# Extremism and common mental illness: a cross-sectional community survey of White British and Pakistani men and women living in England

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**ABSTRACT**

*Background:* Mental illnesses may explain vulnerability to develop extremist beliefs that can lead to violent protest and terrorism. Yet there is little empirical evidence.

*Aims:* To investigate the relationship between common mental illnesses and violent extremist beliefs.

*Method:* A population survey of 618 White British and Pakistani men and women living in three localities in England. Extremism was assessed on 7 items of an established measure of sympathies for violent protest and terrorism (SVPT). Respondents with any positive scores (showing sympathies) were compared with those who had all negative scores (meaning condemnation). We calculated associations (Risk Ratios and 95% confidence intervals) between extremist sympathies and ICD-10 diagnoses of depression and dysthymia, and symptoms of anxiety, personality difficulties, autism and post-traumatic symptoms (assessed with established and valid measures). We also considered the complex influences of demographics, life events, social assets, political engagement, and criminal convictions.

*Results:* SVPT were more common in those with major depression with dysthymia (RR=4.07, 95% CI: 1.37-12.05, p=0.01), symptoms of anxiety (RR=1.09, 95%CI: 1.03-1.15, p=0.002) or post-traumatic stress (RR=1.03, 95%CI: 1.01-1.05, p=0.003). Some groups were at greater risk of SVPT: young adults (under 21 compared with 21 or older: RR=3.05, 95%CI: 1.31-7.06, p=0.01), White British people (compared with Pakistani people: RR=2.24, 1.25-4.02, p=0.007), and those with a criminal conviction (RR=2.23, 95%CI: 1.01-4.95, p=0.048). Life events, social assets and political engagement were unrelated to SVPT on this improved 7-item measure.

Conclusion: Depression and dysthymia, and symptoms of anxiety and post-traumatic stress are associated with extremist sympathies (SVPT).

**Significance statement**

There is little empirical evidence for the relationship between mental illness and extremist ideas, yet mental health professionals and other public servants are expected to show due regard to prevention. Mental illnesses are proposed as a vulnerability factor for violent extremism but few studies have tested this association in the wider population. This population-based study shows that depression, anxiety and post-traumatic symptoms are related to sympathies for violent radicalisation or terrorism (extremist ideas). Younger people, White British, rather than Pakistani men and women, and those with previous criminal convictions were more likely to hold extremist ideas.

## INTRODUCTION

Terrorist incidents are common in countries such as Afghanistan, Iraq, Pakistan and Syria. Although they are rarer in Western Europe, North America and other high-income countries, they still have devastating health and societal consequences globally.(1, 2) Those who commit acts of terrorism are hypothesised as having been through a process of radicalisation, defined as the adoption of extreme political or ideological attitudes.(3, 4) In high-income countries, radicalisation and terrorist offending are largely managed by criminal justice agencies, though public mental health interventions are now proposed as having preventive value.(5-7) Public health approaches to understanding and preventing radicalisation require better evidence of risk factors associated with the adoption of extremist attitudes and terrorist behaviour more generally.(8, 9) Indeed, in the UK, public servants including doctors and mental health professionals are asked to show 'due regard' to the identification of those at risk of radicalisation.(3)

Extremist views and attitudes are more common than acts of terrorism, and may indicate a preliminary stage of the radicalisation process that can be prevented.(5, 8, 10). Research into violence prevention, especially in relation to terrorist offending, presents a significant ethical challenge. Violence prevention in general and countering violent extremism within a public health framework requires a different type of population science and cycles of learning to implement and test favoured theories in research and actual practice.(5, 7) Therefore, this study adopts a population approach to better understand the drivers of radicalisation and extremist attitudes more generally, and the links with symptoms of psychological and mental illnesses.

The literature on the links between mental illness and violent radicalisation specifically, and extremism more generally, is sparse. Many terrorist offenders do not have mental illnesses or criminal histories,(8) but recent policy and research invokes a link between mental illnesses, specifically depression, psychoses and autism with the risk of radicalisation and terrorist offending.(11, 12) Findings from our previous survey reported links between extremist sympathies and depressive symptoms rather than ICD-10 diagnoses which we now include. We also showed that being under the age of 25, being born in the UK, having fewer social contacts, or considering religion were important risk factors.(13)

Depressive symptoms explained a significant proportion of the association between life events and political engagement with extremist sympathies.(14) Building on our previous studies of extremist beliefs and depressive symptoms in Pakistani and Bangladeshi men and women, this paper presents the findings from a new population cohort that compares Pakistani and White British people, who were assessed for ICD-10 diagnoses of depressive illness and of dysthymia rather than depressive symptoms. We also assessed symptoms of personality disorders, autism, generalized anxiety, and post-traumatic stress disorder. These additional symptoms were included to tackle speculation of relevance, despite there being little empirical evidence.(13, 14) Our new analyses attempted to replicate previous work on different samples, with better measures of depressive diagnoses and extremism. We again considered other proposed risk factors such social, political, and cultural influence proposed as risk factors of extremist attitudes.(3, 8, 13-15)

