Dietary Behaviour Change in Adolescence

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Abstract

Diet is an important determinant of health, especially during adolescence when growth and development are critical. Many young people continue however to eat a diet that does not conform with current dietary recommendations. Relatively little research has been carried out into adolescent dietary behaviour change. The Transtheoretical Model of Behaviour Change has been developed and tested with a range of health related behaviours and indicates that change is a dynamic non-linear process involving several distinct stages (Prochaska and DiClemente, 1991).

The aim of this study was to investigate adolescent dietary behaviour change amongst a sample of 513 fourteen year olds attending six schools in North London. The objectives were to assess the key features, patterns and characteristics of the sample's dietary behaviour, to establish the nature and extent of change of diet; and to investigate the context, influences and processes involved. A three phase study design was developed which utilised both quantitative and qualitative methods.

Results from the quantitative phase revealed that over 50% of the sample had experience of changing either their fat or sugar intakes. Application of the Transtheoretical Model of Behaviour Change revealed very similar patterns of change for both fat and sugar, although differences in the distribution of stages between females and males was apparent. Multiple logistic regression analysis showed that adolescents who were female, perceived themselves to be overweight, were involved with cooking and ate a home based lunch were more likely to have changed their diets.
Data from the semi-structured interviews revealed the complex processes and social influences involved in changing eating behaviours. Concern with body appearance was the major motivation for change, with direct health considerations being less important. The socio-structural context greatly influenced young people's ability to successfully modify their eating patterns.

These results have important implications for the future development of appropriate and effective health promotion dietary interventions aimed at young people.
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Chapter 1

Introduction
1.1. Background To Study

Adolescence is a key stage of social and biological development during which individuals develop their personal identities, partly through exploring and experiencing new roles, circumstances and events (Coleman and Hendry, 1990). Many adolescents experiment and engage in health damaging behaviours such as smoking, inappropriate drug and alcohol use and certain dietary patterns, although the health consequences of these behaviours are not seen as a priority by many young people (Health Education Authority, 1990a; Must et al, 1992; Vand den Bosch, 1992; Backett and Davison, 1995). Health related behaviours and beliefs established during this period of development are firmly linked to patterns of behaviour in adulthood (Wadsworth, 1992).


Amongst the British adult population major shifts in food consumption have taken place over the last 30 years (MAFF, 1991). In addition to these behavioural changes, attitudes towards food and health have also greatly altered (Sheiham et al, 1990). With young people very little research has been conducted into assessing any changes in their dietary patterns,
although the evidence that exists highlights certain changes are indeed taking place (Bull, 1985; Adamson et al, 1992; Roberts et al, 1993). Most studies assessing diet changes have adopted very structured quantitative methods which have focused attention on the nutritional and nutrient aspects of change. Very little is known about the behavioural processes and nature of diet change amongst young people. Research into smoking cessation amongst adults suggests that health related behaviour changes are characterised by a series of changes taking place within a cyclical process (Prochaska and DiClemente, 1991). With young people and their diet changes little is understood of the processes involved. What motivates young people to alter their dietary patterns? What influence do family, friends, schools and health professionals have on dietary behaviour change? What factors support or hinder changes from taking place? These questions are largely unanswered. A clear need therefore exists to investigate this topic.

1.2. Aim, Objectives and Hypothesis of Study

1.2.1. Aim:
To explore the nature, processes and extent of dietary behaviour change in a sample of 13-15 year olds living in Camden and Islington, London.

1.2.2. Objectives:
(1) To assess the key features, characteristics and patterns of adolescents' dietary behaviour.
(2) To determine the extent and nature of dietary behaviour change.
(3) To assess the processes involved in dietary behaviour change and the applicability of the Transtheoretical Model of Change (Prochaska and DiClemente, 1991).
(4) To describe and assess the social and environmental context in which the dietary changes take place.

(5) To establish the key factors facilitating and hindering dietary change.

(6) To propose a new conceptual model for adolescent dietary behaviour change.

(7) To make recommendations for the development of appropriate and effective health promotion policies which will support and enable young people to adopt and maintain healthier dietary patterns.

1.2.3. Hypothesis:
A significant proportion of young people are attempting to modify their dietary patterns. The changes involve a prolonged process, influenced by social factors. Health directed motivations play a relatively minor role.

1.3. Outline of Thesis
Chapter 2 will present a review of the literature. This will include an overview of young people's dietary patterns and the wide range of factors that influence their food choices. Details of young people's dietary changes will then be explored, together with the key theoretical models of behaviour change. Chapter 3 will outline the main methodological issues pertinent to this study. Particular emphasis will be placed on the nature and value of qualitative research methods. The main results from the three separate phases of this study are presented in chapter 4. A detailed account using both quantitative and qualitative data will be given of the extent, nature and processes of dietary behaviour change experienced by the study sample. The final chapter will discuss the strengths and limitations of the results produced and compare the findings with other research produced in this field. Key conclusions and recommendations of this study will also be presented together with a new conceptual model for adolescent dietary behaviour change.
Chapter 2

Literature Review
2.1. Introduction

Major improvements in health have occurred in Britain during the last century (McKeown, 1979). However these overall improvements have not affected all sections of society to the same extent. Major and increasing inequalities in health have been identified between higher and lower social classes within society for a wide range of health indicators (Townsend and Davidson, 1982, Marmot et al, 1984; Macintyre, 1986). A major challenge facing health professionals is developing ways of reducing these unacceptable differences in health. To achieve this, interventions need to be developed which tackle the underlying determinants of health within society (Benzeval et al, 1995).

