@wbpcs-tr.anglox.nhs.uk)

Sussex: Ticehurst House Hospital, Ticehurst, Wadhurst, East Sussex, TN5 7HU
Tel: 01580 202206
Contact: Walter Busuttil wbusuttil@breathemail.net, Gordon Turnbull (gjturnbull@doctors.org.uk)

Watford: The Post Traumatic Stress Clinic, Shrodells Psychiatric Unit, Watford General Hospital, Vicarage Road, Watford, Herts, WD1 8HB
Tel: 01923 217554, Contact: John Spector (spectors@btopenworld.com) (also for advice on EMDR)

York: The Retreat, Heslington Road, York, YO1 5BN
Tel: 01904 412551, Contact: Mark McFetridge

A-2

Components, organization, costs and outcomes of health care and social interventions for people with posttraumatic stress following war and conflict in the Balkans

WRITTEN CONSENT FORM

REC number 04/QO5O1/118

Participant's name ……..

ID number ……

- ❑ The study organisers have invited me to take part in this research.
- ❑ I understand what is in the information sheet about the research. I have a copy of the leaflet to keep.
- ❑ I have had the chance to talk and ask questions about the study.
- ❑ I know what my part will be in the study and I know how long it will take.
- ❑ I know how the study may affect me. I have been told if there are possible risks.
- ❑ I understand that I should not actively take part in more than 1 research study at a time.
- ❑ I know that the local North East London Health Authority Research Ethics Committee has seen and agreed to this study.
- ❑ I understand that personal information is strictly confidential: I know the only people who may see information about my part in the study are the research team or an official representative of the organisation which funded the research.
- ❑ I freely consent to be a subject in the study. No one has put pressure on me.
- ❑ I know that I can stop taking part in the study at any time.
- ❑ I know if I do not take part I will still be able to have my normal treatment.
- ❑ I know that I might be contacted again in one-year time.
- ❑ I know that if there are any problems, I can contact:

Prof. Stefan Priebe or Marija Bogic
Tel. No. 020 7540 6755, 020 7540 4380 and 020 7540 4210

Participants Signature .....

Date .....

As the researcher responsible for this research or a designated deputy, I confirm that I have explained to the patient/volunteer named above the nature and purpose of the research to be undertaken.

Researcher ‘s name:..... Researcher‘s signature: .....

Date: .....

Appendix B:

Baseline interview measures

B-1

1. WAR-RELATED STRESSORS SCREENING CHECKLIST

Below is the list of stressful events that people may experience **during wartime**. For every event experienced by the interviewee, circle YES and record if s/he was at least 16 years of age at the time. Once both questions for one item are coded YES, the inclusion criteria are fulfilled. Move to the next instrument.

If the interviewee has not experienced the event, circle NO and move to the next question.

Related to war, have you experienced following events:	Circle the answer	Were you at least 16 at the time?
1. Lack of food or water	YES NO	YES NO
2. Ill health without access to medical care	YES NO	YES NO
3. Non-sexual assault by a family member or someone you know (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)	YES NO	YES NO
4. Non-sexual assault by a stranger (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)	YES NO	YES NO
5. Sexual assault by a family member or someone you know (for example, rape or attempted rape)	YES NO	YES NO
6. Sexual assault by a stranger (for example, rape or attempted rape)	YES NO	YES NO
7. Lack of shelter (e.g. not being able to take a cover during a combat or shelling attack)	YES NO	YES NO
8. Serious injury	YES NO	YES NO
9. Imprisonment (as civil or war detainee, as hostage etc.)	YES NO	YES NO
10. Combat situation	YES NO	YES NO
11. Shelling	YES NO	YES NO
12. Siege	YES NO	YES NO
13. Bombardment (e.g. air-raids)	YES NO	YES NO
14. Witnessed an assault, murder or death of another person	YES NO	YES NO
15. Disappearance or kidnapping of family member or friend	YES NO	YES NO
16. Torture (physical or mental)	YES NO	YES NO
17. Kidnapped	YES NO	YES NO
18. Lost	YES NO	YES NO
19. Expelled from home (e.g. ethnic cleansing)	YES NO	YES NO
20. Learned about the murder or death due to violence of a dear person	YES NO	YES NO
Screening Passed:	**YES NO**	
Contact / How was the participant recruited?	1 = through community organization 2 = data registers 3 = snowballing 4 = random walk approach	

B-2

2. SOCIO-DEMOGRAPHIC QUESTIONNAIRE

sd01.	Participant ID Number	
sd02.	Date of interview	
sd03.	Gender	1=Male 2=Female
sd04.	Age:	
sd05.	Ethnic origin/nationality	1=Albanian 2=Bosnian [a. Bosniak b. Bos. Croat c. Bos. Serb] 3=Montenegro 4=Croatian 5=Macedonian 6=Serbian 7=Other (specify)
sd06.	During the war:	1=you participated actively in combat 2=you did not actively participate in combat
sd07.	During the war, were you:	1=remained at home 2=internally displaced 3=refugee
sd08.	What is your legal status?	1=domicile (and does not belong to any category bellow) 2= returnee 3= internally displaced 4= refugee 5= citizenship (if s/he was a refugee prior to this) 6= asylum received 7= asylum seeker 8=other (specify)
sd09.	How long did it take to achieve this status (if not pending or if returned, after how many years)?	
sd10.	From which country or region have you come from (if refugee or displaced person)?	
sd11.	When? (year, for e.g. 1996)	
sd12.	How many years of schooling have you had?	
sd13.	Employment status:	1=In paid employment 2=Training / education is main occupation 3=Retired 4=Unemployed 5=Other (specify)
If employed, answer the questions sd14 and sd15, otherwise go straight to question sd16		
sd14.	What is your occupation?	
sd15.	How many hours a week do you work?	
sd16.	What is the total monthly income of your household (including any benefits towards rent, coupons and similar)? (Ask for net income. To be recorded in euros and the researcher is to do conversion from local currency)?	
sd17.	How many persons are there in your household?	
sd18.	Of these how many children under the age of 18?	
sd19.	How many children (if any) do you	

	have?	
sd20.	What is your marital status?	1=Married 2=Single 3=Divorced / separated 4=Widowed 5=cohabitation (living with a partner) 6=other (please specify)
sd21. to sd26.	Who else (if anybody) do you live with (you can circle more than one answer)?	21=Live alone 22=With partner 23=With parents 24=With child/children under 18 25=With child / children over 18 26=Other (please specify)
sd27.	In which type of residence do you currently live?	1=House /flat owned by you (or your marital partner) 2=House / Flat of partner 3=rented house/flat 4=at parents 5=at friends 6=collective center 7=temporary accommodation provided by the authorities 8=other (please specify)

B-3

3. MIGRATION AND COMPENSATION STRESSORS

A. List of Migration Stressors

These questions focus on people who experienced forced migration may it be that they went to another country or to another region of the same country (in the last case adapt the questions for example for *Have you been separated from your family in this country for a long time?*
Ask: *Have you been separated from your family in this region of the country for a long time?*

		Have you ever experienced this event? (yes or no)	Is this still the case today? (yes or no)
mcs 01/02	Have you been separated from your family in this country for a long time?	01. YES NO	02. YES NO
mcs 03/04	Was it difficult to get a working permission (if needed)?	03. YES NO	04. YES NO
mcs 05/06	Was it difficult for you to find a work in your profession?	05. YES NO	06. YES NO
mcs 07/08	Have you had inadequate accommodation for a long time in this country?	07. YES NO	08. YES NO
mcs 09/10	Has it happened that you have not received medical help when you needed it?	09. YES NO	10. YES NO
mcs 11/12	Have you had significant financial difficulties?	11. YES NO	12. YES NO
mcs 13/14/15	Is there any other problem that you have experienced because of war and/or migration that you would like to mention? 15. Brief description:	013. YES NO	014. YES NO

B. Cultural adaptation

mcs16	*(only for people who have experienced a forced migration)* Do you feel you have been accepted in the new environment?	1=Not at all 2=a little bit 3=mixed 4=good 5=entirely
mcs17	*(only for centers in London, Modena and Dresden)* How confident are you about effectiveness of your communication in English/Italian/German?	1=Not at all 2=a little bit 3=mixed 4=good 5=entirely
mcs18	In the last week how many times have you visited/been visited/or met a friend from your country/region of origin?	
mcs19	In the last week how many times have you visited/been visited/or met a friend from your host country (and not from your country/region of origin)?	

4. LIFE STRESSOR LIST

For every event experienced by the interviewee, record frequency and year for each item experienced. Distinguish between those events that are related to war and those that are not (in the *war related* column). In case an event was experienced more than once, ask when it was experienced the first (*1 st*) and the last time (*last)* and when it was the most traumatic time (*most stressful*). If it is not a single event, but a period of time, indicate their duration in the respective column and indicate when it was the most traumatic. Finally, ask the interviewee to rate their personal distress caused by the event/s at the time, on a scale from 0 to 4, where:

0 not at all **1 a little bit** **2 moderately** **3 quite a bit** **4 extremely, I could barely stand it**

	Before War				**During war**					**After war/migration**				
Event	How many times	When	Duration	Personal distress 0 - 4	How many times	When	Duration	War related	Personal distress 0 - 4	How many times	When	Duration	War related	Personal distress 0 - 4
1. Serious accident, fire, or explosion (for example, an industrial, farm, car, plane, or boating accident)?	LS1bwno	LS1bwy1 1st		LS1bws1	LS1dwno	LS1dwy1 1st		LS1dwrr1 NO YES	LS1dws1	LS1awno	LS1awy1 1st		LS1awwr1 NO YES	LS1aws1
		LS1bwy2 last		LS1bws2		LS1dwy2 last		LS1dwrr2 NO YES	LS1dws2		LS1awy2 last		LS1awwr2 NO YES	LS1aws2
		LS1bwy3 most stressful		LS1bws3		LS1dwy3 most stressful		LS1dwrr3 NO YES	LS1dws3		LS1awy3 most stressful		LS1awwr3 NO YES	LS1aws3
2. Natural disaster (for example flood, major earthquake, hurricane)?	LS2bwno	LS2bwy1 1st		LS2bws1	LS2dwno	LS2dwy1 1st			LS2dws1	LS2awno	LS2awy1 1st			LS2aws1
		LS2bwy2 last		LS2bws2		LS2dwy2 last			LS2dws2		LS2awy2 last			LS2aws2
		LS2bwy3 most stressful		LS2bws3		LS2dwy3 most stressful			LS2dws3		LS2awy3 most stressful			LS2aws3
3. Non-sexual assault by a family member or someone you know (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)?	LS3bwno	LS3bwy1 1st	LS3bwd1	LS3bws1	LS3dwno	LS3dwy1 1st	LS3dwd1	LS3dwrr1 NO YES	LS3dws1	LS3awno	LS3awy1 1st	LS3awd1	LS3awwr1 NO YES	LS3aws1
		LS3bwy2 last	LS3bwd2	LS3bws2		LS3dwy2 last	LS3dwd2	LS3dwrr2 NO YES	LS3dws2		LS3awy2 last	LS3awd2	LS3awwr2 NO YES	LS3aws2
		LS3bwy3 most stressful	LS3bwd3	LS3bws3		LS3dwy3 most stressful	LS3dwd3	LS3dwrr3 NO YES	LS3dws3		LS3awy3 most stressful	LS3awd3	LS3awwr3 NO YES	LS3aws3
4. Non-sexual assault by a stranger (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)	LS4bwno	LS4bwy1 1st	LS4bwd1	LS4bws1	LS4dwno	LS4dwy1 1st	LS4dwd1	LS4dwrr1 NO YES	LS4dws1	LS4awno	LS4awy1 1st	LS4awd1	LS4awwr1 NO YES	LS4aws1
		LS4bwy2 last	LS4bwd2	LS4bws2		LS4dwy2 last	LS4dwd2	LS4dwrr2 NO YES	LS4dws2		LS4awy2 last	LS4awd2	LS4awwr2 NO YES	LS4aws2
		LS4bwy3 most stressful	LS4bwd3	LS4bws3		LS4dwy3 most stressful	LS4dwd3	LS4dwrr3 NO YES	LS4dws3		LS4awy3 most stressful	LS4awd3	LS4awwr3 NO YES	LS4aws3
5. Sexual assault by a family member or someone you know (for example, rape or attempted rape)?	LS5bwno	LS5bwy1 1st	LS5bwd1	LS5bws1	LS5dwno	LS5dwy1 1st	LS5dwd1	LS5dwrr1 NO YES	LS5dws1	LS5awno	LS5awy1 1st	LS5awd1	LS5awwr1 NO YES	LS5aws1
		LS5bwy2 last	LS5bwd2	LS5bws2		LS5dwy2 last	LS5dwd2	LS5dwrr2 NO YES	LS5dws2		LS5awy2 last	LS5awd2	LS5awwr2 NO YES	LS5aws2
		LS5bwy3 most stressful	LS5bwd3	LS5bws3		LS5dwy3 most stressful	LS5dwd3	LS5dwrr3 NO YES	LS5dws3		LS5awy3 most stressful	LS5awd3	LS5awwr3 NO YES	LS5 aws3

Event	Before War				During war					After war/migration				
6. Sexual assault by a stranger (for example, rape or attempted rape)?	LS6bwno	LS6bwy1 1st	LS6bwd1	LS6bws1	LS6dwno	LS6dwy1 1st	LS6dwd1	LS6dwr1 NO YES	LS6dws1	LS6awno	LS6awy1 1st	LS6awd1	LS6awr1 NO YES	LS6aws1
		LS6bwy2 last	LS6bwd2	LS6bws2		LS6dwy2 last	LS6dwd2	LS6dwr2 NO YES	LS6dws2		LS6awy2 last	LS6awd2	233.LS6awwr2 NO YES	LS6aws2
		LS6bwy3 most stressful	LS6bwd3	LS6bws3		LS6dwy3 most stressful	LS6dwd3	LS6dwr3 NO YES	LS6dws3		LS6awy3 most stressful	LS6awd3	LS6awr3 NO YES	LS6aws3
7. Imprisonment (as civil or war detainee, as hostage etc.)?	LS7bwno	LS7bwy1 1st	LS7bwd1	LS7bws1	LS7dwno	LS7dwy1 1st	LS7dwd1	LS7dwr1 NO YES	LS7dws1	LS7awno	LS7awy1 1st	LS7awd1	LS7awr1 NO YES	LS7aws1
		LS7bwy2 last	LS7bwd2	LS7bws2		LS7dwy2 last	LS7dwd2	LS7dwr2 NO YES	LS7dws2		LS7awy2 last	LS7awd2	LS7awwr2 NO YES	LS7aws2
		LS7bwy3 most stressful	LS7bwd3	LS7bws3		LS7dwy3 most stressful	LS7dwd3	LS7dwr3 NO YES	LS7dws3		LS7awy3 most stressful	LS7awd3	LS7awr3 NO YES	LS7aws3
8. Life-threatening illness?	LS8bwno	LS8bwy1 1st	LS8bwd1	LS8bws1	LS8dwno	LS8dwy1 1st	LS8dwd1	LS8dwr1 NO YES	LS8dws1	LS8awno	LS8awy1 1st	LS8awd1	LS8awr1 NO YES	LS8aws1
		LS8bwy2 last	LS8bwd2	LS8bws2		LS8dwy2 last	LS8dwd2	LS8dwr2 NO YES	LS8dws2		LS8awy2 last	LS8awd2	LS8awwr2 NO YES	LS8aws2
		LS8bwy3 most stressful	LS8bwd3	LS8bws3		LS8dwy3 most stressful	LS8dwd3	LS8dwr3 NO YES	LS8dws3		LS8awy3 most stressful	LS8awd3	LS8awr3 NO YES	LS8aws3
9. Sudden unexpected death not due to violence of a dear person?	LS9bwno	LS9bwy1 1st		LS9bws1	LS9dwno	LS9dwy1 1st		LS9dwr1 NO YES	LS9dws1	LS9awno	LS9awy1 1st		LS9awr1 NO YES	LS9aws1
		LS9bwy2 last		LS9bws2		LS9dwy2 last		LS9dwr2 NO YES	LS9dws2		LS9awy2 last		LS9awwr2 NO YES	LS9aws2
		LS9bwy3 most stressful		LS9bws3		LS9dwy3 most stressful		LS9dwr3 NO YES	LS9dws3		LS9awy3 most stressful		LS9awr3 NO YES	LS9aws3
10. Lack of food or water?	LS10bwno	LS10bwy1 1st	LS10bwd1	LS10bws1	LS10dwno	LS10dwy1 1st	LS10dwd1	LS10dwr1 NO YES	LS10dws1	LS10awno	LS10awy1 1st	LS10awd1	LS10awr1 NO YES	LS10aws1
		LS10bwy2 last	LS10bwd2	LS10bws2		LS10dwy2 last	LS10dwd2	LS10dwr2 NO YES	LS10dws2		LS10awy2 last	LS10awd2	LS10awwr2 NO YES	LS10aws2
		LS10bwy3 most stressful	LS10bwd3	LS10bws3		LS10dwy3 most stressful	LS10dwd3	LS10dwr3 NO YES	LS10dws3		LS10awy3 most stressful	LS10awd3	LS10awr3 NO YES	LS10aws3
11. Ill health without access to medical care?	LS11bwno	LS11bwy1 1st	LS11bwd1	LS11bws1	LS11dwno	LS11dwy1 1 st	LS11dwd1	LS11dwr1 NO YES	LS11dws1	LS11awno	LS11awy1 1st	LS11awd1	LS11awr1 NO YES	LS11aws1
		LS11bwy2 last	LS11bwd2	LS11bws2		LS11dwy2 last	LS11dwd2	LS11dwr2 NO YES	LS11dws2		LS11awy2 last	LS11awd2	LS11awwr2 NO YES	LS11aws2
		LS11bwy3 most stressful	LS11bwd3	LS11bws3		LS11dwy3 most stressful	LS11dwd3	LS11dwr3 NO YES	LS11dws3		LS11awy3 most stressful	LS11awd3	LS11awr3 NO YES	LS11aws3