## METHODS

### Participants

We recruited 618 men and women of White British and Pakistani heritage aged 18-45 years, and living in the community in three locations: Blackburn with Darwen, Bradford, and Luton. Quota sampling was applied to yield equal numbers from each location (n=206 each) and equal numbers of Pakistani and White British respondents overall (n=309 each). For analyses, these numbers were weighted by the demographic frequencies in the location. UK Census data were used to identify a specified geographical area (called a Lower Layer Super Output Area) with higher proportions of residents of Pakistani heritage. These areas were used as sampling locations. Equal quotas were also set for age (18-30 years and 31-45 years), gender, and work status (working full-time, not working full-time). The survey was delivered through Ipsos MORI Social Research Institute. Trained and locally based interviewers worked to a structured invariant interview format and to industry standards under supervision, offering language matching if required. Individuals within sampling locations were recruited by door knocking, and interviewed after seeking informed consent. A hand-held computer and flash cards were used to

simplify the process of answering multiple choice and sensitive questions, and reduce social-desirability bias. The variables and measures were identified and prepared by the research team (KB and EJ) and Ipsos MORI, and refined in pilot testing and cognitive debriefs before launching the survey. Ethical approval was granted by Queen Mary University of London Research Ethics Committee on 19th November 2015: QMERC2015/06.

**Measures**

Psychiatric variables

ICD-10 depression diagnosis was measured using the Clinical Interview Schedule Revised CIS-R,[16] using the following symptoms: depression experienced most days, most of the time, for at least two weeks was classified into 'mild'= four symptoms, 'moderate'= five to six symptoms, and 'severe'= seven or more symptoms. We define 'major depression' as either moderate or severe depression diagnoses. A diagnosis of depression required at least one symptom of persistent sadness/low mood, loss of interest/pleasure, or fatigue/low energy; as well as problems with sleep, concentration, confidence, appetite, suicidality, agitation, or guilt/self-blame. This measure was scored using well-established algorithms.[17] To correct for missing data (n=137, 22.2%) on depression symptoms, 122 respondents were diagnosed by consensus ratings made between two clinicians, and if necessary a third, reviewing all the survey data leading to 98% completion on depression diagnosis (n=603).

Dysthymia (i.e. persistent mild depression, or depressive personality) was measured using seven characteristic symptoms, each rated on presence, persistence, and longevity. Symptoms consisted of: feeling depressed, inadequate, effort in everything, unable to cope with everyday demands, unable to enjoy anything, trouble sleeping, and complaining/moaning. Using the ICD-10 criteria for dysthymia, a binary diagnosis was assigned with two or more depressive symptoms experienced 'often' or 'always' (i.e. to meet the criteria 'most of the days; more days than not'), and lasting 'for more than two years'.[18] To minimise missing data on dysthymia (n=70, 11.3%), 67% of these were completed from

rerouted items in the CIS-R, Patient-Health-Questionnaire (PHQ-9), and the PTSD Checklist (PCL-C) (see supplementary Table 1 for rerouting methods).(16, 19, 20)

We constructed a combined depression-dysthymia variable that distinguished those with comorbid major depression with dysthymia (n=23, 4%), from diagnoses of dysthymia only, major depression only, mild depression only, and neither.

Autism symptoms were measured using a total score on the autism spectrum quotient (AQ-10); reported as having high discriminant validity for those with and without a clinical diagnosis.(21)

Personality disorder symptoms were measured using the total score on the Standardised Assessment of Personality Abbreviated Scale (SAPAS),(22) consisting eight indicator questions about the presence of maladaptive personality traits. SAPAS was reported to have high diagnostic validity. The sum of maladaptive traits was used rather than a threshold of four or more to reflect a greater risk of 'any' personality disorder.

Post-traumatic stress disorder (PTSD) was measured using the civilian PTSD checklist (PCL-C) consisting of 17 items, which was reported to have high diagnostic validity.(19) Symptom clusters included re-experiencing, avoidance or numbing, and arousal. Response options were: 1='Not at all', 2='A little bit', 3='Moderately', 4='Quite a bit', and 5='Extremely'; scores of three or more were considered symptomatic. Three items that had been omitted to avoid repetition were rerouted from alternative survey items, consisting of 'irritability/anger' and 'exaggerated startle' from the Generalised Anxiety Disorder (GAD); and 'concentration difficulty' from the CIS-R.(16, 23) Rerouted items were retained after sensitivity analyses produced similar results. The total PTSD score was used rather than the diagnostic threshold of 30 or more.

The Generalised Anxiety Disorder (GAD) is a well-established measure of anxiety symptoms across seven items.(23) Each item was scored on a 4-point Likert scale, consisting "not at all", "several days", "more than half days", and "nearly every day"; the total score was entered into the analyses. The GAD is routinely used in mental health and primary care services. We used the total score.