From a public health perspective there is a general recognition that the health status of individuals and communities is largely determined by complex social and environmental factors and that these factors greatly influence individual behaviours that can affect health such as smoking, eating, drinking and exercise (Blane, 1985; Graham, 1990; Davey-Smith et al, 1990; Green and Kreuter, 1990). Lifestyle is frequently considered a consciously chosen personal behaviour. Others interpret lifestyle as a composite expression of the social and cultural circumstances that condition and constrain behaviour in addition to the personal decisions the individual may make (Green and Kreuter, 1990). Apparently simple behaviours such as eating and smoking are enmeshed in more complex lifetime habits and social circumstances associated with lifestyle (Graham, 1990). Living conditions provide the context in which lifestyles are sustained (Blane 1985; Graham, 1990, Davey-Smith et al 1990).

Diet has a major influence on health and disease (WHO, 1990). The foods and drinks people consume are influenced by a complex array of factors ranging from the effects of international trading policies down to individual personal taste preference. From a nutritional and medical perspective there is now
general agreement on what constitutes a healthy diet (WHO, 1990, Cannon, 1992). Certain groups in society have adopted recommended nutritional guidelines and made major changes to their eating habits. Others, including many young people continue to consume a diet that is potentially harmful to their health (DHSS, 1989). There is therefore a need to understand fully why certain individuals and groups in society are able to modify their dietary behaviours whereas others are not. For example, what factors motivate change and what facilitates changes to be maintained?

This review will be presented in four main sections. The first section will review the nature and characteristics of adolescence as a key period of human development and present an overview of the health implications related to this stage of development. The second section will outline the evidence that highlights the importance of diet in relation to health, together with a summary of the dietary recommendations that have been proposed to improve the diet in the United Kingdom. There then follows a detailed overview of current adult and adolescent dietary patterns together with the main changes that have taken place over the last 50 years. Section 3 of the review will present an analysis of the key factors that influence dietary patterns, including factors which operate at individual and at socio-cultural and environmental levels. The final section will present and assess the most important theories and models of behaviour change in an attempt to gain insights into the process and influences involved in dietary behaviour change in adolescents.

2.2. Adolescence As A Key Lifestage - Health Implications Explored

The conceptualisation of adolescence as a distinct life stage is a relatively recent cultural creation historically rooted in the mid-nineteenth century social concern about working class youth. At that time the problem of youth delinquency was identified as a potential threat to the adult social order.
addition broader social and political changes such as the impact of increasing urbanisation and industrialisation and the need for a more educated and skilled labour force all focused attention on to young people as a separate group for the first time. However adolescence as a distinct developmental grouping did not really emerge until the 1950s when major social and institutional shifts in society such as increased educational and recreational provision took their effect. In addition at this time of major economic growth and full employment, youth were in demand as a source of labour and the teenager consumer was first created. Since the 1950s the popular public view of young people, greatly influenced by the mass media has been very negative, frequently associated with images of violence, drug taking and general hostility to society (Davis, 1990).

The World Health Organisation has defined adolescence based on a chronological assessment as young people aged between 10-20 years. In most cultures however adolescence is defined biologically in relation to the onset of puberty (WHO, 1977). This period of human development is now considered as a transition from childhood to adulthood marked by interlocking changes in the body, mind and in social relationships all of which can have a critical influence on later adult life. Physically this is a distinct period of rapid growth and maturation, when hormonal changes are greater than any other time in human development and when adult sexuality emerges.

Social science research interest in this stage of development has expanded greatly during this century, although the understanding of this group is very influenced by the nature of the academic discipline with major differences emerging between the viewpoint of sociology and psychology. The classical psychological view of adolescence presents this transitional period very much in terms of individual development marked by emotional turmoil and conflict
The psycho-analytic approach highlights three key features of adolescence:

1) as a period of marked vulnerability of personality resulting from biological changes linked to puberty

2) as a time when maladaptive behaviours such as extreme mood swings, depression and non conformity are common, this being due to the inadequacy of psychological defences to cope with inner conflicts and tensions

3) as a period of disengagement from family and home values enabling mature emotional and sexual relationships to be established and a personal identity formed.

Sociology by contrast focuses on the broader structural context of youth and looks to society and to events outside the individual for explanations about the nature and features of adolescence. Sociological theory has concentrated on two particular issues. The process of socialisation and the nature of role and role conflicts within that process (Thomas, 1968; Marshland, 1987; Coleman and Hendry, 1990). Socialisation is the process whereby individuals in society absorb the values, standards and beliefs current to that society. Part of this involves the expectations placed upon individuals by others and the roles played in society. During childhood individuals have roles ascribed by others but during adolescence opportunities not only for choice of roles emerge but also of how these roles are interpreted. This is a time of growing independence from authority figures with increasing involvement with peer groups and a transition in the roles played within society. Peer influence on behaviour has been shown to be very strong at this time although it can act in both a "negative" or "positive" fashion in relation to anti-social activities. Major environmental changes also take place such as changing schools, leaving school to start work or as is frequently the case unemployment all of which may demand involvement in new sets of relationships which have varying expectations and
new challenges for young people. Indeed conflict may arise between the variety of roles that develop placing pressure and stress upon a young person.