Event	Before War				During war					After war/migration				
12. Lack of shelter (e.g. not being able to take a cover during a combat or shelling attack)?					LS12dwno	LS12dwy1 1st	LS12dwd1	LS12dwwr1 NO YES	LS12dws1					
						LS12dwy2 last	LS12dwd2	LS12dwwr2 NO YES	LS12dws2					
						LS12dwy3 most stressful	LS12dwd3	LS12dwwr3 NO YES	LS12dws3					
13. Expelled from home under violent threat (e.g. ethnic cleansing)?					LS13dwno	LS13dwy1 1st		LS13dwwr1 NO YES	LS13dws1	LS13awno	LS13awy1 1st	LS13awd1	NO YES	LS13aws1
						LS13dwy2 last		LS13dwwr2 NO YES	LS13dws2		LS13awy2 Last	LS13awd2	NO YES	LS13aws2
						LS13dwy3 most stressful		LS13dwwr3 NO YES	LS13dws3		LS13awy3 most stressful	LS13awd3	NO YES	LS13aws3
14. Combat situation?					LS14dwno	LS14dwy1 1st	LS14dwd1	LS14dwwr1 NO YES	LS14dws1				NO YES	
						LS14dwy2 last	LS14dwd2	LS14dwwr2 NO YES	LS14dws2				NO YES	
						LS14dwy3 most stressful	LS14dwd3	LS14dwwr3 NO YES	LS14dws3				NO YES	
15. Shelling or bombardment (e.g. air raids)?					LS15dwno	LS15dwy1 1st	LS15dwd1	LS15dwwr1 NO YES	LS15dws1				NO YES	
						LS15dwy2 last	LS15dwd2	LS15dwwr2 NO YES	LS15dws2				NO YES	
						LS15dwy3 most stressful	LS15dwd3	LS15dwwr3 NO YES	LS15dws3				NO YES	

Event	Before War				During war					After war/migration				
Event	How many times	When	Duration	Personal distress 0 - 4	How many times	When	Duration	War related	Personal distress 0 - 4	How many times	when	Duration	War related	Personal distress 0 - 4
28. Mine explosions?					LS28dwno	LS28dwy1 1st	LS28dwd1	LS28dwwr1 NO YES	LS28dws1	LS28awno	LS28awy1 1st	LS28awd1	LS28awwr1 NO YES	LS28aws1
						LS28dwy2 last	LS28dwd2	LS28dwwr2 NO YES	LS28dws2		LS28awy2 last	LS28awd2	LS28awwr2 NO YES	LS28aws2
						LS28dwy3 most stressful	LS28dwd3	LS28dwwr3 NO YES	LS28dws3		LS28awy3 most stressful	LS28awd3	LS28awwr3 NO YES	LS28aws3
17.Siege?					LS17dwno	LS17dwy1 1st	LS17dwd1	LS17dwwr1 NO YES	LS17dws1				NO YES	
						LS17dwy2 last	LS17dwd2	LS17dwwr2 NO YES	LS17dws2				NO YES	
						LS17dwy3 most stressful	LS17dwd3	LS17dwwr3 NO YES	LS17dws3				NO YES	
18.Serious injury?	LS18bwno	LS18bwy1 1st	LS18bwd1	LS18bws1	LS18dwno	LS18dwy1 1st	LS18dwd1	LS18dwwr1 NO YES	LS18dws1	LS18awno	LS18awy1 1st	LS18awd1	LS18awwr1 NO YES	LS18aws1
		LS18bwy2 last	LS18bwd2	LS18bws2		LS18dwy2 last	LS18dwd2	LS18dwwr2 NO YES	LS18dws2		LS18awy2 last	LS18awd2	LS18awwr2 NO YES	LS18aws2
		LS18bwy3 most stressful	LS18bwd3	LS18bws3		LS18dwy3 most stressful	LS18dwd3	LS18dwwr3 NO YES	LS18dws3		LS18awy3 most stressful	LS18awd3	LS18awwr3 NO YES	LS18aws3
19.Witnessed an assault, murder or death of another person?	LS19bwno	LS19bwy1 1st	LS19bwd1	LS19bws1	LS19dwno	LS19dwy1 1st	LS19dwd1	LS19dwwr1 NO YES	LS19dws1	LS19awno	LS19awy1 1st	LS19awd1	LS19awwr1 NO YES	LS19aws1
		LS19bwy2 last	LS19bwd2	LS19bws2		LS19dwy2 last	LS19dwd2	LS19dwwr2 NO YES	LS19dws2		LS19awy2 last	LS19awd2	LS19awwr2 NO YES	LS19aws2
		LS19bwy3 most stressful	LS19bwd3	LS19bws3		LS19dwy3 most stressful	LS19dwd3	LS19dwwr3 NO YES	LS19dws3		LS19awy3 most stressful	LS19awd3	LS19awwr3 NO YES	LS19aws3
20.Learned about the murder or death due to violence of a dear person?	LS20bwno	LS20bwy1 1st		LS20bws1	LS20dwno	LS20dwy1 1st		LS20dwwr1 NO YES	LS20dws1	LS20awno	LS20awy1 1st		LS20awwr1 NO YES	LS20aws1
		LS20bwy2 last		LS20bws2		LS20dwy2 last		LS20dwwr2 NO YES	LS20dws2		LS20awy2 last		LS20awwr2 NO YES	LS20aws2
		LS20bwy3 most stressful		LS20bws3		LS20dwy3 most stressful		LS20dwwr3 NO YES	LS20dws3		LS20awy3 most stressful		LS20awwr3 NO YES	LS20aws3

	Before War				During war					After war/migration				
Event	How many times	When	Duration	Personal distress 0 - 4	How many times	When	Duration	War related	Personal distress 0 - 4	How many times	when	Duration	War related	Personal distress 0 - 4
21.Disappearance or kidnapping of family member or friend?	LS21bwno	LS21bwy1 1st	LS21bwd1	LS21bws1	LS21dwno	LS21dwy1 1st	LS21bwd1	LS21dwwr1 NO YES	LS21dws1	LS21awno	LS21awy1 1st	LS21bwd1	LS21awwr1 NO YES	LS21aws1
		LS21bwy2 last	LS21bwd2	LS21bws2		LS21dwy2 last	LS21bwd2	LS21dwwr2 NO YES	LS21dws2		LS21awy2 last	LS21bwd2	LS21awwr2 NO YES	LS21aws2
		LS21bwy3 most stressful	LS21bwd3	LS21bws3		LS21dwy3 most stressful	LS21bwd3	LS21dwwr3 NO YES	LS21dws3		LS21awy3 most stressful	LS21bwd3	LS21awwr3 NO YES	LS21aws3
22.Torture (infliction of physical and mental suffering)?	LS22bwno	LS22bwy1 1st	LS22bwd1	LS22bws1	LS22dwno	LS22dwy1 1st	LS22dwd1	LS22dwwr1 NO YES	LS22dws1	LS22awno	LS22awy1 1st	LS22awd1	LS22awwr1 NO YES	LS22aws1
		LS22bwy2 last	LS22bwd2	LS22bws2		LS22dwy2 last	LS22dwd2	LS22dwwr2 NO YES	LS22dws2		LS22awy2 last	LS22awd2	LS22awwr2 NO YES	LS22aws2
		LS22bwy3 most stressful	LS22bwd3	LS22bws3		LS22dwy3 most stressful	LS22dwd3	LS22dwwr3 NO YES	LS22dws3		LS22awy3 most stressful	LS22awd3	LS22awwr3 NO YES	LS22aws3
23.Lost?	LS23bwno	LS23bwy1 1st	LS23bwd1	LS23bws1	LS23dwno	LS23dwy1 1st	LS23dwd1	LS23dwwr1 NO YES	LS23dws1	LS23awno	LS23awy1 1st	LS23awd1		LS23aws1
		LS23bwy2 last	LS23bwd2	LS23bws2		LS23dwy2 last	LS23dwd2	LS23dwwr2 NO YES	LS23dws2		LS23awy2 last	LS23awd2		LS23aws2
		LS23bwy3 most stressful	LS23bwd3	LS23bws3		LS23dwy3 most stressful	LS23dwd3	LS23dwwr3 NO YES	LS23dws3		LS23awy3 most stressful	LS23awd3		LS23aws3
24.Kidnapped?	LS24bwno	LS24bwy1 1st	LS24bwd1	LS24bws1	LS24dwno	LS24dwy1 1st	LS24dwd1	702.LS24dwwr1 NO YES	LS24dws1	LS24awno	LS24awy1 1st	LS24awd1	LS24awwr1 NO YES	LS24aws1
		LS24bwy2 last	LS24bwd2	LS24bws2		LS24dwy2 last	LS24dwd2	LS24dwwr2 NO YES	LS24dws2		LS24awy2 last	LS24awd2	LS24awwr2 NO YES	LS24aws2
		LS24bwy3 most stressful	LS24bwd3	LS24bws3		LS24dwy3 most stressful	LS24dwd3	LS24dwwr3 NO YES	LS24dws3		LS24awy3 most stressful	LS24awd3	LS24awwr3 NO YES	LS24aws3
25. Any other situation that was very frightening or in which you felt your life was in danger (either it happened during the war or not). Specify, indicate when and if it was related to war? Description:	LS25bwno	LS25bwy1 1st	LS25bwd1	LS25bws1	LS25dwno	LS25dwy1 1st	LS25dwd1	LS25dwwr1 NO YES	LS25dws1	LS25awno	LS25awy1 1st	LS25awd1	LS25awwr1 NO YES	LS25aws1
		LS25bwy2 last	LS25bwd2	LS25bws2		LS25dwy2 last	LS25dwd2	LS25dwwr2 NO YES	LS25dws2		LS25awy2 last	LS25awd2	LS25awwr2 NO YES	LS25aws2
		LS25bw most stressful	LS25bwd3	LS25bws3		LS25dwy3 most stressful	LS25dwd3	LS25dwwr3 NO YES	LS25dws3		LS25awy3 most stressful	LS25awd3	LS25awwr3 NO YES	LS25aws3

	Before War				During war					After war/migration				
Event	How many times	When	Duration	Personal distress 0 - 4	How many times	When	Duration	War related	Personal distress 0 - 4	How many times	when	Duration	War related	Personal distress 0 - 4
26. Where you afraid and felt your life in danger, because you witnessed one of the above mentioned events? Specify, indicate when and if it was related to war? Description:	LS26bwno	LS26bwy1 1st	LS26bwd1	LS26bws1	LS26dwno	LS26dwy1 1st	LS26dwd1	LS26dwwr1 NO YES	LS26dws1	LS26awno	LS26awy1 1st	LS26awd1	LS26awwr1 NO YES	LS26adws1
		LS26bwy2 last	LS26bwd2	LS26bws2		LS26dwy2 last	LS26dwd2	LS26dwwr2 NO YES	LS26dws2		LS26awy2 last	LS26awd2	LS26awwr2 NO YES	LS26aws2
		LS26bwy3 most stressful	LS26bwd3	LS26bws3		LS26dwy3 most stressful	LS26dwd3	LS26dwwr3 NO YES	LS26dws3		LS26awy3 most stressful	LS26awd3	LS26awwr3 NO YES	LS26aws3

B-5

5. MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW

GENERAL INSTRUCTIONS

The M.I.N.I. was designed as a brief structured interview for the major Axis I psychiatric disorders in DSM-IV and ICD-10. Validation and reliability studies have been done comparing the M.I.N.I. to the SCID-P for DSM-III-R and the CIDI (a structured interview developed by the World Health Organization for lay interviewers for ICD-10). The results of these studies show that the M.I.N.I. has acceptably high validation and reliability scores, but can be administered in a much shorter period of time (mean 18.7 ± 11.6 minutes, median 15 minutes) than the above referenced instruments. It can be used by clinicians, after a brief training session. Lay interviewers require more extensive training.

INTERVIEW:

In order to keep the interview as brief as possible, inform the patient that you will conduct a clinical interview that is more structured than usual, with very precise questions about psychological problems which require a yes or no answer.

GENERAL FORMAT:

The M.I.N.I. is divided into **modules** identified by letters, each corresponding to a diagnostic category.

•At the beginning of each diagnostic module (except for psychotic disorders module), screening question(s) corresponding to the main criteria of the disorder are presented in a **gray box**.

•At the end of each module, diagnostic box(es) permit the clinician to indicate whether diagnostic criteria are met.

CONVENTIONS:

Sentences written in « normal font » should be read exactly as written to the patient in order to standardize the assessment of diagnostic criteria.

Sentences written in « CAPITALS » should not be read to the patient. They are instructions for the interviewer to assist in the scoring of the diagnostic algorithms.

Sentences written in « **bold** » indicate the time frame being investigated. The interviewer should read them as often as necessary. Only symptoms occurring during the time frame indicated should be considered in scoring the responses.

Answers with an arrow above them (→) indicate that one of the criteria necessary for the diagnosis(es) is not met. In this case, the interviewer should go to the end of the module, circle « **NO** » in all the diagnostic boxes and move to the next module.

When terms are separated by a *slash (/)* the interviewer should read only those symptoms known to be present in the patient (for example, question H6).

Phrases in (parentheses) are clinical examples of the symptom. These may be read to the patient to clarify the question.

RATING INSTRUCTIONS:

All questions must be rated. The rating is done at the right of each question by circling either Yes or No. Clinical judgment by the rater should be used in coding the responses. The rater should ask for examples when necessary, to ensure accurate coding. The patient should be encouraged to ask for clarification on any question that is not absolutely clear.

The clinician should be sure that <u>each dimension</u> of the question is taken into account by the patient (for example, time frame, frequency, severity, and/or alternatives).

Symptoms better accounted for by an organic cause or by the use of alcohol or drugs should not be coded positive in the M.I.N.I. The M.I.N.I. Plus has questions that investigate these issues.