Alcohol consumption, illicit substance use, and tobacco use, were assessed using a binary 'yes'/'no' response after asking about lifetime consumption.

Social variables

A criminal conviction was scored as a binary 'yes'/'no' response (at least one conviction) for any offence in the Gunn Criminal Profile.(24)

A measure of discrimination was adopted from the EMPIRIC study.(25) This asked about experiences of physical assault, property damage, insults, unfair treatment at work, job refusal due to race, religion or culture; each item scored 0-5 (total score of 0-25).

Life events were measured using the 12-item List of Threatening Experiences (LTE; scored 0-12).(26)

As a measure of social support, we asked about the number of contacts by telephone, email, or visit in the preceding two weeks by friends or relatives. Low social capital has been associated with violence,(27, 28) suicide,(29) and poor mental health.(30) In accord with previous research, we selected questions from the Office for National Statistics Social Capital Question Bank (31) to ask about satisfaction with living in the area (very satisfied, fairly satisfied, neither, fairly dissatisfied, very dissatisfied), trust in neighbours (many people, some people, a few, or none), and feelings of safety (very safe, fairly safe, fairly unsafe, or very unsafe). Scores were summed (ranging from 3-13).

Political engagement items were drawn from the Department of Communities and Local Government Citizenship Survey.(32) We asked whether individuals had voted in the last local council election, discussed politics or political news with someone else, signed a petition, donated money to a charity or campaigning organisation, paid a membership fee to a charity or campaigning organisation, undertaken voluntary work, boycotted certain products (for political, ethical or environmental reasons), boycotted certain products for religious reasons, expressed political opinions online, been to any political meeting, donated money or paid membership fees to a political party, and taken part in a demonstration, picket or march. 'Yes'/'no' responses were summed (ranging from 0-12).

Sympathies for violent protest and terrorism (SVPT)

Radicalisation risk was identified using a tool called the 'SyfoR': Sympathies for Radicalisation.(13-15) The SVPT tool was originally developed using participatory discussions with Muslim and non-Muslim researchers and community panels in local mental health charities, educational organisations, and religious institutions, for improved content validity, and readability. We asked for feedback on the study design and findings from our independent scrutiny committee comprising two professors of marketing and communications, a professor of business studies, and a senior academic psychologist.

The SyfoR has been independently reviewed as having high content, criterion, and construct validity; internal consistency; readability; and low respondent burden.(33) The tool was updated to include one additional item – the act of going to Syria to fight with Islamic State, to a total of 17 items (see supplementary Table 2). Participants were asked to rate each item using a seven-point Likert scale ranging from -3 (completely condemn) to 3 (completely sympathise), whereby a score of 0 represented neither condemnation nor sympathy – interpreted as neutral.

The SVPT measure used in this study was developed following a principal components analysis on the 17 SyfoR items. Seven items were found to have a distinct latent structure related to sympathies for violent protest and terrorism (SVPT; see supplementary Table 2). These items comprised of sympathising with i) committing minor crime, ii) committing violence… in political protests, iii) organizing radical terrorist groups, iv) threatening to commit terrorist actions, v) committing terrorist actions… as a form of political protest, vi) using bomb, and vii) using suicide bombs to fight against injustices. The omitted SyfoR items related to latent factors comprising of defensive violence, UK foreign policy, and fighting against British troops. Respondents were categorised as sympathisers (any positive scores), condemners (all negative scores), or neutral (any neutral score, without any positive scores). Neutral scores are presented in the descriptive and univariate analyses. In the multivariable models we present the risk of sympathisers, with condemners as the comparison group.

**Statistical analyses**

A principal components factor analysis with orthogonal rotation on the 17 SVPT items identified a four-factor model (see supplementary Table 1), retaining factors using the Kaiser Criterion, and confirmed using parallel analysis. Factor one – a seven-item structure titled 'political violence and terrorism' was retained due to its distinct structure, which produced moderate/strong inter-item correlations ($r$=0.43-0.86), strong inter-item reliability (Cronbach's α=0.91), appropriate sampling adequacy (Kaiser-Meyer-Olkin=0.862), explained variance ($\sigma^2$=67%), and was split-half validated. Following sensitivity analyses, respondents were categorised into three mutually-exclusive groups (as described above) using scores on the seven items. Missing responses on SVPT items were conservatively treated as 'scores<0'. Sensitivity analyses tested alternative computations of SVPT – namely with missing responses treated as values of one, values of zero, or omitted.

The total weighted prevalence (for categorical variables), and weighted means and standard errors (for continuous variables) were tabulated by the three groups: those showing sympathies, condemners, and the rest.