Both the psychological and sociological classical theoretical approaches although very different present adolescence as a time of "stress and storm" and as a very stressful period in human development. Evidence from empirical research does not support this highly negative "stress and storm" perspective. On the contrary, most young people do not experience a serious identity crisis and in most cases relationships with parents and other authority figures are positive and constructive. The majority of young people cope well with this period of development and show no undue signs of turmoil or stress (Siddique and D'Arcy, 1984; Coleman and Hendry, 1990, Brannen et al, 1994; Robins, 1995). However there are indications that during the post-war period there has been a real rise in psychosocial disorders affecting young people, although the underlying cause of this remains unclear (Smith and Rutter, 1995).

Although for most young people adolescence is not a time of extreme "stress and storm", it is a period of development when individuals are able to experiment and explore many new behaviours and experiences for the first time which may have both direct and indirect impacts on their health. Large scale cohort studies suggest that health related behaviours such as smoking, eating patterns and alcohol drinking established during adolescence are firmly linked to adult behaviours and subsequent health outcomes (Wadsworth, 1992). In spite of high levels of knowledge about the risks of certain behaviours (Health Education Authority, 1992), many young people have been shown to engage in a number of practices such as smoking, inappropriate consumption of alcohol, misuse of drugs and unsafe sexual activity all of which may have direct and indirect negative effects on their health (Health Education Authority, 1990a; Must et al, 1992; Vand Den Bosch, 1992). The number of young people
engaging in these behaviours is increasing while the age at which they are first experimenting with them is decreasing (Freidman, 1989; Lader and Matherson, 1990; Wright and Pearl 1990; Robins, 1995).

As a result of these trends and the recognition of the long term impacts of adolescent behaviours on adult health there has been growing interest in the factors that influence young people's health related beliefs and behaviours. For example, investigations based upon the health locus of control have demonstrated that amongst younger adolescents the causes of ill health are thought to be related to chance or other external factors outside personal control (Lau et al, 1990). In relation to HIV and AIDS and the associated perceptions of risk, although young people are often aware of the technical risks of unsafe sex, frequently they do not apply the risks to themselves (Moore and Rosenthal, 1991) or overestimate their peers sexual activities and therefore fail to define their own behaviour as placing them at risk (Abrams, 1990).

Research based upon investigation of the life course have revealed interesting insights into young peoples outlook on life and their health (Backett and Davison, 1995) Youth was defined by respondents as a time when the body was in peak condition with vulnerability to childhood illness over and few ailments expected especially chronic illnesses. The young body was seen to better able to deal with toxins and physiological abuse and since few symptoms were detected it was not felt to be important to cut out smoking or other unhealthy activities during this stage of life. It was anticipated that toxins would eventually begin to take their toll and some "cutting down" might be necessary in future. Linked to this sense of invulnerability was the belief that the young body, unlike the old, easily achieved balance in its intake and output. For example, being able to eat "junk" food since an active, busy or sporty life would "burn off" any bad effects. In addition, many felt it was boring, unyouthful or
middle aged to be so future-oriented as to worry about healthy lifestyles and chronic illness. Any fears related to health were linked more to social concerns rather than direct health issues.

In summary adolescence is a very important stage in human development. Health and welfare professionals working with young people are presented with many challenges and need to be able to understand and work with young peoples' values and experiences in efforts to promote their good health. The next section of this chapter will review the evidence relating diet and health and outline dietary consumption patterns.

2.3. Diet, Health and a Need for Change

2.3.1. Scientific Evidence Relating Diet and Health

The adverse health effects of the standard "Westernised" diet which is characterised by an excess of energy dense foods rich in fat and sugars and a deficiency in foods high in fibre has become widely recognised in the last few decades. Evidence has accumulated from epidemiological research and human clinical trials which demonstrate a close and consistent relationship between a "Westernised" diet and the development of a range of chronic non-infectious diseases including particularly coronary heart disease, stroke, various cancers, diabetes, and dental caries. Collectively these chronic conditions now account for the majority of morbidity and mortality levels in the industrialised world (WHO, 1990).

Coronary heart disease (CHD) is the principal cause of premature death within the UK population. Although death rates have been slowly declining over recent years major regional and social class differences still remain (Health Education Authority, 1993). The key aetiological factors linked with the development of CHD have been identified as high total blood cholesterol, smoking and high
blood pressure, these factors interacting multiplicatively (Department of Health, 1991). Although the cumulative risk of dying from cerebrovascular disease is much less than that of CHD, strokes have a major impact in terms of the extreme level of disability often associated with the disease. The main risk factor associated with stroke is high blood pressure in which obesity, alcohol intake and excess salt intake play major contributory roles (WHO, 1990).