	MODULES	TIME FRAME	MEETS CRITERIA	DSM-IV	ICD-10
miniA3S	MAJOR DEPRESSIVE EPISODE (A)	Current (2 weeks)	YES NO	296.20-296.26 Single	F32.x
miniA4bS		Recurrent	YES NO	296.30-296.36 Recurrent	F33.x
miniA6S	MDE WITH MELANCHOLIC FEATURES (A)	Current (2 weeks)	YES NO	296.20-296.26 Single 296.30-296.36 Recurrent	F32.x F33.x
miniB4S	DYSTHYMIA (B)	Current (Past 2 years)	YES NO	300.4	F34.1
miniCS1	SUICIDALITY (C)	urrent (Past Month)	YES NO		
miniCS2		Risk: ☐ Low ☐ Medium ☐ High			
miniD4bS	MANIC EPISODE (D)	Current Past	YES NO YES NO	296.00-296.06	F30.x-F31.9
miniD4aS	HYPOMANIC EPISODE (D)	Current	YES NO	296.80-296.89	F31.8-
		Past	YES NO		F31.9/F34.0
miniE7S	PANIC DISORDER (E)	Current (Past Month)	YES NO	00.01/300.21	F40.01-F41.0
miniE5S		Lifetime	YES NO		
miniFS3	AGORAPHOBIA (F)	Current	YES NO	300.22	F40.00
miniG4S	SOCIAL PHOBIA (Social Anxiety Disorder) (G)	Current (Past Month)	YES NO	300.23	F40.1
miniH6	OBSESSIVE-COMPULSIVE DISORDER (H)	Current (Past Month)	YES NO	300.3	F42.8
miniI6aS	POSTTRAUMATIC STRESS DISORDER (I)	Current (Past Month)	YES NO	309.81	F43.1
miniI6bS		Lifetime	YES NO		
miniJ2S	ALCOHOL DEPENDENCE (J)	Past 12 Months	YES NO	303.9	F10.2x
miniJ3S	ALCOHOL ABUSE (J)	Past 12 Months	YES NO	305.00	F10.1
miniK2S	SUBSTANCE DEPENDENCE (Non-alcohol) (K)	Past 12 Months	YES NO	304.00-.90/305.20-.90	F11.1-F19.1
miniK3S	SUBSTANCE ABUSE (Non-alcohol) (K)	Past 12 Months	YES NO	304.00-.90/305.20-.90	F11.1-F19.1
miL11bS	PSYCHOTIC DISORDERS (L)	Lifetime	YES NO	295.10-295.90/297.1/	F20.xx-F29
miL12aS		Current	YES NO	297.3/293.81/293.82/ 293.89/298.8/298.9	
miniL14S	MOOD DISORDER WITH PSYCHOTIC FEATURES (L)	Lifetime	YES NO	296.24/296.34/296.44	F32.3/F33.3/
miniL13S		Current	YES NO	296.24/296.34/296.44	F30.2/F31.2/F31.5/ F31.8/F31.9/F39
miniO3S	GENERALIZED ANXIETY DISORDER (O)	Current (Past 6 Months)	YES NO	300.02	F41.1
miniP2S	ANTISOCIAL PERSONALITY DISORDER (P)	Lifetime	YES NO	301.7	F60.2
miniR9S	SOMATIZATION DISORDER (R)	Lifetime Current	YES NO YES NO	330.81	F45.0
miR10S					

A. MAJOR DEPRESSIVE EPISODE

(→MEANS : GO TO THE DIAGNOSTIC BOXES, CIRCLE **NO** IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

miniA1.	A1		Have you been consistently depressed or down, most of the day, nearly every day, for the past two weeks?	NO	YES
miniA2.	A2		In the past two weeks, have you been much less interested in most things or much less able to enjoy the things you used to enjoy most of the time?	NO	YES
miniAS1.	IS **A1** OR **A2** CODED **YES?**			→ NO	YES
	A3	**Over the past two weeks, when you felt depressed or uninterested:**			
miniA3a.		a	Was your appetite decreased or increased nearly every day? Did your weight decrease or increase without trying intentionally (i.e., by ±5% of body weight or ±8 lbs. or ±3.5 kgs., for a 160 lb./70 kg. person in a month)? IF **YES** TO EITHER, CODE **YES**.	NO	YES*
miniA3b.		b	Did you have trouble sleeping nearly every night (difficulty falling asleep, waking up in the middle of the night, early morning wakening or sleeping excessively)?	NO	YES
miniA3c.		c	Did you talk or move more slowly than normal or were you fidgety, restless or having trouble sitting still almost every day?	NO	YES*
miniA3d.		d	Did you feel tired or without energy almost every day?	NO	YES
miniA3e.		e	Did you feel worthless or guilty almost every day?	NO	YES
miniA3f.		f	Did you have difficulty concentrating or making decisions almost every day?	NO	YES
miniA3g.		g	Did you repeatedly consider hurting yourself, feel suicidal, or wish that you were dead?	NO	YES

miniA3S. ARE **5** OR MORE ANSWERS (**A1-A3**) CODED **YES**?

NO **YES***

MAJOR DEPRESSIVE EPISODE, CURRENT

IF PATIENT HAS CURRENT MAJOR DEPRESSIVE EPISODE CONTINUE TO A4, OTHERWISE MOVE TO MODULE B:

miniA4a.	A4	a	During your lifetime, did you have other periods of two weeks or more when you felt depressed or uninterested in most things, and had most of the problems we just talked about?	→ NO	YES
miniA4bS.		b	Did you ever have an interval of at least 2 months without any depression and any loss of interest between 2 episodes of depression?		

NO **YES**

MAJOR DEPRESSIVE EPISODE, RECURRENT

* If patient has Major Depressive Episode, Current, code **YES** in corresponding questions on the next page

MAJOR DEPRESSIVE EPISODE WITH MELANCHOLIC FEATURES

(→ MEANS : GO TO THE DIAGNOSTIC BOX, CIRCLE NO, AND MOVE TO THE NEXT MODULE)

IF THE PATIENT CODES POSITIVE FOR A CURRENT MAJOR DEPRESSIVE EPISODE (**A3** = **YES**), EXPLORE THE FOLLOWING:

miniA5A.	A5	a	During the most severe period of the current depressive episode, did you lose almost completely your ability to enjoy nearly everything?	NO	YES
miniA5b.		b	During the most severe period of the current depressive episode, did you lose your ability to respond to things that previously gave you pleasure, or cheered you up? **IF NO:** When something good happens does it fail to make you feel better, even temporarily?	NO	YES
miniA5S.	IS EITHER **A5a** OR **A5b** CODED **YES**?			→ NO	YES

A6 **Over the past two weeks period, when you felt depressed and uninterested:**

miniA6a.	a	Did you feel depressed in a way that is different from the kind of feeling you experience when someone close to you dies?	NO	YES
miniA6b.	b	Did you feel regularly worse in the morning, almost every day?	NO	YES
miniA6c.	c	Did you wake up at least 2 hours before the usual time of awakening and have difficulty getting back to sleep, almost every day?	NO	YES
miniA6d.	d	IS **A3c** CODED **YES** (PSYCHOMOTOR RETARDATION OR AGITATION)?	NO	YES
miniA6e.	e	IS **A3a** CODED **YES** FOR ANOREXIA OR WEIGHT LOSS?	NO	YES
miniA6f.	f	Did you feel excessive guilt or guilt out of proportion to the reality of the situation?	NO	YES

miniA6S. ARE **3** OR MORE **A6** ANSWERS CODED **YES**?

NO YES

Major Depressive Episode
with
Melancholic Features
Current

B. DYSTHYMIA

(→ MEANS : GO TO THE DIAGNOSTIC BOX, CIRCLE NO, AND MOVE TO THE NEXT MODULE)

IF PATIENT'S SYMPTOMS CURRENTLY MEET CRITERIA FOR MAJOR DEPRESSIVE EPISODE, DO NOT EXPLORE THIS MODULE.

miniB1.	B1	Have you felt sad, low or depressed most of the time for the last two years?	→ NO	YES
miniB2.	B2	Was this period interrupted by your feeling OK for two months or more?	→ NO	YES
	B3	**During this period of feeling depressed most of the time:**		
miniB3a.	a	Did your appetite change significantly	NO	YES
miniB3b.	b	Did you have trouble sleeping or sleep excessively?	NO	YES
miniB3c.	c	Did you feel tired or without energy?	NO	YES
miniB3d.	d	Did you lose your self-confidence?	NO	YES
miniB3e.	e	Did you have trouble concentrating or making decisions?	NO	YES
miniB3f.		f Did you feel hopeless?	NO	YES
miniB3x.		ARE **2** OR MORE **B3** ANSWERS CODED **YES**?	→ NO	YES

miniB4S. B4 Did the symptoms of depression cause you significant distress or impair your ability to function at work, socially, or in some other important way?

NO	YES
DYSTHYMIA **CURRENT**	

C. SUICIDALITY

In the past month did you:

				Points
miniC1.	C1 Think that you would be better off dead or wish you were dead?	NO	YES	1
miniC2.	C2 Want to harm yourself?	NO	YES	2
miniC3.	C3 Think about suicide?	NO	YES	6
miniC4.	C4 Have a suicide plan?	NO	YES	10
miniC5.	C5 Attempt suicide?	NO	YES	10
	In your lifetime:			
miniC6.	C6 Did you ever make a suicide attempt?	NO	YES	4

miniCS1. IS AT LEAST **1** OF THE ABOVE CODED **YES**?

iCS2. IF YES, ADD THE TOTAL NUMBER OF POINTS FOR THE ANSWERS **(C1-C6)** CHECKED 'YES' AND SPECIFY THE LEVEL OF SUICIDE RISK AS FOLLOWS:

Section 1.01 NO
YES

SUICIDE RISK CURRENT

1-5 points	Low
6-9 points	Moderate
≥ 10 points	High

Article II. **D. (HYPO) MANIC EPISODE**

(→MEANS : GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

miniD1a.	D1	a	Have you **ever** had a period of time when you were feeling 'up' or 'high' or 'hyper' or so full of energy or full of yourself that you got into trouble, or that other people thought you were not your usual self? (Do not consider times when you were intoxicated on drugs or alcohol.) IF PATIENT IS PUZZLED OR UNCLEAR ABOUT WHAT YOU MEAN BY 'UP' OR 'HIGH' OR 'HYPER', CLARIFY AS FOLLOWS: By 'up' or 'high' or 'hyper' I mean: having elated mood; increased energy; needing less sleep; having rapid thoughts; being full of ideas; having an increase in productivity, motivation, creativity, or impulsive behavior. IF NO, CODE NO TO **D1b**: IF **YES** ASK:	NO	YES
miniD1b.	b		Are you currently feeling 'up' or 'high' or 'hyper' or full of energy?	NO	YES
miniD2a.	D2	a	Have you **ever** been persistently irritable, for several days, so that you had arguments or verbal or physical fights, or shouted at people outside your family? Have you or others noticed that you have been more irritable or over reacted, compared to other people, even in situations that you felt were justified? IF NO, CODE NO TO **D2b**: IF **YES** ASK:	NO	YES
miniD2b.	b		Are you currently feeling persistently irritable?	NO	YES
				→	
miniDS1.	IS **D1a** OR **D2a** CODED **YES**?			NO	YES

D3 IF **D1b** OR **D2b** = **YES**: EXPLORE ONLY **CURRENT** EPISODE, OTHERWISE
IF **D1b** AND **D2b** = **NO**: EXPLORE THE MOST SYMPTOMATIC **PAST** EPISODE

During the times when you felt high, full of energy, or irritable did you:

miniD3a.	a	Feel that you could do things others couldn't do, or that you were an especially important person?	NO YES
miniD3b.	b	Need less sleep (for example, feel rested after only a few hours sleep)?	NO YES
miniD3c.	c	Talk too much without stopping, or so fast that people had difficulty understanding?	NO YES
miniD3d.	d	Have racing thoughts?	NO YES
miniD3e.	e	Become easily distracted so that any little interruption could distract you?	NO YES
miniD3f.	f	Become so active or physically restless that others were worried about you?	NO YES
miniD3g.	g	Want so much to engage in pleasurable activities that you ignored the risks or consequences (for example, spending sprees, reckless driving, or sexual indiscretions)?	NO YES
MiniD3x.		ARE **3** OR MORE **D3** ANSWERS CODED **YES** (OR **4** OR MORE IF **D1a** IS **NO** (IN RATING PAST EPISODE) OR IF **D1b** IS **NO** (IN RATING CURRENT EPISODE))?	→ NO YES
miniD4.	D4	Did these symptoms last at least a week **and** cause significant problems at home, at work, socially, or at school, **or** were you hospitalized for these problems?	NO YES ↓

THE EPISODE EXPLORED WAS A:

	HYPOMANIC EPISODE	***MANIC EPISODE***
SPECIFY IF THE EPISODE IS CURRENT OR PAST.		
CURRENT	☐	
PAST	☐	

miniD4aS. IS **D4** CODED **NO**?

NO	**YES**
HYPOMANIC EPISODE	

miniD4bS. IS **D4** CODED **YES**?

SPECIFY IF THE EPISODE IS CURRENT OR PAST.

	NO	**YES**
MANIC EPISODE		
CURRENT	☐	
PAST	☐	

E. PANIC DISORDER

(→ MEANS : CIRCLE NO IN E5, E6 AND E7 AND SKIP TO F1)

miniE1a.	E1	a	Have you, on more than one occasion, had spells or attacks when you **suddenly** felt anxious, frightened, uncomfortable or uneasy, even in situations where most people would not feel that way?	→ NO	YES
miniE1b.		b	Did the spells surge to a peak within 10 minutes of starting?	→ NO	YES
miniE2.	E2		At any time in the past, did any of those spells or attacks come on unexpectedly or occur in an unpredictable or unprovoked manner?	→ NO	YES
miniE3.	E3		Have you ever had one such attack followed by a month or more of persistent concern about having another attack, or worries about the consequences of the attack?	NO	YES
	E4		**During the worst spell that you can remember:**		
miniE4a.		a	Did you have skipping, racing or pounding of your heart?	NO	YES
miniE4b.		b	Did you have sweating or clammy hands?	NO	YES
miniE4c.		c	Were you trembling or shaking?	NO	YES
miniE4d.		d	Did you have shortness of breath or difficulty breathing?	NO	YES
miniE4e.		e	Did you have a choking sensation or a lump in your throat?	NO	YES
miniE4f.		f	Did you have chest pain, pressure or discomfort?	NO	YES
miniE4g.		g	Did you have nausea, stomach problems or sudden diarrhea?	NO	YES
miniE4ah.		h	Did you feel dizzy, unsteady, lightheaded or faint?	NO	YES
miniE4i.		i	Did things around you feel strange, unreal, detached or unfamiliar, or did you feel outside of or detached from part or all of your body?	NO	YES
miniE4j.		j	Did you fear that you were losing control or going crazy?	NO	YES
miniE4k.		k	Did you fear that you were dying?	NO	YES
miniE4l.		l	Did you have tingling or numbness in parts of your body?	NO	YES
miniE4m.		m	Did you have hot flushes or chills?	NO	YES
miniE5S.	E5		ARE BOTH **E3,** AND **4** OR MORE **E4** ANSWERS, CODED **YES**? IF YES TO E5, SKIP TO E7.	NO	YES ***PANIC DISORDER LIFETIME***
miniE6S.	E6		IF **E5 = NO,** ARE ANY E4 ANSWERS CODED **YES**? THEN SKIP TO **F1.**	NO	YES ***LIMITED SYMPTOM ATTACKS LIFETIME***
miniE7S	E7		In the past month, did you have such attacks repeatedly (2 or more) followed by persistent concern about having another attack?	NO	YES ***PANIC DISORDER CURRENT***

F. AGORAPHOBIA

miniF1.F1	Do you feel anxious or uneasy in places or situations where you might have a panic attack or the panic-like symptoms we just spoke about, or where help might not be available or escape might be difficult: like being in a crowd, standing in a line (queue), when you are alone away from home or alone at home, or when crossing a bridge, traveling in a bus, train or car?	NO YES

IF **F1** = **NO**, CIRCLE **NO** IN **F2**.

miniF2.F2	Do you fear these situations so much that you avoid them, or suffer through them, or need a companion to face them?	NO YES ***AGORAPHOBIA CURRENT***

miniFS1.	IS **F2** (CURRENT AGORAPHOBIA) CODED **NO** and IS **E7** (CURRENT PANIC DISORDER) CODED **YES**?	**NO** **YES** ***PANIC DISORDER without Agoraphobia CURRENT***
miniFS2.	IS **F2** (CURRENT AGORAPHOBIA) CODED **YES** and IS **E7** (CURRENT PANIC DISORDER) CODED **YES**?	**NO** **YES** ***PANIC DISORDER with Agoraphobia CURRENT***
miniFS3	IS **F2** (CURRENT AGORAPHOBIA) CODED **YES** and IS **E5** (PANIC DISORDER LIFETIME) CODED **NO**?	**NO** **YES** ***AGORAPHOBIA, CURRENT without history of Panic Disorder***

G. SOCIAL PHOBIA (Social Anxiety Disorder)

(→MEANS : GO TO THE DIAGNOSTIC BOX, CIRCLE NO AND MOVE TO THE NEXT MODULE)

miniG1.		G1	In the past month, were you fearful or embarrassed being watched, being the focus of attention, or fearful of being humiliated? This includes things like speaking in public, eating in public or with others, writing while someone watches, or being in social situations.	→ NO	YES
miniG2.		G2	Is this fear excessive or unreasonable?	→ NO	YES
miniG3.		G3	Do you fear these situations so much that you avoid them or suffer through them?	→ NO	YES
miniG4S.	G4		Does this fear disrupt your normal work or social functioning or cause you significant distress?		