Each demographic, social, and psychiatric variable was entered into a univariate analyses, using multinomial logistic regression with the three SVPT groups as the outcome. In univariate analyses, we compared associations among sympathisers, and those neutral, with the condemners as the reference group. Sensitivity analyses compared the findings when using threshold and total scores for psychiatric measures.

In multivariable analyses, associations were then assessed among sympathisers as our main outcome of interest, using condemners as the comparison group. Psychiatric variables were entered in stepwise regression analyses to test for individual and multivariable effects on our main variables of interest – comorbid major depression and dysthymia – and then followed by symptoms of autism, personality disorder, and PTSD. Anxiety symptoms were not entered with PTSD symptoms in the same model due to collinearity. Otherwise, all variables showing significant associations in univariate analyses were retained for multivariate models. Multivariable analyses were conducted with and without imputing

missing data for anxiety and PTSD symptoms. Sensitivity analyses compared multivariable models using complete cases and imputed data.

All analyses were conducted using Stata version 13.1 for Windows. The regression models and frequency estimates were weighted using the 'pw' weight command, which adjusted for the quota sample, and non-response to ensure the findings were representative of the population. Mediation analyses were conducted using the 'ldecomp' command. The 'mi' command imputed PTSD and anxiety data using all other variables in the multivariable model, to produce 10 imputed datasets.

The main findings were sustained in sensitivity analyses when testing alternative computations of SVPT; when conventional diagnostic thresholds were applied to generate binary variables for PTSD, autism, and personality disorder; and when multivariable analyses were conducted on complete cases rather than imputed data. Correlations between psychiatric disorders were moderate to strong ($r$=0.35-0.74, p<0.01) and this informed our multivariable modelling approach.

**RESULTS**

Sample Characteristics: the role of socio-cultural, demographic and lifestyle factors

The survey identified 341 (61%) respondents who condemned violent protest and terrorist actions; 144 (26%) were neutral, and 73 (13%) were sympathisers of violent protest and terrorism (SVPT). 15.1% of the White British and 7.1% of the Pakistani groups showed SVPT (see Table 1 and Figure 1). SVPT were significantly more common in lifetime alcohol drinkers, tobacco users, and illicit drug users, and in those with a criminal conviction (Table 1 and 3). Younger people, single people, and those born in the UK more often expressed SVPT, compared to older, married or divorced people, and those born outside the UK. Gender, religion, religious attendance, education level, political engagement, life events, discrimination, social capital, and social support were not associated with SVPT, and were therefore not entered in the multivariable analyses.

**Common Mental Disorders**

SVPT were positively associated with a diagnosis of comorbid major depression and dysthymia (compared to those with neither diagnosis), with PTSD and anxiety symptoms (Table 2). There were too few participants with SVPT and major depression (n=4), or SVPT and mild depression (n=2) to assess the influence of these single diagnoses.

Autism and personality disorder scores were not associated with SVPT. However, the individual item in the personality schedule of 'losing one's temper easily' was positively associated with SVPT (RR=2.25, 95%CI: 1.12-4.53, p=0.02, n=530).

**Multivariable associations with extremist sympathies**

In multivariable analyses, symptoms of PTSD and anxiety, and for ICD-10 diagnoses of major depression with dysthymia were positively associated with SVPT, after adjusting for age, ethnicity, marital status, and criminality (Table 4, model 1). Neither autism nor personality disorder was associated with SVPT. Throughout these models, younger age remained positively associated with SVPT. SVPT were more common in people with a criminal conviction, smokers, and single people, with non-significant positive association with White British compared to the Pakistani group. When adjusting for PTSD symptoms, anxiety symptoms, and substance use, the association between sympathies and comorbid major depression and dysthymia was diminished (Table 4, models 2 to 4), indicating that PTSD and anxiety symptoms accounted for the association between comorbid major depression and dysthymia with SVPT. This was sustained when adjusted for age, ethnicity, marital status, and criminality.

**DISCUSSION**

This is the first empirical evidence to link common mental disorders with extremist sympathies in populations of both White British and Pakistani men and women living in England. The association

between extremist sympathies and comorbid depression and dysthymia was explained by underlying severe anxiety and PTSD symptoms. A more general approach to improving population mental health alongside prevention in specific populations such as those experiencing post-traumatic symptoms and younger people may be helpful. A previous study of teenage boys in Gaza also indicated the importance of mood symptoms, though the depressive experiences were particularly severe and related to the immediacy of violence related to war and conflict making it difficult to consider the sources of depression to be similar in such vastly different settings.(34) Our findings on depression are at variance with studies of violence in gang members and of pro- and anti-British attitudes; depression was negatively associated with violence, but positively associated with anxiety and with traumatic experiences.(35, 36) Our findings may be explained by dysthymia as a chronic condition that depletes hope and capability to overcome adversity, and depression in addition. Or the underlying dysthymia alone may be more important, as we found positive but non-significant trends for an association.