Cancers are currently the second most important cause of premature death in the UK, accounting for approximately 25% of all deaths. It is estimated that 30-40% of cancers in men and up to 60% of cancers in women are attributable to diet (Doll and Peto, 1981). The precise mechanisms by which dietary factors relate to cancer development are not fully understood but clear evidence exists which demonstrates that diets high in total fat and saturated fat increase the risk of cancer whereas the consumption of vegetables and fruit have the reverse effect of reducing the risk of cancer (WHO, 1990).

In the UK, diabetes (insulin and non insulin dependent) affects approximately 1% of the population although the main importance of the disease is through the acceleration of CHD and peripheral vascular disease. The most important aetiological factor identified for non insulin diabetes is overweight linked to high fat diet and physical inactivity (USDA, 1988).

Although the oral health of the UK population has improved greatly over the last 30 years, oral health particularly dental caries continues to exert a major physical, social and economic impact on both individuals and the wider community. The main aetiological factor for dental caries development is non milk extrinsic sugars (Department of Health, 1989).
The effects of maternal nutrition on foetal growth and development and the future well being and growth of the child into adulthood have been highlighted (Barker and Martyn, 1992). Poor maternal nutrition leading to folate and zinc deficiencies play an important role in the aetiology of congenital malformations such as neural tube defects (Beattie et al, 1983; Lyon et al, 1979; Dolk et al, 1991). Low birth weights which can be caused by a variety of social factors including inadequate maternal nutrition (Cole, 1992) have a major impact on the health and development of infants (Scottish Low Birth Weight Study Group, 1992). Barker and colleagues (1990) have shown that the lower the weight at both birth and one year of age the greater the risk of cardiovascular disease in later life. This finding suggests that foetal changes in nutrition might prove to be crucial in the long term programming of the body’s susceptibility to disease in adulthood.

2.3.2. Dietary Recommendations

In response to the mounting scientific evidence relating dietary factors with the development of many chronic conditions many government reports from numerous countries have been produced. In a review of 100 of these reports, Cannon (1992) found a remarkable degree of consensus on the recommendations advocated. The common recommendations are to limit fat and saturated fat intakes, reduce sugar and salt intakes and to increase consumption of fruit, vegetables and starchy foods rich in fibre. For example, Goldman and Cook (1984) have estimated that between 1968 and 1976 reductions in serum cholesterol in USA have accounted for 30% of the decrease in mortality from CHD. Block and colleagues (1992) have collated the results from over 200 case control studies of cancer and have demonstrated that a high vegetable and fruit intake is associated with a two-to four-fold reduction in risk of many cancers.
As well as making recommendations many reports have also specified quantitative targets for fat, fibre, sugar and salt consumption. The National Advisory Committee on Nutritional Education (NACNE, 1983) was one of the first reports in the UK to set definitive targets for population based dietary changes. This was followed by the publication of a collection of government nutrition reports all of which set defined dietary targets (Department of Health, 1984; Department of Health, 1989; Department of Health, 1991). For example, the 1991 COMA Report set a target for total fat consumption of a population average of 35% of food energy and 11% from saturates. Currently figures are 40% and 17% respectively. With respect to sugar consumption a reduction in average intake of non milk extrinsic sugars to 11% from a current level of 14.5% of food energy is recommended (Department of Health, 1991). The health promotion strategy for England, "The Health of the Nation" has acknowledged the important influence of diet on health and has set three specific dietary targets relating to fats consumption, sodium intakes and obesity levels (Department of Health, 1992).

2.4. Overview of Dietary Patterns

2.4.1. Historical Changes Leading to the "Affluent" Diet

In most pre-agricultural societies humans lived as hunter-gatherers consuming a diet largely composed of a range of different foods of plant origin and a limited amount of animal meats. Such a diet was high in fibre, rich in vitamin C and other micro nutrients and low in fat. With the advent of the agricultural and then the industrial revolutions the human diet has altered greatly (Boyden, 1988). Over a 200 year period from 1770-1970 fat and sugar intakes in the UK rose steadily, whereas fibre intakes declined (Table 1). The energy density of food has therefore increased in recent centuries at a time when human energy expenditure has declined (Burkitt and Trowell, 1975).
Table 1 - Estimated consumption in the UK of Various Foodstuffs, 1770, 1870 and 1970

<table>
<thead>
<tr>
<th>Foodstuff</th>
<th>1770</th>
<th>1870</th>
<th>1970</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat</td>
<td>25</td>
<td>75</td>
<td>145</td>
</tr>
<tr>
<td>Sugar</td>
<td>10</td>
<td>80</td>
<td>150</td>
</tr>
<tr>
<td>Potatoes</td>
<td>120</td>
<td>400</td>
<td>240</td>
</tr>
<tr>
<td>Wheat Flour</td>
<td>500</td>
<td>375</td>
<td>20</td>
</tr>
</tbody>
</table>

(Source Burkitt and Trowell, 1975)