NO **YES**

SOCIAL PHOBIA
(Social Anxiety Disorder)
CURRENT

H. OBSESSIVE-COMPULSIVE DISORDER

(→MEANS: GO TO THE DIAGNOSTIC BOX, CIRCLE **NO** AND MOVE TO THE NEXT MODULE)

miniH1.	H1	In the past month, have you been bothered by recurrent thoughts, impulses, or images that were unwanted, distasteful, inappropriate, intrusive, or distressing? (For example, the idea that you were dirty, contaminated or had germs, **or** fear of contaminating others, **or** fear of harming someone even though you didn't want to, **or** fearing you would act on some impulse, **or** fear or superstitions that you would be responsible for things going wrong, **or** obsessions with sexual thoughts, images or impulses, **or** hoarding, collecting, **or** religious obsessions.) (DO NOT INCLUDE SIMPLY EXCESSIVE WORRIES ABOUT REAL LIFE PROBLEMS. DO NOT INCLUDE OBSESSIONS DIRECTLY RELATED TO EATING DISORDERS, SEXUAL DEVIATIONS, PATHOLOGICAL GAMBLING, OR ALCOHOL OR DRUG ABUSE BECAUSE THE PATIENT MAY DERIVE PLEASURE FROM THE ACTIVITY AND MAY WANT TO RESIST IT ONLY BECAUSE OF ITS NEGATIVE CONSEQUENCES.)	NO YES ↓ SKIP TO **H4**
miniH2.	H2	Did they keep coming back into your mind even when you tried to ignore or get rid of them?	NO YES SKIP TO **H4**
miniH3.	H3.	Do you think that these obsessions are the product of your own mind and that they are not imposed from the outside?	NO YES **obsessions**
miniH4.	H4	In the past month, did you do something repeatedly without being able to resist doing it, like washing or cleaning excessively, counting or checking things over and over, or repeating, collecting, arranging things, or other superstitious rituals?	NO YES **compulsions**
miniH4x.	IS **H3** OR **H4** CODED **YES**?		→ NO YES
miniH5.	H5	Did you recognize that either these obsessive thoughts or these compulsive behaviors were excessive or unreasonable?	→ NO YES
miniH6S.	H6	Did these obsessive thoughts and/or compulsive behaviors significantly interfere with your normal routine, occupational functioning, usual social activities, or relationships, or did they take more than one hour a day?	**NO** **YES** ***O.C.D. CURRENT***

I. POSTTRAUMATIC STRESS

(→MEANS : GO TO THE DIAGNOSTIC BOX, CIRCLE NO, AND MOVE TO THE NEXT MODULE)

miniI1.	I1			Have you ever experienced or witnessed or had to deal with an extremely traumatic event that included actual or threatened death or serious injury to you or someone else? EXAMPLES OF TRAUMATIC EVENTS INCLUDE: SERIOUS ACCIDENTS, SEXUAL OR PHYSICAL ASSAULT, A TERRORIST ATTACK, BEING HELD HOSTAGE, KIDNAPPING, FIRE, DISCOVERING A BODY, SUDDEN DEATH OF SOMEONE CLOSE TO YOU, WAR, OR NATURAL DISASTER.	→ NO	YES
miniI2.	I2			Did you respond with intense fear, helplessness or horror?	→ NO	YES
miniI3a.	I3	a		**During the past month**, have you re-experienced the event in a distressing way (such as, dreams, intense recollections, flashbacks or physical reactions)? IF **I3a** CODED AS **NO** ASK**:**	NO ↓	YES
miniI3b.	I3		b	Have you **ever** since that event had a period of at least a month long when you re-experienced the event in a distressing way (such as, dreams, intense recollections, flashbacks or physical reactions)?	→ NO	YES
miniI3S.				IS **I3a** OR **I3b** CODED **YES**?	→ NO	YES

I4 IF **I3a** = **YES**: EXPLORE **CURRENT** SYMPTOMOLOGY OF PTSD. ONLY IF A SYMPTOM NOT PRESENT CURRENTLY, EXPLORE **LIFETIME** SYMPTOMOLOGY OF PTSD. OTHERWISE,
IF **I3a** = **NO**, AND **I3b** = **YES**: EXPLORE ONLY **LIFETIME** SYMPTOMOLOGY OF PTSD.

In the past month/since the event:

miniI4ac	a	Have you avoided thinking about or talking about the event ?	NO ↓	YES
miniI4ap.		Lifetime	NO	YES
miniI4bc.	b	Have you avoided activities, places or people that remind you of the event?	NO ↓	YES
miniI4bp.		Lifetime	NO	YES
miniI4cc.	c	Have you had trouble recalling some important part of what happened?	NO ↓	YES
miniI4cp.		Lifetime	NO	YES
miniI4dc.	d	Have you become much less interested in hobbies or social activities?	NO ↓	YES
miniI4dp.		Lifetime	NO	YES
miniI4ec.	e	Have you felt detached or estranged from others?	NO ↓	YES
miniI4ep.		Lifetime	NO	YES
miniI4fc.	f	Have you noticed that your feelings are numbed?	NO ↓	YES
miniI4fp.		Lifetime	NO	YES
miniI4gc.	g	Have you felt that your life will be shortened or that you will die sooner than other people?	NO ↓	YES
miniI4gp.		Lifetime	NO	YES
miniI4xc.		ARE **3** OR MORE **I4** ANSWERS FOR THE **PAST MONTH** CODED **YES**?	NO	YES
miniI4xp.		ARE **3** OR MORE **I4** ANSWERS EITHER FOR THE **PAST MONTH OR** FOR THE **LIFETIME** CODED **YES?** (CURRENT SYMPTOMOLGY ASSUMES PAST SYMPTOMOLOGY)	→ NO	YES

I5 **In the past month/since the event:**

miniI5ac.	a	Have you had difficulty sleeping?	NO ↓	YES
miniI5ap.		Lifetime	NO	YES
miniI5bc.	b	Were you especially irritable or did you have outbursts of anger?	NO ↓	YES
miniI5bp.		Lifetime	NO	YES
miniI5cc.	c	Have you had difficulty concentrating?	NO ↓	YES
miniI5cp.		Lifetime	NO	YES
miniI5dc.	d	Were you nervous or constantly on your guard?	NO ↓	YES
miniI5dp.		Lifetime	NO	YES

miniI5ec. e Were you easily startled? NO YES

↓

miniI5ep. Lifetime NO YES

miniI5xc. ARE **2** OR MORE **I5** ANSWERS FOR THE **PAST MONTH** CODED **YES**? NO YES

→

miniI5xp. ARE **2** OR MORE **I5** ANSWERS EITHER FOR THE **PAST MONTH OR** FOR THE **LIFETIME** CODED **YES**? (CURRENT SYMPTOMOLGY ASSUMES PAST SYMPTOMOLOGY) NO YES

IF **I3a** CODED **NO**, CODE **NO** TO **16a**: IF **YES**, AND IF **2** OR MORE **I5 FOR THE PAST MONTH** CODED **YES**, ASK:

MINI679. miniI6aS. I6 a During the past month, have these problems significantly interfered with your work or social activities, or caused significant distress?

NO **YES**

POSTTRAUMATIC STRESS DISORDER CURRENT

IF **I3b** CODED **NO**, CODE **NO** TO **16b**: IF **YES** AND IF **2** OR MORE **I5 FOR THE LIFETIME** CODED **YES**, ASK:

miniI6bS. I6 b During the above mentioned period, have these problems significantly interfered with your work or social activities, or caused significant distress?

NO YES

POSTTRAUMATIC STRESS DISORDER LIFETIME

J. ALCOHOL ABUSE AND DEPENDENCE

(→MEANS: GO TO DIAGNOSTIC BOXES, CIRCLE **NO** IN BOTH AND MOVE TO THE NEXT MODULE)

				→	
miniJ1.	J1		**In the past 12 months**, have you had 3 or more alcoholic drinks within a 3 hour period on 3 or more occasions?	NO	YES
	J2		**In the past 12 months**:		
miniJ2a.		a	Did you need to drink more in order to get the same effect that you got when you first started drinking?	NO	YES
miniJ2b.		b	When you cut down on drinking did your hands shake, did you sweat or feel agitated? Did you drink to avoid these symptoms or to avoid being hangover, for example, "the shakes", sweating or agitation? IF **YES** TO EITHER, CODE **YES**.	NO	YES
miniJ2c.		c	During the times when you drank alcohol, did you end up drinking more than you planned when you started?	NO	YES
miniJ2d.		d	Have you tried to reduce or stop drinking alcohol but failed?	NO	YES
miniJ2e.		e	On the days that you drank, did you spend substantial time in obtaining alcohol, drinking, or in recovering from the effects of alcohol?	NO	YES
miniJ2f.		f	Did you spend less time working, enjoying hobbies, or being with others because of your drinking?	NO	YES
miniJ2g.		g	Have you continued to drink even though you knew that the drinking caused you health or mental problems?	NO	YES

miniJ2S. ARE **3** OR MORE **J2** ANSWERS CODED **YES**?

NO **YES***

ALCOHOL DEPENDENCE
CURRENT

* IF YES, SKIP J3 QUESTIONS, CIRCLE N/A IN THE ABUSE BOX AND MOVE TO THE NEXT DISORDER. DEPENDENCE PREEMPTS ABUSE.

	J3		**In the past 12 months:**		
miniJ3a.		a	Have you been intoxicated, high, or hungover more than once when you had other responsibilities at school, at work, or at home? Did this cause any problems? (CODE **YES** ONLY IF THIS CAUSED PROBLEMS.)	NO	YES
miniJ3b.		b	Were you intoxicated more than once in any situation where you were physically at risk, for example, driving a car, riding a motorbike, using machinery, boating, etc.?	NO	YES
miniJ3c.		c	Did you have legal problems more than once because of your drinking, for example, an arrest or disorderly conduct?	NO	YES
miniJ3d.		d	Did you continue to drink even though your drinking caused problems with your family or other people?	NO	YES

miniJ3S. ARE **1** OR MORE **J3** ANSWERS CODED **YES**?

NO **N/A** **YES**

ALCOHOL ABUSE
CURRENT

K. NON-ALCOHOL PSYCHOACTIVE SUBSTANCE USE DISORDERS

(→ MEANS : GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

Now I am going to show you / read to you a list of street drugs or medicines.

				→	
miniK1a.	K1	a	**In the past 12 months**, did you take any of these drugs more than once, to get high, to feel better, or to change your mood?	NO	YES

CIRCLE EACH DRUG TAKEN:

Stimulants: amphetamines, "speed", crystal meth, "crank", "rush", Dexedrine, Ritalin, diet pills.

Cocaine: snorting, IV, freebase, crack, "speedball".

Narcotics: heroin, morphine, Dilaudid, opium, Demerol, methadone, heptanon, hep, codeine, Percodan, Darvon, OxyContin.

Hallucinogens: LSD ("acid"), mescaline, peyote, PCP ("angel dust", "peace pill"), psilocybin, STP, "mushrooms", "ecstasy", MDA, MDMA, or ketamine ("special K").

Inhalants: "glue", ethyl chloride, "rush", nitrous oxide ("laughing gas"), amyl or butyl nitrate ("poppers").

Marijuana: hashish ("hash"), THC, "pot", "grass", "weed", "reefer".

Tranquilizers: apaurin, leksaurin, loram, tavor, tranex, Quaalude, Seconal ("reds"), Valium, Xanax, Librium, Ativan, Dalmane, Halcion, barbiturates, Miltown, GHB, Roofinol, "Roofies".

Miscellaneous: steroids, nonprescription sleep or diet pills. Any others?

miniK1x1. **SPECIFY MOST USED DRUG(S):** _____

	miniK1x2. CHECK ONE BOX
ONLY ONE DRUG / DRUG CLASS HAS BEEN USED	☐
ONLY THE MOST USED DRUG CLASS IS INVESTIGATED.	☐
EACH DRUG CLASS USED IS EXAMINED SEPARATELY (PHOTOCOPY K2 AND K3 AS NEEDED)	☐

miniK1b. b SPECIFY WHICH DRUG/DRUG CLASS WILL BE EXPLORED IN THE INTERVIEW BELOW IF THERE IS CONCURRENT OR SEQUENTIAL POLYSUBSTANCE USE:_____

K2 **Considering your use of (NAME THE DRUG / DRUG CLASS SELECTED), in the past 12 months:**

miniK2a.		a	Have you found that you needed to use more (NAME OF DRUG / DRUG CLASS SELECTED) to get the same effect that you did when you first started taking it?	NO	YES
miniK2b.		b	When you reduced or stopped using (NAME OF DRUG / DRUG CLASS SELECTED), did you have withdrawal symptoms (aches, shaking, fever, weakness, diarrhea, nausea, sweating, heart pounding, difficulty sleeping, or feeling agitated, anxious, irritable, or depressed)? Did you use any drug(s) to keep yourself from getting sick (withdrawal symptoms) or so that you would feel better? IF **YES** TO EITHER, CODE **YES**.	NO	YES
miniK2c.		c	Have you often found that when you used (NAME OF DRUG / DRUG CLASS SELECTED), you ended up taking more than you thought you would?	NO	YES
miniK2d.		d	Have you tried to reduce or stop taking (NAME OF DRUG / DRUG CLASS SELECTED) but failed?	NO	YES
miniK2e.		e	On the days that you used (NAME OF DRUG / DRUG CLASS SELECTED), did you spend substantial time (>2 HOURS), obtaining, using or in recovering from the drug, or thinking about the drug?	NO	YES
miniK2f.		f	Did you spend less time working, enjoying hobbies, or being with family or friends because of your drug use?	NO	YES
miniK2g.		g	Have you continued to use (NAME OF DRUG / DRUG CLASS SELECTED), even though it caused you health or mental problems?	NO	YES

miniK2S. ARE **3** OR MORE **K2** ANSWERS CODED **YES**?

miniK2x. SPECIFY DRUG(S): _____

***** IF YES, SKIP **K3** QUESTIONS, CIRCLE N/A IN THE ABUSE BOX FOR THIS SUBSTANCE AND MOVE TO THE NEXT DISORDER. DEPENDENCE PREEMPTS ABUSE.

NO	YES *
SUBSTANCE DEPENDENCE **CURRENT**	

K3 Considering your use of (NAME THE DRUG CLASS SELECTED), in the past 12 months:

miniK3a.	a	Have you been intoxicated, high, or hangover from (NAME OF DRUG / DRUG CLASS SELECTED) more than once, when you had other responsibilities at school, at work, or at home? Did this cause any problem? (CODE **YES** ONLY IF THIS CAUSED PROBLEMS.)	NO	YES
miniK3b.	b	Have you been high or intoxicated from (NAME OF DRUG / DRUG CLASS SELECTED) more than once in any situation where you were physically at risk (for example, driving a car, riding a motorbike, using machinery, boating, etc.)?	NO	YES
miniK3c.	c	Did you have legal problems more than once because of your drug use, for example, an arrest or disorderly conduct?	NO	YES
miniK3d.	d	Did you continue to use (NAME OF DRUG / DRUG CLASS SELECTED), even though it caused problems with your family or other people?	NO	YES

miniK3S. ARE **1** OR MORE **K3** ANSWERS CODED **YES**?

NO	N/A	YES

SUBSTANCE ABUSE
CURRENT

miniK3x. SPECIFY DRUG(S): _____

L. PSYCHOTIC DISORDERS AND MOOD DISORDER WITH PSYCHOTIC FEATURES

ASK FOR AN EXAMPLE OF EACH QUESTION ANSWERED POSITIVELY. CODE **YES** ONLY IF THE EXAMPLES CLEARLY SHOW A DISTORTION OF THOUGHT OR OF PERCEPTION OR IF THEY ARE NOT CULTURALLY APPROPRIATE. BEFORE CODING, INVESTIGATE WHETHER DELUSIONS QUALIFY AS "BIZARRE".

DELUSIONS ARE "BIZARRE" IF: CLEARLY IMPLAUSIBLE, ABSURD, NOT UNDERSTANDABLE, AND CANNOT DERIVE FROM ORDINARY LIFE EXPERIENCE.

HALLUCINATIONS ARE SCORED "BIZARRE" IF: A VOICE COMMENTS ON THE PERSON'S THOUGHTS OR BEHAVIOR, OR WHEN TWO OR MORE VOICES ARE CONVERSING WITH EACH OTHER.

Now I am going to ask you about unusual experiences that some people have.