Surprisingly, extremist sympathies were more prevalent in White British than in Pakistani people, and less surprisingly in single people, in those with a criminal conviction, and lifetime users of tobacco, alcohol, and illicit drugs. Although these lifestyle factors suggest personality function may be relevant, we found no associations with personality disorders.

These findings are consistent with a study of terrorist offenders in the US, which reported that propensity to extremist political violence was greater in those with a criminal history, a mental illness diagnosis or suspected mental illness, alcohol and drug use, and a history of trauma.(37) The US study found that propensity was higher in those with experiences of community marginalisation, measured as perceived imminent threat from an external group, political crisis, collective crisis situation, or group-facilitated cognition. In contrast, we did not find that social influences or assets (i.e. social capital, social contacts, or discrimination) were related to extremist sympathies. The differences might be explained by the setting, namely a study of offenders in the US in contrast to our population sample. However, in contrast to our present study and consistent with the US study, our previous study  using a different measure of extremism  did show fewer social contacts in those with extremist sympathies and a lower risk associated with social assets.(13)

Previous research on psychological risk factors for violent extremism have discussed concepts of mind-set and worldview related violence.(38) Volitional incompetence is described as an affective deficit leading to increased receptivity to extreme ideologies such as dogmatic, fundamentalist, authoritarian, or apocalyptic worldviews. Our results support evidence for a volitional propensity related to low self-regulation and self-control as a risk of extremism, with the association between sympathies and mood disorders, PTSD, anxiety, and poor impulse control (losing one's temper). A psychotherapeutic clinical trial improving volitional competence, led to reduction in depressive symptoms.(39) However, our findings also suggest anxiety and post-traumatic symptoms underlie the associations with depression and dysthymia, suggesting complex and common mental states are responsible rather than single illnesses. (40)

Public agencies are asked to show 'due regard' to the recognition and prevention of extremist offending, although this proposal is controversial.(12) The link between mental illness and extremist attitudes is proposed to be higher in lone-actors, than in group-based terrorism.(11) This suggests that in the absence of links with extremist groups or histories of extremist offending, the presence of mental illnesses may add risk. In conclusion, the exacerbating role of depression is proposed to be cross-culturally relevant, as are other mood disorders that might indicate an affective vulnerability, specifically dysthymia alone or with depression are important correlates of sympathies.

**Strengths and weaknesses**

The strengths of this study include using ICD-10 diagnostic algorithms for depression and dysthymia, which was an advance on previous studies. We used validated scalar measures of psychiatric symptoms for PTSD, GAD, autism, and personality disorder; all shown to have strong validity but of course risk false positive and false negatives. Also, we did not assess specific personality disorders such as antisocial, histrionic or obsessive-compulsive personality disorders.(41) The distinction between outright sympathisers of extremism, those neutral and outright condemners, allowed for the characterisation of those most with those at least at risk. We could have compared the most extreme

with the neutral responders, but we were not able to clarify why people answered the way they did; we could not judge whether neutral responders were truly neutral or did not want to commit a response. Hence we excluded them from the final analyses.

A potential limitation of the SVPT measure is that respondents need only sympathise with one item to be considered to hold extreme views. This was to maximise power and had face validity, by separating out all positive, neutral and negative scores. Using a threshold of two or more sympathies to classify sympathisers led to consistent point estimates, although the power was compromised with only 23 people then showing sympathies. Sympathising with committing minor crime was one item that was the most commonly endorsed. Excluding this item from the classification of those with sympathies produced no major changes in point estimates. A comprehensive approach would be to test these associations in a psychiatric population in future studies that also assess associations with violence.

A recent review of mental disorders and terrorist involvement reported that empirical research is often reductionist in its dichotomy of terrorists versus non-terrorists.(42) Our study responds to this by analysing a preliminary phase that is distinct from acts of violent extremism: how those who sympathise with political acts of violent radicalisation and terrorism differ from those who condemn such acts. Yet radicalisation processes are proposed to act on these very people to adopt extremist views, hence our comparisons can indicate which characteristics are associated with the adoption of such views. Travelling to foreign lands to fight and religious ideologies were not central to the measure of extremism that we used, so those interested in specific ideologies that we did not measure may prefer an alternative assessment method, that may be unique to one specific set of extremist ideologies. In this paper we used a measure that was valuable across ethnic and religious groups and the same 7 items were used for both ethnic groups.

Measuring extremist behaviour and engagement with extremist networks is complex; thus, measuring sympathies for such acts provides a way of studying a potentially susceptibility to violent behaviour and terrorism ethically, without incrimination, or breaches of confidentiality. We cannot infer a more

significant link to extremist attitudes on our measures and actual future violent behaviours at this stage. We are testing the measures further with violent and non-violent offender patients.