2.4.2. Contemporary Patterns of Food Consumption in the UK 1940-1990

The annual National Food Survey of the UK population has for the last 50 years provided a detailed insight into British food consumption patterns and has enabled dietary changes to be monitored in some detail. They also enable differences between various social and demographic variables to be assessed. There has been a steady decline in the daily household food energy consumption since 1965 when it was 2590 kcal per person to the most recent figure of 1840 kcal in 1991 (Table 2). Declines in consumption of protein, fat, carbohydrate and other nutrients have also taken place. Although there has been a steady decline in total fat consumption from 116 g per person in 1965 to 84 g per person in 1991, due to the decline in total energy consumption over this period the percent of energy from fat has remained fairly constant since 1965. There has been a fall in the consumption of saturated fats and therefore a steadily increasing ratio of polyunsaturated to saturated fatty acids since 1975.
### Table 2 - Nutrient content of household food - daily intakes per household member

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<tbody>
<tr>
<td>Energy (kcal)</td>
<td>2590</td>
<td>2560</td>
<td>2290</td>
<td>2230</td>
<td>2020</td>
<td>1870</td>
<td>1840</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>75</td>
<td>73.7</td>
<td>71.9</td>
<td>72.7</td>
<td>67.4</td>
<td>63.1</td>
<td>62.4</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>116</td>
<td>119</td>
<td>107</td>
<td>106</td>
<td>96</td>
<td>86</td>
<td>84</td>
</tr>
<tr>
<td>Saturated</td>
<td>na</td>
<td>na</td>
<td>51.7</td>
<td>46.8</td>
<td>40.6</td>
<td>34.6</td>
<td>33.5</td>
</tr>
<tr>
<td>Monounsaturated</td>
<td>na</td>
<td>na</td>
<td>39.8</td>
<td>39.6</td>
<td>34.7</td>
<td>31.8</td>
<td>na</td>
</tr>
<tr>
<td>Polyunsaturated</td>
<td>na</td>
<td>na</td>
<td>10.1</td>
<td>11.3</td>
<td>13.1</td>
<td>13.9</td>
<td>na</td>
</tr>
<tr>
<td>Carbohydrate (g)</td>
<td>332</td>
<td>317</td>
<td>275</td>
<td>264</td>
<td>238</td>
<td>224</td>
<td>223</td>
</tr>
<tr>
<td>% of energy from protein</td>
<td>11.6</td>
<td>11.5</td>
<td>12.6</td>
<td>13.0</td>
<td>13.3</td>
<td>13.5</td>
<td>13.6</td>
</tr>
<tr>
<td>% of energy from total fat</td>
<td>40.4</td>
<td>41.8</td>
<td>42.2</td>
<td>42.6</td>
<td>42.7</td>
<td>41.3</td>
<td>41.3</td>
</tr>
<tr>
<td>% of energy from sat fatty acids</td>
<td>20.3</td>
<td>18.9</td>
<td>18.1</td>
<td>16.6</td>
<td>16.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of energy from carbohydrate</td>
<td>47.9</td>
<td>46.5</td>
<td>45.2</td>
<td>44.4</td>
<td>44.1</td>
<td>44.9</td>
<td>45.4</td>
</tr>
</tbody>
</table>


In terms of food groups certain clear changes in consumption have taken place since the 1960s in the UK (MAFF, 1991). For example, since the late 1970s total milk consumption has declined but more recently there has been a major shift in consumption towards the lower fat milks which now account for 25% of milk sales. The total consumption of fruit and vegetables has risen since 1965 although this is largely due to increased consumption of fruit juices. By contrast the consumption of potatoes has however declined steadily since the 1940's. During the post-war years the consumption of beef, lamb and pork all rose sharply. Since the 1960's the main changes in meat consumption have been the steady decline in lamb and the big increase in poultry consumption. Another major change in meat consumption has been the increasing popularity of frozen meat products and other forms of processed meats. One of the most dramatic changes in the British diet in the last 50 years has been the changing pattern of bread consumption. In the mid-1950's following relaxation of food rationing the British population suddenly reverted from the brown wartime bread to white bread. Since then the amount of white bread consumed has greatly declined and although there has been a shift to greater levels of wholemeal breads since the 1970's, total bread consumption is at it's lowest level ever in the UK. The
use of packet sugar has also declined steadily since 1960 and has now reached a level lower than during the Second World War. However, there has been a marked increase in the consumption of foods and drinks which are high in hidden sugars such as soft drinks and confectionery (MAAF, 1991).

In spite of the many and varied changes taking place in the British diet many people do not meet all of the main dietary recommendations (MAFF, 1994). For example, for saturated fat consumption a further drop of one third in consumption is required if "The Health of the Nation" target is to be reached by the year 2005. This means that nearly 90% of the UK population still need to reduce their saturated fat consumption (Stockley, 1993) (Table 3)

<table>
<thead>
<tr>
<th></th>
<th>Government target for 2205</th>
<th>Mean Intake (1991)</th>
<th>% of Population who currently reach target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat</td>
<td>35% of food energy</td>
<td>41% of food energy</td>
<td>12% males</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>11% of food energy</td>
<td>16% of food energy</td>
<td>11% females, 11% males</td>
</tr>
</tbody>
</table>

(Source Stockley, 1993)

In an analysis of the quantifiable changes needed to meet the main dietary targets (Bingham, 1990) the following recommendations were proposed: (1) substantial increases in white and wholemeal bread and in other plain cereal products and a halving of cakes, biscuits, sugar and sweets; (2) substantial increases in potatoes and other vegetables, (3) reductions in meat fat; (4) further changes from whole to reduced fat milks and from butter and margarine to reduced fat spreads. Although the scale of these changes is large, minor
shifts in consumption, changing from full to reduced fat milk would produce positive desired change.