						BIZARRE
miniL1a.	L1	a	Have you ever believed that people were spying on you, or that someone was plotting against you, or trying to hurt you? **NOTE**: ASK FOR EXAMPLES TO RULE OUT ACTUAL STALKING.	NO	YES	YES
miniL1b.		b	**IF YES:** do you currently believe these things?	NO	YES	YES **→L6**
miniL2a.	L2	a	Have you ever believed that someone was reading your mind or could hear your thoughts, or that you could actually read someone's mind or hear what another person was thinking?	NO	YES	YES
miniL2b.		b	**IF YES:** do you currently believe these things?	NO	YES	YES **→L6**
miniL3a.	L3	a	Have you ever believed that someone or some force outside of yourself put thoughts in your mind that were not not your own, or made you act in a way that was not your usual self? Have you ever felt that you were possessed? CLINICIAN: ASK FOR EXAMPLES AND DISCOUNT ANY THAT ARE NOT PSYCHOTIC.	NO	YES	YES
miniL3b.		b	**IF YES:** do you currently believe these things?	NO	YES	YES **→L6**
miniL4a.	L4	a	Have you ever believed that you were being sent special messages through the TV, radio, or newspaper, or that a person you did not personally know was particularly interested in you?	NO	YES	YES
miniL4b.		b	**IF YES:** do you currently believe these things?	NO	YES	YES **→L6**
miniL5a.	L5	a	Have your relatives or friends ever considered any of your beliefs strange or unusual? INTERVIEWER**:** ASK FOR EXAMPLES. ONLY CODE **YES** IF THE EXAMPLES ARE **CLEARLY** DELUSIONAL IDEAS NOT EXPLORED IN QUESTIONS L1 TO L4, FOR EXAMPLE, SOMATIC OR RELIGIOUS DELUSIONS OR DELUSIONS OF GRANDIOSITY, JEALOUSY, GUILT, RUIN OR DESTITIUTION, ETC.	NO	YES	YES
miniL5b.		b	**IF YES:** do they currently consider your beliefs strange?	NO	YES	YES
miniL6a.	L6	a	Have you ever heard things other people couldn't hear, such as voices? HALLUCINATIONS ARE SCORED "BIZARRE" ONLY IF PATIENT ANSWERS **YES** TO THE FOLLOWING: **IF YES:** Did you hear a voice commenting on your thoughts or behavior or did you hear two or more voices talking to each other?	NO	YES	YES
miniL6b.		b	**IF YES:** have you heard these things in the past month?	NO	YES	YES **→L8b**

IF YES: Did you hear a voice commenting on your thoughts or behavior or

miniL7a.		L7	a	Have you ever had visions when you were awake or have you ever seen things other people couldn't see? CLINICIAN: CHECK TO SEE IF THESE ARE CULTURALLY INAPPROPRIATE.	NO	YES
miniL7b.	b			**IF YES:** have you seen these things in the past month?	NO	YES
				CLINICIAN'S JUDGMENT		
miniL8b.	L8	b		IS THE PATIENT CURRENTLY EXHIBITING INCOHERENCE, DISORGANIZED SPEECH, OR MARKED LOOSENING OF ASSOCIATIONS?	NO	YES
miniL9b.	L9	b		IS THE PATIENT CURRENTLY EXHIBITING DISORGANIZED OR CATATONIC BEHAVIOR?	NO	YES
MiniL10b.	L10b			ARE NEGATIVE SYMPTOMS OF SCHIZOPHRENIA, E.G. SIGNIFICANT AFFECTIVE FLATTENING, POVERTY OF SPEECH (ALOGIA) OR AN INABILITY TO INITIATE OR PERSIST IN GOAL-DIRECTED ACTIVITIES (AVOLITION), PROMINENT DURING THE INTERVIEW?	NO	YES
miniL11a	L11a			ARE 1 OR MORE « a » QUESTIONS FROM L1a TO L7a CODED **YES OR YES BIZARRE** AND IS EITHER: MAJOR DEPRESSIVE EPISODE, (CURRENT OR RECURRENT) **OR** MANIC OR HYPOMANIC EPISODE, (CURRENT OR PAST) CODED **YES**? IF NO TO L11 a, CIRCLE NO IN BOTH 'MOOD DISORDER WITH PSYCHOTIC FEATURES' DIAGNOSTIC BOXES AND MOVE TO L13.	NO **→L13**	YES

miL11bS.	L11b	You told me earlier that you had period(s) when you felt (depressed/high/persistently irritable). Were the beliefs and experiences you just described (SYMPTOMS CODED **YES** FROM **L1**a TO **L7**a) restricted exclusively to times when you were feeling depressed/high/irritable? IF THE PATIENT EVER HAD A PERIOD OF AT LEAST 2 WEEKS OF HAVING THESE BELIEFS OR EXPERIENCES (PSYCHOTIC SYMPTOMS) WHEN THEY WERE NOT DEPRESSED/HIGH/IRRITABLE, CODE NO TO THIS DISORDER. IF THE ANSWER IS NO TO THIS DISORDER, ALSO CIRCLE NO TO L12 AND MOVE TO L13	**NO** **YES** **MOOD DISORDER** **WITH** ***PSYCHOTIC FEATURES*** *LIFETIME*
miL12aS.	L12a	ARE 1 OR MORE « b » QUESTIONS FROM L1b TO L7b CODED **YES OR YES BIZARRE** AND IS EITHER: MAJOR DEPRESSIVE EPISODE, (CURRENT) **OR** MANIC OR HYPOMANIC EPISODE, (CURRENT) CODED **YES**? IF THE ANSWER IS YES TO THIS DISORDER, CIRCLE NO TO L13 AND L14 AND MOVE TO THE NEXT MODULE	**NO** **YES** **MOOD DISORDER** **WITH** **PSYCHOTIC FEATURES** *CURRENT*
miniL13S.	L13	ARE 1 OR MORE « b » QUESTIONS CODED **YES BIZARRE**? **OR** ARE 2 OR MORE « b » QUESTIONS CODED **YES** (RATHER THAN **YES BIZARRE**)?	**NO** **YES** **PSYCHOTIC DISORDER** **CURRENT**
miniL14S.	L14	IS **L13** CODED **YES** **OR** ARE 1 OR MORE « a » QUESTIONS FROM L1a TO L7a, CODED **YES BIZARRE**? **OR** ARE 2 OR MORE « a » QUESTIONS FROM L1a TO L7a, CODED **YES** (RATHER THAN **YES BIZARRE**) AND DID AT LEAST TWO OF THE PSYCHOTIC SYMPTOMS OCCUR DURING THE SAME TIME PERIOD?	**NO** **YES** ***PSYCHOTIC DISORDER*** **LIFETIME**

O. GENERALIZED ANXIETY DISORDER

(→MEANS : GO TO THE DIAGNOSTIC BOX, CIRCLE NO, AND MOVE TO THE NEXT MODULE)

miniO1a.	O1	a	Have you worried excessively or been anxious about several things over the past 6 months?	→ NO	YES
miniO1b.		b	Are these worries present most days?	→ NO	YES
miniOS1.			IS THE PATIENT'S ANXIETY RESTRICTED EXCLUSIVELY TO, OR BETTER EXPLAINED BY, ANY DISORDER PRIOR TO THIS POINT?	NO	→ YES
miniO2.		O2	Do you find it difficult to control the worries or do they interfere with your ability to focus on what you are doing?	→ NO	YES
		O3	FOR THE FOLLOWING, CODE **NO** IF THE SYMPTOMS ARE CONFINED TO FEATURES OF ANY DISORDER EXPLORED PRIOR TO THIS POINT**.**		
			When you were anxious over the past 6 months, did you, most of the time:		
miniO3a.		a	Feel restless, keyed up or on edge?	NO	YES
miniO3b.		b	Feel tense?	NO	YES
miniO3c.		c	Feel tired, weak or exhausted easily?	NO	YES
miniO3d.		d	Have difficulty concentrating or find your mind going blank?	NO	YES
miniO3e.		e	Feel irritable?	NO	YES
miniO3f.		f	Have difficulty sleeping (difficulty falling asleep, waking up in the middle of the night, early morning wakening or sleeping excessively)?	NO	YES

miniO3S. ARE **3** OR MORE **O3** ANSWERS CODED **YES**?

NO	**YES**
GENERALIZED ANXIETY DISORDER	
CURRENT	

P. ANTISOCIAL PERSONALITY DISORDER (optional)

(→MEANS : GO TO THE DIAGNOSTIC BOX AND CIRCLE NO.)

	P1		**Before you were 15 years old, did you:**		
miniP1a.		a	repeatedly skip school or run away from home overnight?	NO	YES
miniP1b.		b	repeatedly lie, cheat, "con" others, or steal?	NO	YES
miniP1c.		c	start fights or bully, threaten, or intimidate others?	NO	YES
miniP1d..		d	deliberately destroy things or start fires?	NO	YES
miniP1e.		e	deliberately hurt animals or people?	NO	YES
miniP1f.		f	force someone to have sex with you?	NO	YES
miniP1x.			ARE **2** OR MORE **P1** ANSWERS CODED **YES**?	NO →	YES
			DO NOT CODE **YES** TO THE BEHAVIORS BELOW IF THEY ARE EXCLUSIVELY POLITICALLY OR RELIGIOUSLY MOTIVATED**.**		
	P2		**Since you were 15 years old, have you:**		
miniP2a .		a	repeatedly behaved in a way that others would consider irresponsible, like failing to pay for things you owed, deliberately being impulsive or deliberately not working to support yourself?	NO	YES
miniP2b.		b	done things that are illegal even if you didn't get caught (for example, destroying property, shoplifting, stealing, selling drugs, or committing a felony)?	NO	YES
miniP2c.		c	been in physical fights repeatedly (including physical fights with your spouse or children)?	NO	YES
miniP2d.		d	often lied or "conned" other people to get money or pleasure, or lied just for fun?	NO	YES
miniP2e.		e	exposed others to danger without caring?	NO	YES
miniP2f.		f	felt no guilt after hurting, mistreating, lying to, or stealing from others, or after damaging property?	NO	YES

miniP2S.	ARE **3** OR MORE **P2** QUESTIONS CODED **YES**?	**NO** **YES** ***ANTISOCIAL PERSONALITY DISORDER*** **LIFETIME**

R. SOMATIZATION DISORDER

(→MEANS : GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

miniR1a.	R1 a	Have you had **many** physical complaints not clearly related to a specific disease beginning before age 30?	→ NO	YES	
miniR1b..	b	Did these physical complaints occur over several years?	→ NO	YES	
miniR1c.	c	Did these complaints lead you to seek treatment?	NO	YES	→
miniR1d.	d	Did these complaints cause significant problems at school, work, socially, or in other important areas?	→ NO	YES	
	R2	Did you have pain in:			
miniR2a.		head	NO	YES	
miniR2b.		abdomen	NO	YES	
miniR2c.		back	NO	YES	
miniR2d.		joints, extremeties, chest, rectum	NO	YES	
miniR2e.		during menstruation	NO	YES	
miniR2f.		sexual intercourse	NO	YES	
miniR2g.		urination	NO	YES	
→ miniR2x.		ARE **2** OR MORE **R2** ANSWERS CODED **YES**?	NO	YES	
	R3	Did you have any of the following abdominal symptoms:			
miniR3a.		nausea	NO	YES	
miniR3b.		bloating	NO	YES	
miniR3c.		vomiting	NO	YES	
miniR3d.		diarrhea	NO	YES	
miniR3e.		intolerance of several different foods	NO	YES	
miniR3x.		→ ARE **2** OR MORE **R3** ANSWERS CODED **YES**?	NO	YES	
	R4	Did you have any of the following sexual symptoms:			
miniR4a.		loss of sexual interest	NO	YES	
miniR4b.		erection or ejaculation problems	NO	YES	
miniR4c.		irregular menstrual period	NO	YES	
miniR4d.		excessive menstrual bleeding	NO	YES	
miniR4e.		vomiting throughout pregnancy	NO	YES	
miniR4x.		→ ARE **2** OR MORE **R4** ANSWERS CODED **YES**?	NO	YES	
	R5	Did you have any of the following symptoms:			
miniR5a.		paralysis or weakness in parts of your body	NO	YES	
miniR5b.		impaired coordination or imbalance	NO	YES	
miniR5c.		difficulty swallowing or lump in throat	NO	YES	
miniR5d.		difficulty speaking	NO	YES	
miniR5e.		difficulty emptying your bladder	NO	YES	
miniR5f.		loss of touch or pain sensation	NO	YES	
miniR5g.		double vision or blindness	NO	YES	
miniR5h.		deafness, seizures, loss of consciousness	NO	YES	
miniR5i.		significant episodes of forgetfulness	NO	YES	
miniR5j.		unexplained sensations in your body (CLINICIANS: PLEASE EVALUATE IF THERE ARE SOMATIC HALLUCINATIONS)	NO	YES	
miniR5x.		ARE **2** OR MORE **R5** ANSWERS CODED **YES**?	→ NO	YES	
miniR6.	R6	Were the symptoms investigated by your physician?	NO	YES	
miniR7.	R7	Was any medical illness found, or were you using any drug or medication that could explain these symptoms?	NO	YES	
miniR7x.		**R6 AND R7 (SUMMARY):** CLINICIAN: HAS AN ORGANIC CAUSE BEEN RULLED OUT?	NO	YES	

miniR8. R8 Were the complaints or disability out of proportion to the patient's physical illness? NO YES

miniR8x. **R7 (SUMMARY)** OR **R8** CODED **YES**? → NO YES

miniR9. R9 Were the symptoms a pretense or intentionally produced (as in factitious disorder)? → NO YES

miniR9S. IS **R9** CODED **NO**?

NO **YES**

SOMATIZATION DISORDER

LIFETIME

miR10S. R10 Are you currently suffering from these symptoms?

NO **YES**

SOMATIZATION DISORDER

CURRENT

B-7

8. MANSA

Please estimate how satisfied are you with different aspects of your life that are listed below (accommodation, friendships, financial situation etc.) Use this scale bellow ranging form 1 to 7.

Satisfaction Scale

1	2	3	4	5	6	7
Couldn't be worse	**Displeased**	**Mostly dissatisfied**	**Mixed**	**Pleased**	**Mostly satisfied**	**Couldn't be better**

mansa01	How satisfied are you with your life as a whole today?	
mansa02	How satisfied are you with your job (or training/education as your main occupation)? ***or if unemployed or retired*** How satisfied are you with being unemployed / retired?	
mansa03	How satisfied are you with your financial situation?	
mansa04	Do you have anyone who you would call a "close friend"?	0=NO 1=YES
mansa05	In the last week have you seen a friend? (visited a friend, been visited by a friend, or met a friend outside both your home and work)	0=NO 1=YES
mansa06	How satisfied are you with the number and quality of your friendships?	
mansa07	How satisfied are you with your leisure activities?	
mansa08	How satisfied are you with your accommodation?	
mansa09	In the past year have you been accused of a crime?	0=NO 1=YES,
mansa10	In the past year have you been a victim of physical violence?	0=NO 1=YES
mansa11	How satisfied are you with your personal safety?	
mansa12	How satisfied are you with the people that you live with? ***or if you live alone*** How satisfied are you with living alone?	
mansa13	How satisfied are you with your sex life?	
mansa14	How satisfied are you with your relationship with your family	
mansa15	How satisfied are you with your physical health?	
mansa16	How satisfied are you with your mental health?	

Appendix C:

Follow-up invitation letter and consent for

C-1

Follow-up invitation letter and consent form

Barts & The London School of Medicine and Dentistry

Queen Mary, University of London

Invitation to Participate in a Research Project

Components, organization, costs and outcomes of health care and social interventions for people with posttraumatic stress following war and conflict in the Balkans

About a year ago you took part in the CONNECT study. On that occasion you kindly agreed to be contacted by the research team for the follow-up part of the study. The questions will be the same as a year ago, but before you decide to take part in the follow-up it is important that you re-read the information to remind yourself what is involved. Please read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take enough time to decide whether you wish to take part in this research. We thank you for reading this information.

What is the purpose of this study? We want to find out more about what health care and community based services are used by people that have experienced psychological stress of war and migration related to conflicts in the Balkans, and more importantly how helpful are different services in alleviating possible psychological stress. We believe that our research will yield insights into strengths and weaknesses of different health care and community based interventions. This knowledge will help design more effective health and social care policies for people with posttraumatic stress.

Why have I been chosen? We would like to ask you to participate in the research if you have experience of war and migration related to conflicts in the Balkans, and are between 18 and 65 years of age.

Do I have to take part? It is up to you to decide whether or not to take part. If you decide to take part, we will ask you to keep this information sheet and to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What will happen to me if I take part? If you decide to take part in the research, we will ask you about stressful events you have experienced (what were these events, when they happened, what was your reaction), whether you have suffered or are suffering from any psychological difficulties since the war and/or migration about medical and social interventions you may have received since the war and how helpful they have been, and about your quality of life (how satisfied are you with your life as a whole, with friendships, accommodation, with your employment etc.).

What you will tell us is very important and covers a number of topics, thus an interview may last up to 2 hours. In the course of the interview you can make breaks, you do not have to answer all the questions if you do not wish and you can stop the interview at any time.

The researcher that will talk to you is _____(*place of birth* _____). If you would like to know the ethnic origin and/or religious beliefs of the researcher we will provide you with the information before the interview.

If you do not wish to be interviewed by this researcher, other researcher from our team that speaks Bosnian/Croatian/Serbian (or Albanian) will talk to you (if you wish that can be a researcher who speaks English only and the interview will be conducted in English).

If you consent, part of the interview that refers to use and effects of the health care and community-based interventions will be tape-recorded. If you do not want this part of the interview to be tape-recorded, a researcher will take notes.

What are possible benefits and disadvantages of taking part? You may value the opportunity to reflect on your experiences, coping strategies with difficulties and barriers to seeking or receiving help. It will give us important information on how to improve our services so that people in need of treatment are more likely to seek and receive it. There is a possibility that you may find discussing stressful /traumatic events distressing. For this reason, you may stop the interview **at any time and you can refuse**

to answer any question. We will also give you information if you feel you need some kind of psychological help because of your traumatic experiences. If this is the case, the best way is first to contact your GP and s/he will refer you to the adequate service. We will provide you with a list of specialised services throughout the country that may be helpful to your GP. Some of these services you may also contact directly.

If you wish, a friend, relative or any person of your choice can be present during any interview.

Where will the interview take place? The interview will take place at our Unit (Academic Unit, Newham Centre for Mental Health) or at the office of your community organisation or social service. However if this is not convenient, we can arrange interview at your home or at any other place that is convenient for you (i.e. coffee shop).

Will my taking part in this study be kept confidential? All the information during the study will be strictly confidential. The only people who may see information about your part in the study are the research team. If you require any more information about the study you may contact *Professor Stefan Priebe*. Your name will not be in any information that leaves the team base so that you cannot be recognised from it. If your interview is recorded on tape (without your name), the tape will be destroyed 2 years after the end of the project (1.8.2009). You may withdraw from the study at any time, and any tape recording will be destroyed immediately. Confidentiality of what you tell us is very important to us.