Recruiting people to such a study is not straightforward. The use of quota sampling was an efficient recruitment method, which matched sampling areas to the target population using census data; it is often used in market research and national surveys where no listing of eligible participants exists.(43, 44) Given the sensitivity of the survey topic, quota sampling avoided exposing large numbers of people to the preliminary recruitment phase, who would not have met the inclusion criteria. Yet, reassuringly, our estimates of prevalence for depression and dysthymia were consistent with other published studies.

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**Table 1. Demographic, social, and psychiatric characteristics by sympathies for violent protest and terrorism (SVPT) groups (weighted)**

| Variables | | Condemners (*n*=341, 61%) | Neutral (*n*=144, 26%) | Sympathisers (*n*=73, 13%) | Total (*n*=558, 100%) |
|---|---|---|---|---|---|
| Age groups | 18-20 | 29 (41.0) | 25 (35.2) | 17 (23.8) | 71 (100) |
| | 21-25 | 42 (54.3) | 27 (34.9) | 8 (10.8) | 77 (100) |
| | 26-30 | 64 (60.2) | 29 (27.6) | 13 (12.2) | 106 (100) |
| | 31-35 | 59 (69.1) | 19 (22.0) | 8 (8.9) | 85 (100) |
| | 36-40 | 63 (63.4) | 24 (24.5) | 12 (12.1) | 99 (100) |
| | 41-45 | 72 (70.7) | 17 (16.7) | 13 (12.7) | 102 (100) |
| Gender | Male | 177 (64.4) | 61 (22.2) | 37 (13.4) | 275 (100) |
| | Female | 164 (57.8) | 83 (29.2) | 37 (12.9) | 283 (100) |
| Marital status | Single | 158 (52.6) | 89 (29.7) | 53 (17.7) | 300 (100) |
| | Married | 162 (70.4) | 51 (22.3) | 17 (7.3) | 230 (100) |
| | Separated/divorced | 21 (77.2) | 3 (10.2) | 3 (12.5) | 27 (100) |
| Income Less than | £5000 | 42 (56.5) | 20 (27.0) | 12 (16.6) | 75 (100) |
| | £5000-£14999 | 58 (54.6) | 28 (26.5) | 20 (19.0) | 107 (100) |
| | £15000-£24999 | 61 (64.5) | 22 (23.4) | 11 (19.1) | 95 (100) |
| | £25000-£34999 | 43 (62.7) | 16 (23.8) | 9 (12.1) | 69 (100) |
| | £35000 or more | 42 (69.7) | 12 (19.7) | 6 (10.6) | 60 (100) |
| Employment | Employed | 243 (65.2) | 85 (22.9) | 44 (11.9) | 373 (100) |
| | In education | 25 (49.8) | 18 (35.0) | 8 (15.3) | 51 (100) |
| | Unemployed | 27 (48.3) | 20 (34.9) | 9 (16.8) | 56 (100) |
| | Retired/Housewife/sick | 45 (59.2) | 20 (26.6) | 11 (14.2) | 76 (100) |
| Education | No qualifications | 15 (46.2) | 12 (37.9) | 5 (15.9) | 32 (100) |
| | GCSE/CSE/A-Level | 208 (58.5) | 101 (28.3) | 47 (13.2) | 355 (100) |
| | Bachelor/Master/PHD | 112 (70.7) | 27 (16.9) | 20 (13.1) | 158 (100) |
| Place of birth | United Kingdom | 284 (58.2) | 136 (27.9) | 68 (14.0) | 488 (100) |
| | Pakistan | 35 (81.0) | 6 (12.7) | 3 (6.3) | 44 (100) |
| Ethnicity | White | 236 (57.9) | 110 (27.0) | 61 (15.1) | 407 (100) |
| | Pakistani | 105 (69.6) | 34 (22.3) | 12 (8.1) | 151 (100) |
| Location[1] | | | | | |
| | Blackburn | 108 (55.5) | 56 (28.7) | 31 (15.8) | 195 (100) |
| | Bradford | 117 (61.5) | 53 (27.5) | 21 (11.0) | 191 (100) |
| | Luton | 115 (67.0) | 35 (20.5) | 22 (12.5) | 172 (100) |
| Religion | None | 85 (56.9) | 50 (33.8) | 14 (9.3) | 149 (100) |
| | Christian | 124 (59.1) | 49 (23.4) | 37 (17.5) | 210 (100) |
| | Buddhist | - | 1 (100) | - | 1 (100) |
| | Muslim | 99 (67.5) | 36 (24.3) | 12 (8.3) | 147 (100) |
| | Atheist | 23 (70.8) | 4 (11.3) | 6 (17.9) | 32 (100) |
| | Other | 2 (24.6) | 1 (20.3) | 4 (5.5) | 7 (100) |
| Religious attendance | Never | 171 (55.7) | 97 (31.7) | 38 (12.5) | 306 (100) |
| | ≤monthly | 101 (66.2) | 29 (18.9) | 23 (15.0) | 153 (100) |
| | ≥weekly | 69 (69.8) | 18 (17.8) | 12 (12.4) | 99 (100) |
| Alcohol consumption | No | 97 (63.5) | 43 (28.2) | 13 (8.4) | 153 (100) |
| | Yes | 244 (60.2) | 101 (24.9) | 61 (15.0) | 405 (100) |
| Illicit drug use | No | 265 (61.6) | 121 (28.1) | 44 (10.3) | 429 (100) |
| | Yes | 68 (58.3) | 22 (18.6) | 27 (23.1) | 116 (100) |
| Any criminal conviction: | No | 311 (62.6) | 125 (25.2) | 60 (12.2) | 497 (100) |
| | Yes | 30 (52.8) | 14 (24.3) | 13 (22.9) | 57 (100) |
| Tobacco use (Yes/No) | Yes | 176 (55.8) | 87 (27.8) | 52 (16.4) | 315 (100) |
| | No | 160 (67.2) | 56 (23.7) | 22 (9.2) | 238 (100) |
| | | Mean (standard error) | | | |
| Discrimination | | 0.24 (0.04) | 0.27 (0.06) | 0.17 (0.06) | 0.24 (0.03) |
| Political engagement | | 3.51 (0.14) | 2.90 (0.21) | 3.99 (0.39) | 3.32 (0.11) |
| Life events score | | 1.06 (0.89) | 0.91 (0.12) | 1.37 (0.20) | 1.05 (0.07) |
| Social support | | 6.33 (0.14) | 6.00 (0.24) | 5.82 (0.36) | 6.10 (0.11) |