2.4.3. Variations in Food Consumption in the UK
Apart from providing detailed information on food and drink consumption at a national level the National Food Surveys also reveal interesting differences in food consumption between different social groups and regions within the UK. One of the most worrying variations in food consumption is between different social classes. Nelson (1993) has reviewed social class trends in the British diet between 1860 and 1980 and demonstrated that prior to the Second World War very large differences existed between the diets of the wealthiest and poorest members of British society and that although major differences still exist between social class groups the differentials have been much reduced. Before the Second World War diets of the poorest people mostly contained a mixture of only bread, potatoes and a little meat and fat. Consumption of vegetables, fruit and milk were all very low. This was in contrast to the foods eaten by the affluent minority which were mostly meats, fish, eggs, vegetables, milk and sugar. Wartime food rationing and the introduction of welfare food provision greatly altered the social class differentials in dietary consumption. Consumption of meat, eggs, fats, sugar and total energy fell dramatically in better off families, while for poorer families egg and milk consumption rose substantially. Vegetable consumption rose sharply in all income groups. Since the 1960's foods traditionally consumed more by upper income groups such as fish, eggs, fats and sugar have been eaten in greater amounts in lower income groups (Nelson 1993). Data from the latest Adult Nutritional Survey (Gregory et al, 1990) shows that people in social classes I and II tended to consume a diet containing more fruit and vegetables and lower fat foods and less high sugar foods as compared to the diets consumed by people in social classes IV and V (Table 4).
Table 4 - Food Consumption by Socio-economic Status (grams/person/day)

<table>
<thead>
<tr>
<th>Food</th>
<th>I and II</th>
<th>III NM</th>
<th>III M</th>
<th>IV and V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast Cereal</td>
<td>26 5</td>
<td>23 3</td>
<td>16 3</td>
<td>14 9</td>
</tr>
<tr>
<td>Whole Milk</td>
<td>156 4</td>
<td>150 5</td>
<td>170 8</td>
<td>172 4</td>
</tr>
<tr>
<td>Skimmed Milk</td>
<td>35 8</td>
<td>31 6</td>
<td>19 6</td>
<td>13 9</td>
</tr>
<tr>
<td>Fish (fried)</td>
<td>10 2</td>
<td>12 5</td>
<td>12 4</td>
<td>13 1</td>
</tr>
<tr>
<td>Fish (other)</td>
<td>20 1</td>
<td>16 6</td>
<td>11 1</td>
<td>9 5</td>
</tr>
<tr>
<td>Green Vegetables</td>
<td>18 0</td>
<td>13 7</td>
<td>15 6</td>
<td>13 1</td>
</tr>
<tr>
<td>Salad</td>
<td>44 4</td>
<td>38 8</td>
<td>27 9</td>
<td>26 8</td>
</tr>
<tr>
<td>Fruit</td>
<td>92 2</td>
<td>85 8</td>
<td>56 5</td>
<td>49 4</td>
</tr>
<tr>
<td>Sugars &amp; confectionery</td>
<td>32 3</td>
<td>33 8</td>
<td>34 9</td>
<td>35 7</td>
</tr>
</tbody>
</table>

(Source Gregory et al, 1990)

In Scotland, the diets of a community based sample of people in their 30s revealed that 42% of the sample were classified as "healthy" eaters although this group were not evenly spread across the sample. Healthy eaters were more likely to be women, people with a higher household income, those from non manual occupations and non smokers (Anderson and Hunt, 1992).

Data from the National Food Surveys also reveal major regional differences in food consumption across the UK. For example, results from the 1991 survey reveal that fruit consumption was highest in the South East/East Anglia Region and lowest in Scotland. Consumption of eggs on the other hand was over 40 per cent higher in the Northern Region than in the East Midlands and consumption of fish was lowest in the South West (MAFF, 1992).