What will happen to the results of the study? The results will be analysed and written up in a research report to show in what way experience of war and migration affects people, what medical and social services are used and how effective they are in alleviating posttraumatic stress. Results will probably be published in 2008, and you can get a copy from the researcher. If you take part, your name will not appear in any report. To ensure confidentiality, your name will not appear in the database.

Who is organising and funding the research? Bart`s and the London School of Medicine has received funding from European Commission.

What happens if something goes wrong? We will take every precaution in the course of this study. If through our negligence any harm to you results, you will be compensated. Even if the claim is not our fault, we will consider any claim sympathetically and you may be entitled to compensation. If you are not happy with any proposed compensation you may have to pursue your claim through legal action.

What happens if you are worried, if you have any questions about the research or if there is an emergency? You will be able to contact the researcher to discuss your concerns:
Name **:** *Professor Stefan Priebe* ***Address*****:** Academic Unit, Newham Centre for Mental Health, London E13 8SP, UK ***Telephone number***: 020 7540 4210

If you decide to take part in the study, you will be given a copy of this information sheet and the signed consent form to keep.

Please find bellow-enclosed information on how to get help regarding psychological problems that you have experienced following your traumatic experiences

Thank you for your interest in research

<u>Treatment options for traumatic stress</u>

There are many types of treatment for traumatic stress. Research supports the effectiveness of medication, anxiety management, cognitive therapy (focusing on thoughts and beliefs), and exposure therapy (helping the person confront painful memories that are still frightening, through talking about or imagining them) for reducing symptoms of posttraumatic stress. Interpersonal or psychodynamic psychotherapies, which focus on the meaning of the event and how the experience has affected relationships with other people, may also help understand the source of the current problems and how these relate to the traumatic experiences. A combination of psychotherapy and medication is often helpful for depression and anxiety following traumatic experiences.
No single treatment is effective for everyone, and sometimes it takes time to find the right treatment.

Where to go for help

If you feel that you need help because of your traumatic experiences, we suggest that you first contact your GP. Bellow is the list of specialised services that provide help for people that have experienced traumas. Depending in which part of the country you live in, you might be able to contact some of these centres directly or you will need to be refereed by your doctor.

Aberdeen: Centre for Trauma Research, Bennachie, Royal Cornhill Hospital, Aberdeen AB25 2ZH
Tel: 01224 681818 ext 53881, Contact: David Alexander (men052@abdn.ac.uk)

Cambridge: Addenbrooke's Hospital and the Cognition and Brain Sciences Unit, 15 Chaucer Road, Cambridge, CB7 2EF
Tel: 01223 355 294, Contact: Tim Dalgleish (tim.dalgleish@mrc-cbu.cam.ac.uk)

Cardiff: Department of Liaison Psychiatry, Cardiff & Vale NHS Trust, Monmouth House, University Hospital of Wales, Heath Park, Cardiff, CF14 4XW
Tel: 029 2074 3940, Contact: Jonathon Bisson (BissonJI@cf.ac.uk)

Catterick: Defence Services Psychological Injuries Unit, Duchess of Kent Psychiatric Hospital, Catterick, North Yorkshire DL9 4DF
Tel: 01748 87 3616, Contact: Hazel Pilgrim (hazepilg@dsca.mod.uk)

Edinburgh: The Rivers Centre, Royal Edinburgh Hospital, Morningside Park, Edinburgh, EH10 5HF
Tel: 0131 537 6797; Fax: 0131 537 6104, Contacts: Chris Freeman (c.freeman@which.net), Claire Fyvie

Glasgow: Glasgow Psychological Trauma Consultation Group (child survivors) University of Glasgow, Department of Child and Adolescent Psychiatry, Royal Hospital for Sick Children, Yorkhill, Glasgow, G3 8SJ
Tel: 0141 201 0223; Fax: 0141 201 9261
Contacts: Joanne Barton (jb11x@clinmed.gla.ac.uk) Christine Puckering (christine@mellowparenting.demon.co.uk)

Leeds: Leeds Community & Mental Health Services, Morley health Centre, Morley, Leeds LS27 9NB
Tel: 0113 2954618, Contacts: Norman Macaskill, Richard Winspear

Lincoln: Baverstock House, St Annes Road, Lincoln, LN2 5RA
Tel: 01522 560617, Contact: Roderick Orner (rorner@cix.co.uk)

Lisburn: Stress Disorders Clinic, Department of Psychiatry, Lagan Valley Hospital, Lisburn, Co. Antrim, N. Ireland, BT28 1JP
Tel: 02892 665141, Contact: Oscar Daly (oscar_daly@dltrust.n-i.nhs.uk)

London:

- Traumatic Stress Services, South London & Maudsley NHS Trust, Denmark Hill, London SE5 8AZ
  Contacts (The Centre for Anxiety Disorders and Trauma): David Clark(d.clark@iop.kcl.ac.uk), Anke Ehlers(a.ehlers@iop.kcl.ac.uk).
  Contacts (Adult trauma): Rachel Canterbury (r.canterbury@iop.kcl.ac.uk), Felicity De Zulueta (f.dezulueta@iop.kcl.ac.uk) - Tel: 020 7919 2969.
  Contacts (Children): Bill Yule (w.yule@iop.kcl.ac.uk) - Tel: 020 7848 0217.
  Contacts (Section of Trauma Studies, 38 Carver Road, London SE24 9LT): Metin Basoglu (metin@basoglu.u-net.com), Maria Livanou (m.livanou@iop.kcl.ac.uk), Homa Noshirvani. Tel: 020 7738 4967
  Contacts (Other): Martin Baggaley (m.baggaley@btinternet.com), (University Hospital Lewisham) Tel: 020 8333 3000.
- Post-traumatic Stress Service, Department of Clinical Psychology, Lakeside Mental health Unit, West Middlesex University Hospital, Twickenham Road, Isleworth TW7 6AF
  Tel: 020 8321 6440
  Contact: Vartouhi Ohanian(vohanian@fsmail.net)
- The Tavistock Clinic, 120 Belsize Lane, London, NW3 5BA
  Tel: 020 7435 7111
  Contact: Caroline Garland

- The Traumatic Stress Clinic, (Camden and Islington Mental Health and Social Care Trust; University College London),
- 73 Charlotte Street, London, W1T 4PL
  Tel: 020 7530 3666; Fax: 020 7530 3677
  Contacts (Adult service): Gwen Adshead (RAK@wlmht.nhs.uk), Chris Brewin (c.brewin@ucl.ac.uk), Deborah Lee.
  Contacts (Refugee service): Mary Robertson (Mary.Robertson@cichs-tr.nthames.nhs.uk), Stuart Turner (s.turner@traumaclinic.org.uk).
  Contacts (Child and Family service): Annette Mendelsohn, Guinevere Tufnell (Guinevere.Tufnell@cichs-tr.nthames.nhs.uk).
  Contacts (Other): Dora Black (DoraBlack@compuserve.com), James Thompson (reju611@ucl.ac.uk).
- Traumatic Stress Service, St George's Hospital, Clare House, Blackshaw Road, London SW17 0QT
  Contacts: Gill Mezey (gmezey@sghms.ac.uk), Ian Robbins (irobbins@swlstg-tr.nhs.uk)
- Medical Foundation for Victims of Tortute, Spar House, 104 -108 Grafton Rd, London NW5 4BD
  Tel: 0207 813 9999
- Institute of Psychotrauma, William Harvey House, St Bartolomew'S Hospital London EC1 EA Tel: 0207 601 7019

Manchester: The Department of Clinical Psychology, Withington Hospital, Manchester M20 8LR
Tel: 0161 291 4319, Contact: Nicholas Tarrier (NTarrier@fs1.with.man.ac.uk)

Northampton: The Ferguson Unit (a secure psychiatric unit for women, many with trauma histories), St Andrew's Hospital,
Billing Road, Northampton, NN1 5DG.
Tel: 01604 616695, Contact: Fiona Mason (FMason@standrew.co.uk)

Oxford: The Warneford Hospital, Warneford lane, Oxford, OX3 7JX
Tel: 01865 226330 (MH), 01865 226430 (MM)
Contacts: Mike Hobbs (Mike.Hobbs@oxmhc-tr.anglox.nhs.uk), Martina Mueller (martina.mueller@oxmhc-tr.anglox.nhs.uk)

Reading: Berkshire Traumatic Stress Service, Department of Clinical Psychology, Erleigh Road Clinic, Erleigh Road, Reading, Berks RG1 5LR.
Tel: 0118 9296400, Contact: Suzanna Rose (suzannar@wbpcs-tr.anglox.nhs.uk)

Sussex: Ticehurst House Hospital, Ticehurst, Wadhurst, East Sussex, TN5 7HU
Tel: 01580 202206
Contact: Walter Busuttil wbusuttil@breathemail.net, Gordon Turnbull (gjturnbull@doctors.org.uk)

Watford: The Post Traumatic Stress Clinic, Shrodells Psychiatric Unit, Watford General Hospital, Vicarage Road, Watford, Herts, WD1 8HB
Tel: 01923 217554, Contact: John Spector (spectors@btopenworld.com) (also for advice on EMDR)

York: The Retreat, Heslington Road, York, YO1 5BN
Tel: 01904 412551, Contact: Mark McFetridge

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Barts & The London School of Medicine and Dentistry

Queen Mary, University of London

Components, organization, costs and outcomes of health care and social interventions for people with posttraumatic stress following war and conflict in the Balkans

WRITTEN CONSENT FORM

REC Number:

Name of Volunteer :

Please tick as appropriate:

- ❑ The study organisers have invited me to take part in this research.
- ❑ I know this is a follow-up of the study that I have previously participated in.
- ❑ I understand what is in the information sheet about the research. I have a copy of the leaflet to keep.
- ❑ I have had the chance to talk and ask questions about the study.
- ❑ I know what my part will be in the study and I know how long it will take.
- ❑ I know how the study may affect me. I have been told if there are possible risks.
- ❑ I understand that I should not actively take part in more than 1 research study at a time.
- ❑ I know that the local North East London Health Authority Research Ethics Committee has seen and agreed to this study.
- ❑ I understand that personal information is strictly confidential: I know the only people who may see information about my part in the study are the research team or an official representative of the organisation which funded the research.
- ❑ I freely consent to be a subject in the study. No-one has put pressure on me.
- ❑ I know that I can stop taking part in the study at any time.
- ❑ I know if I do not take part I will still be able to have my normal treatment.
- ❑ I know that if there are any problems, I can contact:

Prof. Stefan Priebe or Marija Bogic
Tel. No. 020 7540 2296, 020 7540 4380 and 020 7540 4210

Participants Signature .....

Date .....

As the researcher responsible for this research or a designated deputy, I confirm that I have explained to the patient/volunteer named above the nature and purpose of the research to be undertaken.

Researcher `s name: ..... Researcher `s signature: .....

Date: .....

Appendix D:

Follow-up interview measures

D-1

2. SOCIO-DEMOGRAPHIC QUESTIONNAIRE

sd01.	Participant ID Number	
sd02.	Date of interview	
sd08.	What is your legal status?	1= refugee 2= citizenship (if s/he was a refugee prior to this) 3= asylum received 4= asylum seeker 5=other (specify)
sd09.	How long did it take to achieve this status (if not pending or if returned, after how many years)?	
sd12.	How many years of schooling have you had?	
Sd13.	Employment status:	1=In paid employment 2=Training / education is main occupation 3=Retired 4=Unemployed 5=Other (specify)
If employed, answer the questions sd14 and sd15, otherwise go straight to question sd16		
sd20.	What is your marital status?	1=Married 2=Single 3=Divorced / separated 4=Widowed 5=cohabitation (living with a partner) 6=other (please specify)
sd21. to sd26.	Who else (if anybody) do you live with (you can circle more than one answer)?	21=Live alone 22=With partner 23=With parents 24=With child/children under 18 25=With child / children over 18 26=Other (please specify)
mansa05	In the last week have you seen a friend? (visited a friend, been visited by a friend, or met a friend outside both your home and work)	0=NO 1=YES

D-2

7. IMPACT OF EVENTS SCALE-REVISED

The following is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you during the **past 7 days** with respect to _____.

How much were you distressed or bothered by these difficulties?

	During the past seven days	Not at all	A little bit	Moderately	Quite a bit	Extremely
ies01	Any reminder brought back feelings about it	0	1	2	3	4
ies02	I had trouble staying asleep	0	1	2	3	4
ies03	Other things kept making me think about it	0	1	2	3	4
ies04	I felt irritable and angry	0	1	2	3	4
ies05	I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3	4
ies06	I thought about it even when I didn't mean to	0	1	2	3	4
ies07	I felt as if it hadn't happen or it wasn't real	0	1	2	3	4
ies08	I stayed away from reminders of it	0	1	2	3	4
ies09	Pictures about it popped into my mind	0	1	2	3	4
ies10	I was jumpy and easily startled	0	1	2	3	4
ies11	I tried not to think about it	0	1	2	3	4
ies12	I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3	4
ies13	My feelings about it were kind of numb	0	1	2	3	4
ies14	I found myself acting or feeling like I was back at that time	0	1	2	3	4
ies15	I had trouble falling asleep	0	1	2	3	4
ies16	I had waves of strong feelings about it	0	1	2	3	4
ies17	I tried tom remove it from my memory	0	1	2	3	4
ies18	I had trouble concentrating	0	1	2	3	4
ies19	Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart	0	1	2	3	4
ies20	I had dreams about it	0	1	2	3	4
ies21	I felt watchful and on guard	0	1	2	3	4
ies22	I tried not to talk about it	0	1	2	3	4

D-5

11. MACSI

Ask for utilization of health and social care interventions during the past year only.

macsi01. 1. Primary care

(for mental and physical health problems)

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

Mental health care

macsi02a. ***a) Outpatient***

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi02b. b) Inpatient

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

Specialist physical health care

macsi03a. a) Outpatient

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi03b. b) Inpatient

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

Housing

macsi04a. **a) Fully provided**

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi04b. **b) Support and allowances in independent accommodation**

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

Employment and training

macsi05a. **a) Sheltered employment**

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi05b. **b) Support in regular employment**

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi05c. **c) Training schemes**

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi05. **d) Other support**

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

Leisure and social support

macsi06a. **a) Mutual support groups**

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi06b. **b) Leisure time, social support and contacts**

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi07. 7. Pension and financial compensation

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi08. 8. Legal support

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

macsi09. 9. Information and advocacy

Intervention	How often/how long (when, if known)	If not in this country, where	How helpful (CAT)

CAT to be assessed for each intervention used.

1. To what extent has this intervention been helpful to you?

not at all 0 1 2 3 4 5 6 7 8 9 10 entirely

THIS CONCLUDES THE INTERVIEW

Appendix E:

Publications from this thesis

Bogic, M., Ajdukovic, D., Bremner, S., Franciskovic, T., Galeazzi, G.M., Kucukalic, A., Lecic-Tosevski, D., Morina, N., Popovski, M., Schützwohl, M., Wang, D., & Priebe, S. (2012). Factors associated with mental disorders in long-settled war refugees: refugees from the former Yugoslavia in Germany, Italy and the UK. *The British Journal of Psychiatry. 200*(3):216-223.

Statement of contribution

The candidate alone designed the research question addressed in this publication. The statistical analysis plan to address this question was designed, developed, and conducted by the candidate alone. The candidate wrote the main draft of the paper and the co-authors contributed to the final version of the manuscript. Peer reviewers' comments following the submission were addressed by the candidate, with some input from her supervisor and the publication co-author, Professor Priebe.

BJPsych The British Journal of Psychiatry (2012)
200, 216–223. doi: 10.1192/bjp.bp.110.084764

Factors associated with mental disorders in long-settled war refugees: refugees from the former Yugoslavia in Germany, Italy and the UK

Marija Bogic, Dean Ajdukovic, Stephen Bremner, Tanja Franciskovic, Gian Maria Galeazzi, Abdulah Kucukalic, Dusica Lecic-Tosevski, Nexhmedin Morina, Mihajlo Popovski, Matthias Schützwohl, Duolao Wang and Stefan Priebe

Background
Prevalence rates of mental disorders are frequently increased in long-settled war refugees. However, substantial variation in prevalence rates across studies and countries remain unexplained.

Aims
To test whether the same sociodemographic characteristics, war experiences and post-migration stressors are associated with mental disorders in similar refugee groups resettled in different countries.

Method
Mental disorders were assessed in war-affected refugees from the former Yugoslavia in Germany, Italy and the UK. Sociodemographic, war-related and post-migration characteristics were tested for their association with different disorders.

Results
A total of 854 war refugees were assessed (⩾255 per country). Prevalence rates of mental disorders varied substantially across countries. A lower level of education, more traumatic experiences during and after the war, more migration-related stress, a temporary residence permit and not feeling accepted were independently associated with higher rates of mood and anxiety disorders. Mood disorders were also associated with older age, female gender and being unemployed, and anxiety disorders with the absence of combat experience. Higher rates of post-traumatic stress disorder (PTSD) were associated with older age, a lower level of education, more traumatic experiences during and after the war, absence of combat experience, more migration-related stress, and a temporary residence permit. Only younger age, male gender and not living with a partner were associated with substance use disorders. The associations did not differ significantly across the countries. War-related factors explained more variance in rates of PTSD, and post-migration factors in the rates of mood, anxiety and substance use disorder.