[1] The weighted number of respondents by location was 164 (79%) White British to 42 Pakistani (20%) in Blackburn; 146 (71%) White British to 60 (29%) Pakistani in Bradford; and 137 (67%) White British to 69 (33%) Pakistani in Luton.

**Table 2: Mental Disorders and SVPT**

| SVPT categories | Condemners (*n*=341, 61%) | Neutral (*n*=144, 26%) | Sympathisers (*n*=73, 13%) | Total (*n*=558, 100%) | Missing (*n*=60, 10%) |
|---|---|---|---|---|---|
| **ICD-10 Mood Disorders** | n(%) | | | | |
| None | 272 (61.0) | 120 (27.0) | 53 (12.0) | 445 (100) | 84 (13.59) |
| Mild depression | 21 (68.2) | 8 (25.2) | 2 (0.07) | 31 (100) | |
| Dysthymia alone | 9 (48.4) | 4 (22.5) | 5 (29.1) | 18 (100) | |
| Major depression alone | 15 (70.8) | 2 (11.8) | 4 (17.5) | 21 (100) | |
| Major depression & dysthymia | 10 (44.6) | 5 (19.8) | 8 (35.6) | 23 (100) | |
| **Symptom Scores** | Mean (standard error) | | | | |
| Autism score | 2.47 (0.09) | 2.50 (0.15) | 2.76 (0.21) | 2.51 (0.07) | 78 (12.62) |
| Personality disorder score | 2.46 (0.08) | 2.45 (0.13) | 2.61 (0.18) | 2.48 (0.07) | 84 (13.59) |
| PTSD score | 26.8 (0.76) | 25.8 (1.13) | 32.2 (1.80) | 27.3 (0.60) | 89 (14.40) |
| GAD score | 3.07 (0.28) | 3.19 (0.47) | 5.28 (0.75) | 3.41 (0.24) | 108 (17.5) |

GAD, generalised anxiety disorder; PTSD, posttraumatic stress disorder.

**Table 3. Univariate logistic regressions using 7-item SVPT as an outcome (reference condemners) (weighted, unadjusted)**