2.4.4. Food Consumption and Nutrient Intakes in Young People

There have been relatively few detailed nutritional surveys carried out which have fully investigated the eating habits of young people. Those surveys that have been conducted have demonstrated a fairly consistent pattern. When compared with recommended quantified nutritional guidelines (Department of Health, 1991), young people's diets tend to be high in fat and sugar and low in energy, calcium, iron and fibre intakes (Greenwood and Richardson, 1979,
Energy intakes are an indicator of whether young people are growing adequately and whether or not they are becoming overweight or obese (Nelson, 1994). Young people have consistently been shown to have average energy intakes between 5-20% lower than the recommended levels. With a steady trend to a more sedentary lifestyle (Armstrong et al, 1990) concern has been expressed that recommended energy intakes for young people may have been set at too high a level for modern society (Nutrition Committee, Canadian Paediatric Society, 1983). Indeed if these lower energy intakes were presenting a health problem for young people this would result in stunting of growth. However, the heights and weights of British schoolchildren are on average at or above the standards for height and well above the standards for weight (DHSS, 1989). Indeed rather than a problem of under nutrition, a greater concern is the level of over nutrition of young people. Between 1980 and 1990 the Body Mass Index (BMI) for males and females aged 11 and 12 has increased and this has been accompanied by small but significant increments in both height and weight with at least 10 per cent of young people being overweight (Adamson et al, 1992a) In the United States obesity in childhood is associated with raised blood pressure and raised cholesterol levels. To some extent these problems "track" from childhood through adolescence into adulthood (Berenson et al, 1991). Data from the National Study of Health and Growth has shown that BMI generally tends to increase from the age of four. The earlier this increase starts the greater the likelihood that the child is going to be overweight or obese in adolescence and adulthood (Chinn et al, 1992) Although negligible social class differences exist in early childhood in the prevalence of overweight and obesity, by early adulthood social class differences emerge with a greater
percentage of overweight and obesity occurring amongst the lower social classes (Power and Moynihan, 1988).

Fat intakes amongst young people are consistently above the recommended level of 35 per cent of total energy intake (Department of Health, 1991). In the National Nutritional Survey of British schoolchildren 75% of the children had intakes of fat above 35% of dietary energy with milk and chips being the two main contributors (DHSS, 1989). Adamson et al (1992b) also showed high levels of fat consumption within a 11-12 year old group with meat, confectionery, butter and chips being the main sources of fat.

The recommendation for sugar consumption is that a maximum of 11% of total energy should be derived from non-milk extrinsic (NME) sugar intake (Department of Health, 1991). The current intakes of NME sugars is in excess of this level (Hackett et al, 1984; Bull, 1985, DHSS, 1989; Adamson et al, 1992b; Nelson, 1994). For example, in the study of 379 11-12 year olds in the North of England NME sugars contributed 17 per cent of total energy intake, while milk and intrinsic sugars contributed only 5 per cent. Confectionery and soft drinks were the two main contributors to the NME sugar intakes providing 33 per cent and 27 per cent respectively to the total NME sugars intake (Rugg-Gunn et al, 1993).

Although in younger age groups intakes of both iron and calcium was above the recommended levels, in adolescence intakes fall below the required levels (Greenwood and Richardson, 1979; Truswell and Darnton-Hill, 1981; Hackett et al, 1984; Bull, 1985; DHSS, 1989, Nelson, 1994). Particular concern has been expressed over the low iron and calcium intakes of adolescent women who do not eat school meals but instead select lunch time high fat and sugary foods from cafes, take-away or fast food outlets (DHSS, 1989). In addition young
women aged 19-21 years who perceived themselves to be overweight or who were dieting consumed diets low in both energy and iron (Bull, 1985). Such eating patterns can be associated with anaemia which often "tracks" into early adulthood with the increased subsequent risk of low birthweight infants being delivered from these women. Barker and colleagues (1990) have shown that such infants have an increased risk of high systolic blood pressure in middle age and a greater risk of CHD in later life.

In an assessment of healthy eating within a sample of Scottish young people only 29% were classified as "healthy eaters". Multivariate analysis showed that adolescents from non manual and wealthier families, non smokers and females were more likely to be eating a healthy diet. Comparison of this data with that collected from a 35 year old cohort in the same study showed that significantly fewer 15 year olds were likely to consume diets associated with long term health (Anderson et al, 1994).

2.4.5. Eating Patterns in Young People

The eating behaviours of young people have been characterised as consisting of a tendency to miss meals, especially breakfast, to frequently consume large amounts of snack foods and drinks, and to engage in frequent dieting attempts due to a preoccupation with body image and appearance (Huenemann et al, 1968; Greenwood and Richardson, 1979; Truswell and Darnton-Hill, 1981; Creswell et al, 1983; Hackett et al, 1984; Bull, 1985; Dugdale et al, 1988; DHSS, 1989; National Dairy Council, 1989; Prattala, 1989; Currie and Todd 1990; Health Education Authority, 1990b; Spyckerele et al, 1992; Anderson et al, 1993, Roberts et al, 1993, Balding, 1995). The direct health consequences of such a pattern of eating are however not clear.
The majority of young people consume at least two meals a day. Bull (1985) showed that in a UK national nutritional survey of 15-25 year olds 65% ate breakfast and 75% consumed a cooked evening meal on a daily basis. In a sample of 1009 15 year old Scottish young people, 68% reported eating breakfast daily, 79% a midday meal and 94% an evening meal (Anderson et al, 1993) Similar findings were shown in Welsh 11-16 year olds where on a daily basis 62% consumed breakfast, 81% lunch and 88% an evening meal (Roberts et al, 1993). Consistently research with young people has shown that breakfast is the meal most frequently missed, such a pattern being more common amongst young women and older age groups (Hueneman et al, 1968, Bull, 1985; Roberts et al, 1993; Balding, 1995). The nutritional and health consequences of missing breakfast are not clear. Traditionally breakfast has been considered as an important meal providing an important source of energy and nutrients. Dickie and colleagues (1982) have reviewed the evidence assessing the claimed benefits of breakfast and concluded that the omission of breakfast does not produce any detrimental performance effects. Musgrave et al, (1981) demonstrated that individuals missing breakfast do not consume larger amounts of snacks as a consequence More recently Spyckerelle et al, (1992) demonstrated that boys who had consumed a substantial breakfast subsequently took in less energy from other sources such as snacks.