Conclusions
Sociodemographic characteristics, war experiences and post-migration stressors are independently associated with mental disorders in long-settled war refugees. The risk factors vary for different disorders, but are consistent across host countries for the same disorders.

Declaration of interest
None.

Worldwide there are over 15 million refugees, most of whom were displaced because of war and other organised violence.[1] Large numbers of these refugees remain in recipient countries for many years or even decades, and addressing their health needs can pose a challenge to services. Community studies on long-settled war refugees are rare and have reported raised prevalence rates of mental disorders.[2–4] Some evidence suggests that a higher level of exposure to both war-related traumatic events and post-migration stressors in the recipient country may be associated with raised rates of mental disorders over many years.[3,5]

Prevalence rates of mental disorders among refugees vary markedly across studies, for example for depression from 2.3[6] to 80%[7] and for post-traumatic stress disorder (PTSD) from 4.4[5] to 86%.[7] Such variation may partially be explained by methodological differences.[8–10] It may also reflect substantial differences in sample characteristics and the context of the resettlement, which might interact so that the same sample characteristics are differentially linked to mental disorder rates in different host countries. To test whether the association of refugee characteristics with mental disorders varies across countries, similar groups, preferably from the same background, should be studied in different countries using the same assessment instruments.

In the current study we aimed to: (a) determine which sociodemographic characteristics, war experiences and post-migration factors are associated with mental disorders in war refugees from the same region who have resettled in different countries; (b) determine whether the associations varied across countries; and (c) assess the relative impact of each group of factors on mental disorders and examine the confounding effect of post-migration factors in explaining the relationship between war exposure and mental disorders.

Method

The study was part of a multicentre survey conducted in five Balkan and three West European countries. The rationale, methods and findings for the Balkan countries have been described in detail elsewhere.[11–13]

Sampling techniques and participants

A combination of random and non-random sampling approaches was adopted to recruit war-affected refugees from the former Yugoslavia in Germany, Italy and the UK; the three countries with the highest numbers of immigrants in Western Europe in the 1990s.[14] In Germany and Italy, potential interviewees were identified through resident registers and snowball sampling. Potential participants were identified from data registers based on available data on their surnames, country of origin and year of arrival to the host country. In Germany, registry offices in the

Berlin and Saxony regions provided data for 22 772 potentially eligible participants, from which 5783 participants were randomly selected. In Italy, 4626 potentially eligible participants were identified by the registry offices in the regions Reggio Emilia and Friuli Venezia Giulia. Selected individuals were sent a letter with an invitation to participate in the study and up to two reminders.

In the absence of resident registers in the UK, potential interviewees were contacted through community organisations and snowball sampling. Community organisations mailed invitation letters and one reminder to all their members without revealing individuals' names to the researchers. In total, 1493 potential participants were invited to participate. Of the 11 902 letters sent in the three countries, 1226 (778 in Germany, 412 in Italy, 36 in the UK) were returned since the selected individuals could not be located at the given address. In all three countries, the snowball sample was recruited through the first group of respondents. Participants were also recruited at cultural events for refugees.

Participants were included if they were born within the territory of former Yugoslavia; were between 18 and 65 years old; had experienced at least one war-related traumatic event; had experienced the final war-related event at or after 16 years of age; had no severe intellectual disability and no mental impairment due to a brain injury or other organic cause. The traumatic experience was established using a screening list containing 20 stressful events that people may have experienced during wartime. We used the term refugees irrespective of current formal residence status (e.g. citizenship of the recipient country, refugee, asylum seeker).

Procedures and measures

Face-to-face interviews were carried out between January 2005 and November 2006, and conducted at participants' homes, community organisations or the research centres. Participants' country of origin, age, gender, marital status, educational level, employment and residence status were obtained on a brief structured questionnaire. The history of potentially traumatic experiences before, during and after the war was assessed using an amended version of the 24-item Life Stressor Checklist-Revised.[15,16] Cumulative scores were calculated for pre-war, war and post-war experiences. For each war event we recorded the year of the occurrence or, in the event of repeated experience, the year of the most stressful occurrence and the level of personal distress experienced at the time of the event (on a five-point Likert scale, ranging from zero, not at all, to four, extremely). Participants were also asked about possible post-migration stressors (separation from family, difficulties in obtaining a work permit or work in own profession, financial difficulties, inadequate accommodation, difficulties in accessing medical care) they may have experienced in the host country resulting in a cumulative score of stressors ranging from zero to six. The perceived level of acceptance by the host country and the command of the language of the host country were assessed using single items (Likert scales, ranging from one, not at all, to five, entirely).

Current mental disorders were established using the Mini International Neuropsychiatric Interview (MINI).[17] The validity and reliability of the interview has been shown in different cultures[17–20] and it has been used successfully as a diagnostic tool to identify populations with mental disorders in war-affected populations.[21,22]

Out of the 11 interviewers, 9 were qualified psychologists, 1 a sociologist and 1 an ethnologist. Seven interviewers originated from the former Yugoslavia and four were refugees themselves. All interviewers were bilingual (national language and Bosnian/Croatian/Serbian or Albanian). The interviewers were trained in the assessment methods. Rating agreement among interviewers was assessed for the MINI in two mock interviews. Item agreement was reached when all interviewers gave the same rating. Among 251 items the average agreement rate was 90.2%. Written informed consent was obtained from all participants prior to the interview. The study was approved by the relevant ethics committees in each country.

Statistical analysis

Descriptive statistics were used to summarise patient data in each country. For univariate tests of differences between countries, tests and analyses of variance were used. Multivariable logistic regression analyses examined associations between predictor variables and the three types of disorders: mood disorders (major depression, dysthymia, hypomania, mania), anxiety disorders (panic disorder, agoraphobia, social phobia, obsessive–compulsive disorder (OCD), PTSD, generalised anxiety disorder) and substance use disorders (alcohol misuse and dependence, drug misuse and dependence); and specifically PTSD. We selected potential predictor variables that were theoretically meaningful and that have been shown as important in previous research. Variables were entered into the model in three sequential blocks: pre-war factors (sociodemographics, number of pre-war traumatic events); war factors (combat involvement, number of war traumatic events, time since the most traumatic event); and post-war factors (number of post-war traumatic events, post-migration stressors, cohabitation, employment status, feeling accepted by the host country, host language fluency, residence status, country of residence).

Three categorical variables (education level, marital status, employment status) were collapsed into dichotomous ones according to a goodness-of-fit model. The variable 'experienced distress at the time of the most traumatic event during the war' was excluded from multivariable analyses because of its low variance, with approximately 95% of participants in each country rating the highest option (score 4). Bivariate correlations were assessed using Spearman's correlation coefficient. Country of origin and the length of time since migration were highly correlated with time since the most traumatic war event and excluded from logistic analyses. Multicollinearity among the remaining potential predictor variables was assessed, but none of the variables exceeded a variance inflation factor of five.[23] For assessing the discriminating ability of the four models predicting anxiety disorders, mood disorders, substance use disorders and PTSD, we calculated receiver operating characteristic (ROC) curves separately for each model. An area under the ROC curve (AUC) of 0.5 indicates no discrimination, and an AUC of 1 perfect discrimination.

To test whether the effects of predictors differed across countries, we tested for interactions between country and each significant predictor variable in multivariable regression analyses. To assess the extent to which pre- and post-migration risk factors explain between-country differences in mental disorders, we fitted logistic models for each of the four outcomes. Using likelihood ratio tests, we first assessed the impact of each pre-migration factor and then of each post-migration factor in the presence of all pre-migration factors. Using logistic and linear regression analyses, sensitivity analyses were performed comparing the likelihood in each country of obtaining basic survival needs, while adjusting for mental health status and age. Finally, we calculated observed and adjusted prevalence rates with standard errors for factors included in the multivariable logistic regression analyses. All factors were dichotomised for this analysis.

For all multiple item scales, sum scores were computed for all participants where 80% or more of the scale items were answered. Missing data for each item ranged from 0.1 to 7.8%. To examine whether missing data may have biased the results of regression

analyses, we conducted sensitivity analyses using a multiple imputation method. All analyses were carried out on unweighted data using SPSS 17.0 and Stata 10.1 for Windows.

Results

A total of 854 participants were interviewed (Germany, 255; Italy, 297; UK, 302). Table 1 summarises the selection processes for each country. Overall, 52.9% of those people who responded to the invitation letters (21.2%) were interviewed. For snowballing, response rates cannot be established. Characteristics of the samples are reported in Table 2.

Participants experienced on average 6.8 different traumatic war events and 2.6 migration stressors. The most frequent war-related traumatic experiences were 'shelling or bombardment' (84.9%), 'lack of shelter' (64.3%) and 'being under siege' (59.3%). The most frequently experienced migration-related stressors were 'inadequate accommodation' (52.9%), 'separation from family for a long time' (52.3%) and 'financial difficulties' (52.2%). (For details see online Table DS1.) Participants had been in exile on average 9.3 years. Between 41.8% (in Italy) and 67.9% (the UK) of refugees in each sample originated from Bosnia and Herzegovina, and each other group of origin represented less than 24% of the sample.

The three refugee samples differed significantly on all socio-demographic, trauma and migration-related variables, with the exception of gender, level of education, and distress experienced at the time of the most traumatic war event ($P<0.01$ for all between-sample comparisons). Refugees in Italy were younger and had more often been married or cohabiting than samples in Germany or the UK. More than two-thirds of refugees in Italy were employed compared with less than a third of refugees in Germany and the UK. Refugees in Germany reported experiencing the highest number of traumatic events; particularly higher rates were evident for interpersonal assaults such as sexual and non-sexual assaults and torture. They also reported experiencing the highest number of post-migration stressors.

Prevalence of mental disorders

The prevalence rates of mental disorders for refugees in each country are shown in Table 3. In the total sample, 54.9% had at least one of the studied DSM-IV[24] disorders. Rates of anxiety disorders were 43.7% (range 30.3–60.7) and of mood disorders 43.4% (range 30.0–57.4). Substance use disorders, somatisation disorder and psychotic disorders were less frequent across all countries. The prevalence rates of most disorders showed statistically significant variation across countries. Most prevalence rates were highest in Germany and lowest in Italy. The exceptions were higher rates of major depressive episode in the UK and of generalised anxiety disorder in Italy.

Factors associated with mental disorders

The results of the multivariable hierarchical logistic regression analyses are shown in online Table DS2. Higher rates of mood disorders were associated with female gender, older age, lower education, more traumatic experiences during and after the war, more post-migration stressors experienced, being unemployed, having a temporary residence status and not feeling accepted by the host country.

Higher rates of anxiety disorders were associated with lower education, more traumatic experiences during and after the war, no combat involvement, more post-migration stressors experienced and temporary residence status. Rates of anxiety disorders (but not PTSD) were lower in participants who felt accepted by the host country. Additionally, higher rates of PTSD were associated with older age. A younger age, being male and not living with a partner were associated with higher odds of substance use disorders.

After adjusting for potential confounders, refugees in the UK had the highest odds of mood disorders, whereas refugees in Germany had the highest odds of PTSD and substance use disorders. There were no differences among refugees in the three countries regarding other anxiety disorders.

Results indicated that pre-war factors (Block 1), war factors (Block 2) and post-migration factors (Block 3) each explained a significant amount of variance in the rates of mood disorders (6.9%, 12.2% and 16.1% of the variance respectively), anxiety disorders (5.0%, 11.0%, 11.5%) and PTSD (7.3%, 14.2%, 12.8%). Only pre-war and post-migration factors significantly contributed to variance in the rates of substance use disorders (10.8% and 20.7%). The final models therefore explained between 27.5 and 35.2% of the variance. For mood and anxiety disorders the effects of war exposure remained statistically significant, although somewhat weakened, once post-migration factors were introduced into the model. The effect of time since the most traumatic war event on mood disorders was fully mediated by post-migration factors. Time since the war trauma was the only war factor (and only for mood disorders) for which statistical significance changed once post-migration factors were introduced into the model.

The ROC curves indicated the satisfactory discriminating ability of the models, with an AUC of 0.81 for mood disorders, 0.77 for anxiety disorders, 0.90 for substance use disorders and 0.81 for PTSD.

Stability of associations across the three countries

Analyses that tested interaction effects between country and each predictor variable and their associations with mental disorders provided no evidence for such effects. Out of the 26 tested interaction effects, only one was statistically significant, as would be expected by chance.

The results of the likelihood ratio tests indicated that post-migration factors fully explained country differences in rates of anxiety disorders. For mood, PTSD and substance use disorders neither pre-migration nor post-migration factors fully explained country differences; however, post-migration factors had the largest impact in reducing the country differences for all three outcomes. None of the individual pre-migration or post-migration risk factors fully explained country differences, although several factors reduced the differences. The number of war experiences partially explained country differences for anxiety disorders and PTSD. Temporary residence and unemployment were the factors with the strongest impact on country differences in rates of mood disorders; temporary residence and post-migration stressors for anxiety disorders and PTSD; and temporary residence status and number of traumatic experiences after the war for substance use disorders. For more detail see online Table DS3.

To further explore country differences, we performed sensitivity analyses comparing the likelihood in each country of basic survival needs being met. After adjusting for age and mental health status, refugees in Germany experienced the highest number of post-migration stressors, including difficulties with employment (obtaining a work permit, work in own profession, and having paid employment) and adequate accommodation, whereas refugees in the UK were the least likely to experience post-migration stressors or not feeling accepted by the host country (Table 4).

Observed and adjusted prevalence rates for factors included in multivariable logistic regression analyses

The differences in observed and adjusted prevalence rates associated with each of the factors considered in multivariable

Table 1 Summary of sample selection by country of residence

Sampling design	Contacted *n*	Responded *n*	Not meeting inclusion criteria, *n*	Refused to participate, *n*	Participants *n*	Response rate, %[a]	Participation rate, %
Total							
Random or sampling in community organisations	10 676	2263	1078	558	627	23.6	52.9
Snowballing	NA	NA	NA	NA	227	NA	NA
Germany							
Random sampling	5005	1324	798	328	198	31.5	37.6
Snowballing	NA	NA	NA	NA	57	NA	NA
Italy							
Random sampling	4214	610	249	106	255	15.4	70.6
Snowballing	NA	NA	NA	NA	42	NA	NA
UK							
Sampling in community organisations	1457	329	31	124	174	23.1	58.4
Snowballing	NA	NA	NA	NA	128	NA	NA

NA, not applicable.
a. We attempted to contact 10 676 refugees identified through data registers or community organisations registers. It is not possible to establish how many were in fact contacted and how many of those did not respond because they were not eligible for the study.

Table 2 Sociodemographic, trauma and migration-related characteristics of the refugee samples in the three recipient countries

	Total (*n* = 854)	Germany (*n* = 255)	Italy (*n* = 297)	UK (*n* = 302)	Country comparison, *P*
Females, *n* (%)	438 (51.3)	133 (52.2)	137 (46.1)	168 (55.6)	0.063
Age, years: mean (s.d.)	41.6 (10.8)	41.9 (10.4)	38.9 (10.1)	43.9 (11.1)	<0.001
Country of origin, *n* (%)					<0.001
Bosnia and Herzegovina	489 (57.3)	160 (62.7)	124 (41.8)	205 (67.9)	
Kosovo	150 (17.6)	34 (13.3)	45 (15.2)	71 (23.5)	
Serbia	108 (12.6)	38 (14.9)	66 (22.2)	4 (1.3)	
Croatia	84 (9.8)	19 (7.5)	46 (15.5)	19 (6.3)	
Macedonia	23 (2.7)	4 (1.6)	16 (5.4)	3 (1.0)	
Education level attained, *n* (%)					0.738
None or primary education	188 (22.0)	59 (23.1)	61 (20.5)	68 (22.5)	
Secondary school	354 (41.5)	113 (44.3)	130 (43.8)	111 (36.8)	
Vocational/tertiary	312 (36.5)	83 (32.6)	106 (35.7)	123 (40.7)	
Marital status, *n* (%)					0.003
Married/cohabiting	652 (76.3)	189 (74.1)	242 (81.5)	221 (73.2)	
Single	89 (10.4)	27 (10.6)	34 (11.4)	28 (9.3)	
Divorced/separated	76 (8.9)	28 (11.0)	15 (5.1)	33 (10.9)	
Widowed	37 (4.3)	11 (4.3)	6 (2.0)	20 (6.6)	
Employment status, *n* (%)					
Employed	351 (41.1)	59 (23.1)	212 (71.4)	88 (29.1)	<0.001
Unemployed	438 (51.3)	167 (65.5)	76 (25.6)	187 (61.9)	
Retired	31 (3.6)	8 (3.1)	1 (0.3)	22 (7.3)	
Training/education	34 (4.0)	21 (8.2)	8 (2.7)	5 (1.7)	
Number of traumatic events, mean (s.d.)					
Pre-war	1.1 (1.3)	1.2 (1.3)	0.9 (1.2)	1.3 (1.4)	0.001
War-related	6.8 (3.6)	7.8 (3.9)	5.2 (2.8)	7.4 (3.5)	<0.001
Post-war	1.1 (1.3)	1.5 (1.4)	1.0 (1.2)	0.9 (1.1)	<0.001
Time since index[a] war trauma, years: mean (s.d.)	10.5 (3.1)	11.0 (3.0)	9.8 (3.3)	10.6 (2.9)	<0.001
Distress at index trauma (0–4), mean (s.d.)	3.9 (0.3)	3.9 (0.3)	3.9 (0.4)	3.9 (0.3)	0.644
Combat involvement, *n* (%)	192 (22.5)	59 (23.1)	88 (29.6)	45 (14.9)	<0.001
Time since migration, years: mean (s.d.)	9.3 (4.4)	10.4 (5.3)	7.9 (4.1)	9.6 (3.4)	<0.001
Number of post-migration stressors, mean (s.d.)	2.6 (1.6)	3.4 (1.5)	2.8 (1.4)	1.9 (1.4)	<0.001
Host language fluency, mean (s.d.)	3.6 (1.1)	3.4 (1.1)	3.9 (1.0)	3.3 (1.2)	<0.001
Feeling accepted by the host country, mean (s.d.)	3.7 (1.0)	3.5 (1.0)	3.7 (1.0)	3.9 (0.9)	0.006
Temporary residence status, *n* (%)	497 (58.2)	204 (80.0)	202 (68.0)	91 (30.1)	<0.001

a. Index trauma is defined as the most traumatic war event.

logistic regressions are shown in online Table DS4 (for observed and adjusted rates by country see online Tables DS5 and DS6).