| Participant characteristics | RR (95% CI | P | N |
|---|---|---|---|
| Age group: years (ref: 18-20) | | | 539 |
| 21-25 | 0.34 (0.12, 0.94) | 0.04 | |
| 26-30 | 0.35 (0.14, 0.88) | 0.03 | |
| 31-35 | 0.22 (0.08, 0.66) | 0.001 | |
| 36-40 | 0.33 (0.12, 0.90) | 0.03 | |
| 41-45 | 0.31 (0.12, 0.79) | 0.02 | |
| Gender (ref: male) | | | 558 |
| Female | 1.07 (0.60, 1.91) | 0.81 | |
| Marital status (ref: single) | | | 557 |
| Married | 0.31 (0.16, 0.61) | 0.001 | |
| Divorced/Separated | 0.48 (0.16, 2.17) | 0.34 | |
| Income (ref: <£5000 per year) | | | 413 |
| £5000-14999 per year | 1.18 (0.50, 2.78) | 0.70 | |
| £15000-24999 per year | 0.64 (0.24, 1.65) | 0.35 | |
| £25000-£34999 per year | 0.73 (0.25, 2.13) | 0.56 | |
| £35000 or more per year | 0.52 (0.15, 1.77) | 0.56 | |
| Employment (ref: employed) | | | 555 |
| In education | 1.68 (0.68, 4.15) | 0.26 | |
| Unemployed | 1.91 (0.81, 4.50) | 0.14 | |
| Retired/housewife/sickness | 1.31 (0.61, 2.82) | 0.49 | |
| Education (ref: no qualifications) | | | 546 |
| GCSE/CSE/A-level | 0.66 (0.22, 1.97) | 0.45 | |
| Bachelor/Master/PhD | 0.51 (0.15, 1.68) | 0.27 | |
| Place of birth (ref: UK) | | | 535 |
| Pakistan | 0.33 (0.11, 0.94) | 0.04 | |
| Ethnicity (ref: Pakistani) | | | 558 |
| White British | 2.24 (1.25, 4.02) | 0.007 | |
| Religion (ref: none) | | | 547 |
| Christian | 1.80 (0.80, 4.07) | 0.16 | |
| Buddhist | - | - | |
| Muslim | 0.75 (0.33, 1.71) | 0.49 | |
| Atheist | 1.55 (0.42, 5.74) | 0.52 | |
| Other | - | - | |
| Religious Attendance (ref: never) | | | 558 |
| ≤monthly | 1.01 (0.52, 1.94) | 0.99 | |
| ≥weekly | 0.79 (0.37, 1.69) | 0.54 | |
| Alcohol consumption | 1.89 (1.01, 3.54) | 0.048 | 558 |
| Illicit substance use | 2.37 (1.25, 4.48) | 0.008 | 549 |
| Tobacco use | 2.15 (1.19, 3.90) | 0.01 | 553 |
| Criminal conviction: Any | 2.23 (1.01, 4.95) | 0.048 | 553 |
| Discrimination | 0.82 (0.56, 1.21) | 0.32 | 531 |
| Political engagement | 1.08 (0.96, 1.22) | 0.22 | 558 |
| Life events | 1.13 (0.96, 1.33) | 0.13 | 558 |
| Social support | 0.92 (0.81, 1.03) | 0.16 | 558 |
| Depression/Dysthymia (ref: none) | | | 534 |
| Mild depression | 0.50 (0.10, 2.61) | 0.41 | |
| Dysthymia only | 3.06 (0.86, 10.88) | 0.08 | |
| Major depression only | 1.26 (0.34, 4.65) | 0.73 | |
| Major depression & dysthymia | 4.07 (1.37, 12.05) | 0.01 | |
| Autism score | 1.13 (0.94, 1.35) | 0.19 | 540 |
| Personality disorder score | 1.08 (0.89, 1.30) | 0.46 | 534 |
| PTSD score 17-item | 1.03 (1.01, 1.05) | 0.003 | 529 |
| GAD score | 1.09 (1.03, 1.15) | 0.002 | 507 |

**Table 4.** Stepwise, multivariable and multinomial regression for 7-item SVPT (compared with condemners as the reference) (weighted; multiply imputed)

| Risk of SVPT (ref: condemners) | Model 1. DD comorbidity (n=510, F=2.37)[a] | | Model 2. DD comorbidity, & PTSD[b] (n=510, F=2.37) | | Model 3. DD comorbidity, & Anxiety[b] (n=508, F=2.08) | | Model 4. DD comorbidity & substances (n=500, F=2.74) | |
|---|---|---|---|---|---|---|---|---|
| | RR (95% CI) | P | RR (95% CI) | P | RR (95% CI) | P | RR (95% CI) | P |
| **Risk factors/confounders** | | | | | | | | |
| Comorbid major depression and dysthymia (ref: none) | 3.50 (1.12, 10.93) | 0.03 | 2.02 (0.37, 10.96) | 0.41 | 1.75 (0.38, 8.09) | 0.47 | 2.53 (0.75, 8.50) | 0.13 |
| PTSD score[b] | | | 1.02 (0.99, 1.05) | 0.30 | | | | |
| Anxiety score[b] | | | | | 1.07 (0.98, 1.16) | 0.11 | | |
| Tobacco use (ref: no): yes | | | | | | | 2.60 (1.23, 5.51) | 0.01 |
| Illicit drug use (ref: no): yes | | | | | | | 1.39 (0.63, 3.07) | 0.41 |
| Alcohol use (ref: yes): no | | | | | | | 0.46 (0.12, 1.76) | 0.26 |

Ref, reference group; PD, personality disorder; PTSD, posttraumatic stress disorder; RR, relative risk ratio; CI, confidence interval.

Adjusted for age, ethnicity, marital status, and criminal convictions,

a. Adjusting for income reduced the sample size (n=326); therefore, income was omitted from all models. Income diminished the significance of depression.

b. Anxiety was entered as an alternative to PTSD due to collinearity, which produced a minimal change to the significance levels of other variables in the model.

Models 3 and 4 findings were sustained when anxiety and substances, and PTSD and substances were entered together.