Observed and adjusted prevalence rates were similar in most cases. The number of potentially traumatic war events was associated with the largest differences in adjusted rates of PTSD and anxiety disorders, whereas being unemployed was associated with the largest differences in adjusted rates of mood disorders.

Table 3 Observed prevalence of current mental disorders in refugees across the three recipient countries

Disorder	*n*	Total % (s.e.)	Germany % (s.e.)	Italy % (s.e.)	UK % (s.e.)	Country comparison, *P*
Any mood disorder	841	43.4 (1.7)	57.4 (3.1)	30.0 (2.7)	45.1 (2.9)	<0.001
Major depressive episode	851	34.3 (1.6)	36.8 (3.0)	25.6 (2.5)	40.9 (2.8)	<0.001
Major depressive episode, recurrent	846	15.6 (1.3)	11.1 (2.0)	14.1 (2.0)	20.9 (2.4)	0.005
Major depressive episode with melancholic features	845	23.1 (1.5)	24.6 (2.7)	15.5 (2.1)	29.4 (2.7)	<0.001
Dysthymia	842	7.4 (0.9)	16.9 (2.4)	3.7 (1.1)	3.0 (1.0)	<0.001
Hypomanic episode	850	1.5 (0.4)	2.7 (1.0)	0.7 (0.5)	1.3 (0.7)	0.13
Manic episode	850	1.9 (0.5)	4.3 (1.3)	0.3 (0.3)	1.3 (0.7)	0.002
Any anxiety disorder	854	43.7 (1.7)	60.7 (3.1)	30.3 (2.7)	42.4 (2.8)	<0.001
Panic disorder	851	10.0 (1.0)	14.1 (2.2)	6.4 (1.4)	10.0 (1.7)	0.01
Panic disorder with agoraphobia	852	6.7 (0.9)	10.6 (1.9)	2.7 (0.9)	7.3 (1.5)	0.001
Agoraphobia without panic disorder	853	8.2 (0.9)	12.2 (2.1)	2.4 (0.9)	10.6 (1.8)	<0.001
Social phobia	854	6.4 (0.8)	9.4 (1.8)	2.0 (0.8)	8.3 (1.6)	0.001
Obsessive–compulsive disorder	854	4.8 (0.7)	9.4 (1.8)	1.0 (0.6)	4.9 (2.9)	<0.001
Post-traumatic stress disorder	854	33.1 (1.6)	54.9 (3.1)	18.9 (2.3)	28.8 (2.6)	<0.001
Generalised anxiety disorder	854	8.7 (1.0)	4.7 (1.3)	14.8 (2.1)	6.0 (1.4)	<0.001
Any substance use disorder	845	4.4 (0.7)	11.8 (2.0)	0.7 (0.5)	1.7 (0.7)	<0.001
Alcohol dependence	854	1.8 (0.5)	4.7 (1.3)	0.3 (0.3)	0.7 (0.5)	<0.001
Alcohol misuse	845	4.3 (0.9)	1.1 (0.3)	1.0 (0.8)	1.0 (0.6)	<0.001
Substance dependence	853	1.9 (0.5)	6.3 (1.5)	0 (0)	0 (0)	<0.001
Substance misuse	853	4.2 (1.0)	13.4 (3.1)	0 (0)	0.7 (0.5)	<0.001
Psychotic disorder	854	1.3 (0.4)	2.4 (1.0)	0.7 (0.5)	1.0 (0.6)	0.23
Somatisation disorder	851	1.2 (0.4)	2.4 (0.9)	0.3 (0.3)	1.0 (0.6)	0.11
Any mental disorder	853	54.9 (1.7)	67.8 (2.9)	42.1 (2.9)	56.6 (2.9)	<0.001
One mental disorder	854	18.6 (1.3)	12.2 (2.1)	19.9 (2.3)	22.5 (2.4)	0.004
Two mental disorders	854	16.0 (1.3)	18.8 (2.5)	12.5 (1.9)	17.2 (2.2)	0.10
⩾3 mental disorders	854	20.3 (1.4)	36.9 (3.0)	9.8 (1.7)	16.6 (2.1)	<0.001

Missing data

Results from the multiple-imputation regression models were very similar to those using the main non-imputed data-set. The only exception was the variable 'number of post-war traumatic events', which became only marginally statistically non-significant in the PTSD regression model (odds ratio (OR) = 1.12, 95% CI 0.99–1.28, $P = 0.078$).

Discussion

Main findings

Although the prevalence rates of mental disorders varied substantially among refugees from the former Yugoslavia in the three countries, sociodemographic characteristics and experiences before, during and after the war showed consistent associations with disorders. Specifically, a lower level of education, more potentially traumatic experiences during and after the war, more migration-related stress, not feeling accepted by the host population, and having a temporary residence status were independently associated with higher rates of both mood and anxiety disorders. Additionally, mood disorders were correlated with female gender, older age and being unemployed. Those with experience of combat had a lower risk of anxiety disorders, whereas older age was associated with PTSD only. Male gender, younger age and not living with a partner were the only factors associated with higher rates of substance use disorders. Post-migration factors accounted for more variance in the rates of mood, anxiety and substance use disorders, whereas war factors did so for PTSD. Except for substance use disorders, both war factors and post-migration stressors directly contributed to the rates of mental disorders. The associations between risk factors and disorders did not vary significantly across countries and did not fully explain the substantial differences in prevalence rates.

Strengths and limitations

To our knowledge, this is the largest community-based study assessing mental disorders in long-term settled war refugees originating from the same region and now residing in three different recipient countries. The study used identical assessment methods across countries, including face-to-face interviews with a standardised psychiatric diagnostic interview. All interviewers were trained researchers with a relevant professional background, who spoke the mother tongue of the interviewees. Finally, although all participants shared a similar cultural background and had experienced war in the same historical context, further differences among the three samples in relevant risk factors were adjusted for in multivariable analyses. Methodologically, this approach allows a more accurate comparison of risk factors in different contexts than meta-analyses, which commonly consider studies of samples from varying backgrounds in varying contexts.

The study also has four main limitations. First, the combination of registry and snowball sampling, and the variation in the precise recruitment method across countries may have led to non-representative samples. The problem is further compounded by the low response rates, considering all those initially contacted as potentially eligible. The methodological shortcomings in recruiting a fully representative sample of refugees in Western European countries were not a specific fault of this study. They are linked to the non-availability of detailed population data, legislation and research regulations in the participating countries, and shared by most studies of refugee groups. However, the non-representative sampling is more problematic for establishing prevalence rates than for associations between variables, which was the focus of this study.[25] Second, the retrospective report of traumatic events may have been influenced by recall bias. Substantial, although inconsistent, evidence suggests that people with current post-traumatic stress symptoms tend to report

Table 4 Results of logistic and linear regression sensitivity analyses comparing the likelihood of refugees experiencing post-migration stressors in each country[a]

Post-migration stressors	Germany *v.* Italy			Germany *v.* UK			UK *v.* Italy		
	Adjusted B coefficient (95% CI)	Adjusted OR (95% CI)	*P*	Adjusted B coefficient (95% CI)	Adjusted OR (95% CI)	*P*	Adjusted B coefficient (95% CI)	Adjusted OR (95% CI)	*P*
Accepted by the host country	0.01 (−0.18 to 0.15)		0.863	−0.30 (−0.45 to −0.14)		<0.001	0.28 (0.13 to 0.44)		<0.001
Number of post-migration stressors	0.32 (0.07 to 0.57)		0.011	1.37 (1.13 to 1.61)		<0.001	−1.05 (−1.29 to −0.82)		<0.001
Separated from family for long time		0.28 (0.20 to 0.41)	<0.001		0.41 (0.29 to 0.59)	<0.001		0.69 (0.49 to 0.97)	0.031
Difficult to get work permit		4.54 (3.07 to 6.73)	<0.001		26.22 (16.47 to 41.75)	<0.001		0.17 (0.11 to 0.27)	<0.001
Difficult to find work in own profession		2.84 (1.95 to 4.15)	<0.001		7.05 (4.79 to 10.37)	<0.001		0.40 (0.28 to 0.57)	<0.001
Inadequate accommodation for long time		2.30 (1.58 to 3.33)	<0.001		3.73 (2.57 to 5.40)	<0.001		0.62 (0.44 to 0.87)	0.006
Not received medical help when needed		1.25 (0.71 to 2.20)	0.439		1.29 (0.75 to 2.23)	0.363		0.97 (0.54 to 1.74)	0.918
Significant financial difficulties		0.50 (0.34 to 0.72)	<0.001		2.04 (1.44 to 2.91)	<0.001		0.24 (0.17 to 0.35)	<0.001
Unemployment		4.51 (3.06 to 6.63)	<0.001		1.03 (0.70 to 1.50)	0.895		4.62 (3.20 to 6.67)	<0.001

a. All B coefficients and odds ratios (OR) are adjusted for age and mental health status (any mental disorder yes/no).

more traumatic events,[26,27] which consequently may inflate the association between reported traumatic experiences and current disorders. Third, the retrospective nature of our study precludes inferences regarding the causal relationships between the existence of current mental disorders and poor socioeconomic situation after migration. For example, unemployment might be a contributing factor in the occurrence or maintenance of a mental disorder or a consequence of the pre-existing mental disorder or both. Finally, the variance explained by each model is limited (27.5–35.2%), although reasonable for this type of research.

Comparisons with the literature

The results are consistent with other studies suggesting that war and migration experiences can be associated with mental disorders in long-term settled war refugees. Similarly high rates of mental disorders have previously been reported among long-resettled refugees from regions in the former Yugoslavia[28,29] and other refugee groups.[3,4,30–32] Rates of anxiety and mood disorders in this study were higher than those obtained in randomly selected war-affected community samples that remained in five countries of the former Yugoslavia and were assessed using the same methods (rate of anxiety disorders 33.5% and mood disorders 28.3%).[12] Although the differences between the two study populations must be interpreted with caution because of the sampling differences, the finding is in line with that of a previous meta-analyses that concluded that refugees tend to have poorer mental health than those who stay in the area of conflict.[8,10,33]

Our findings suggest a dose–response relationship between war trauma exposure and the likelihood of mood and anxiety disorders several years later, a finding reported in other studies assessing long-term outcomes of war.[2–4,30–32,34] Low rates of substance use disorders and the absence of a significant link between war experiences and these disorders are consistent with findings among compatriot refugees and those who stayed in the area of conflict[12,29] as well as other refugee groups.[3] Combat experience was linked to lower rates of PTSD and other anxiety disorders. It has been argued that soldiers' military training and their belief in protecting country and family help them to cope with traumatic events.[35]

The study identified several post-migration risk factors for mental disorders. In line with previous research,[2–4,30,31] post-migration trauma exposure and stress, including the feeling of not being accepted in the host country, were positively associated with both mood and anxiety disorders. Despite being resident in a host country for an average of 9 years, more than half of the studied refugees still had a temporary residency status, which was associated with higher rates of both mood and anxiety disorders. The present study adds to the evidence[36,37] that prolonged unstable residential status and living under a continuous threat of repatriation may contribute to the persistence of mental disorders in refugees. Unlike mood and anxiety disorders, substance use disorders were associated only with non-war-related risk factors, i.e. male gender, younger age and not living with a partner, findings that are also consistent with other research.[3,12]

It has been argued that post-migration factors may mediate[38] or supersede[39] the impact of war trauma on mental disorders. However, our findings indicate an independent association of war trauma exposure with mood and anxiety disorders, which remained significant, although weakened, after post-migration factors were included in the analysis. Stressful social and material conditions in resettlement independently predicted mental health status as well as, or better than, actual exposure to war trauma. These findings echo those of two recent studies.[40,41] They add

to the debate as to whether trauma-focused therapies or approaches focusing on ongoing psychosocial stressors are more appropriate to understand and address the mental health needs of war refugees.[42] According to the findings of our study, both war exposure and stressful social and material conditions in resettlement should be considered.

Differences and similarities between countries

Prevalence rates varied substantially among the refugees in the three countries, with the highest rates for refugees in Germany and the lowest for those in Italy. Some of these differences are explained by differences in the characteristics of the incoming refugees, such as previous war experiences. However, even after taking refugee characteristics into account, some differences are associated with post-migration risk factors such as employment, residence status and other post-migration stressors that refugees experience. Although some of these differences diminish when the identified risk factors are adjusted for in multivariable analyses, most remain significant.

Several selection processes are likely to have influenced the differences among samples in different countries. They include the motivation to seek refuge in a specific country, the chance to reach and be accepted in the given country, the decision and ability to stay in the host country for more than 5 years, and finally the factors influencing participation in the study. In Germany, the policy to grant a residency permit only to refugees who are in treatment for post-traumatic stress may explain the high rates of mental disorders in this sample.[43] The same selection process may also explain low employment rates – those with poorer mental health are less likely to be employed.[44] Conversely, in Italy a residency permit was granted only to refugees who were employed or had an employed immediate family member[45] resulting in high employment rates and low rates of mental disorders. In the UK, asylum seekers were prevented from entering the labour market after arrival, and thus dependent on welfare provisions. This in turn runs the risk of fixing the refugee in the role of passive victim and fostering dependency on public assistance in the long term, which may explain the high unemployment rates in this sample.

Circumstances for refugees in Germany stand out as rather different from the refugees in Italy and the UK. Refugees in Germany reported much higher rates of interpersonal assaults, including torture. This difference in the profile of traumatic events may further explain higher rates of mental disorders in this country given that exposure to interpersonal assaults may particularly increase the risk for onset and persistence of mental disorders.[10,11] Even after adjusting for mental health status, post-migration circumstances were much poorer for refugees in Germany, with the large majority failing to obtain a work permit, an employment appropriate to their skill level and adequate accommodation. Unemployment may further compromise the chances of integration, prevent recovery from existing mental disorders and contribute to the onset of new disorders, in particular depression.[6] The depression rate was particularly high in refugees in the UK, who had a similarly high unemployment rate as refugees in Germany.

Several international studies have shown that prevalence rates of mental disorders are usually lower in the general population in Italy compared with other European countries.[46] The cultural and socioeconomic reasons for the low rates remain poorly understood, but may also have an impact on the mental disorders in the refugees.

Factors associated with each type of mental disorder were the same across the three host countries, indicating that predictive associations were not dependent on the country of refuge and were consistently identified despite a substantial variation of prevalence rates.

Implications

War refugees appear to have high rates of mental disorders even several years after resettlement and probably require substantial levels of support from health and social services. Prevalence rates varied substantially among countries and most of this variation remained unexplained in this study. The country differences may be linked to specific resettlement policies, and refugees in less socioeconomically inclusive recipient countries might have more mental disorders. Future research may explore the impact of the recipient society further with more specific measures of social and economic inclusion. One may conclude that findings on prevalence rates, even for a very similar group of war refugees, are context specific and need to be established for each country separately. Once the differences in the prevalence rates among countries are taken into account, the same factors may be considered to estimate the risk for mental disorders. Results of research on risk factors in a similar group of refugees appear to be generalisable, at least across countries that share some cultural and political features, as Germany, Italy and the UK do. Policies for the provision of health and social care in each country can target similar risk groups.

Policies addressing the mental health needs of war refugees may have to include both trauma-focused interventions and support to improve the current social and material situation of the refugees.[41]

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