In terms of the midday meal, between 14-23% of young people eat "out" on a regular basis at lunch times during school time (Cresswell et al. 1983; DHSS 1989; Anderson et al 1993, Balding, 1995). The UK Nutritional Survey of Schoolchildren found lower intakes of iron, calcium and vitamin D in young people, particularly adolescent females who ate lunch at cafes and take-aways rather than have school meals (DHSS, 1989). The percentage of young people eating school meals varies substantially In a study of Glasgow schoolgirls only 16% of the study sample consumed school meals on a regular basis (Cresswell
et al, 1983), whereas in a more recent survey also in the West of Scotland 33% of 15 year olds reported eating school meals regularly (Anderson et al, 1993) and in Wales with a national sample of 11-16 year olds, 63% had school lunches most days (Roberts et al, 1993). The consumption of school meals declines steadily with increasing age (Roberts et al, 1993; Balding, 1995). Just over 25% of Year 9 students in a national survey consumed a packed lunch (Balding, 1995).

Young people consume large quantities of snack foods and drinks on a frequent basis (Greenwood and Richardson, 1979, Truswell and Damton-Hill, 1981; Creswell et al, 1983; Hackett et al, 1984; Bull, 1985; Dugdale et al, 1988, DHSS, 1989; Prattala, 1989; Currie and Todd, 1990; Health Education Authority, 1990b; Anderson et al, 1993; Roberts et al, 1993). Foods and drinks most commonly eaten by young people as snacks include crisps, biscuits, sweets, chocolate confectionery, chips and fizzy soft drinks, these foods and drinks being consumed frequently more than three times each day (Anderson et al, 1993; Roberts et al, 1993, Balding, 1995). Snacking most commonly takes place in the evenings (Creswell et al, 1983; Anderson et al, 1993; Croucher and Rodgers, 1984), although over 30% of young people have been shown also to consume snacks during mid-morning and afternoon school-breaks (Dugdale et al, 1988). Snack foods and drinks are consumed more by males than females and consumption declines for both females and males with increasing age (DHSS, 1989; Currie and Todd 1990, Anderson et al, 1993, Roberts et al, 1993).

Research focusing on the role of snacking on young peoples nutrient intake have yielded contradictory results. Evidence has been presented that demonstrates many snack foods and drinks are high in saturated fat and sugar and contain only low levels of fibre and nutrients (DHSS, 1989; Bull, 1985,
Rugg-Gunn et al, 1991; Adamson et al, 1992b). These snack foods account for approximately 25% of total energy and 19% of total fat in the diets of young people (Hackett et al, 1986). With sugars, confectionery and soft drinks provide 60% of non milk extrinsic sugars intakes and 46% of total sugars intakes in 11-12 year olds (Rugg-Gunn et al, 1993). On the other hand some studies have shown that snack foods and drinks commonly eaten by young people do contain a relatively good balance of nutrients such as riboflavin and vitamins A and C and thiamin (McCoy et al, 1986; Bigler-Doughten and Jenkins, 1987). Although approximately 20% of fat intakes are derived from snack foods, 80% of fat intakes are from mealtime foods (Thomas 1991).

2.4.6. Variations in Young Peoples Food Consumption and Patterns of Eating

In a review of 40 nutritional surveys conducted with young people the pattern of nutrient intakes was very similar in America, Europe and Australia (Bull, 1988). In the UK variations in young peoples' diets by gender, age, region and social classes do indeed exist and these patterns are largely similar to variations found in adult nutritional surveys. Young women consume larger amounts of fresh fruit and vegetables than young men (DHSS, 1989; Adamson et al, 1992b). Adolescent males are more likely to eat breakfast on a regular basis (Roberts et al, 1993; Balding, 1995). With increasing age both adolescent males and females reduce their consumption of confectionery and soft drinks (Bull, 1985; Anderson et al, 1994). In a longitudinal study conducted over 5 years the nutritional habits of 12-17 year olds were assessed. For young women only small changes in their dietary habits occurred as they grew older whereas with the young males there was a gradual increase in food intake with age. Higher nutrient intakes were noted for both males and females for protein, fat, carbohydrate and alcohol at the weekends as compared to week days (Post et al, 1987). There are social class differences in the diets of adolescents (Bull,
1985; Hackett et al, 1986; Adamson et al, 1992b) although there is some evidence that with snack foods and drinks social class differences are greatly reduced (Pratalla, 1989; Thomas, 1991). Within a socially deprived inner city location young people aged 12-13 years had a generally poor diet, with 74% not meeting the recommended intake for fibre although a high proportion were found to be consuming excess amounts of saturated fat (85%) and sugar (88%) (Doyle et al, 1994)

2.4.7. Trends in Young Peoples Food Consumption and Patterns of Eating

Very little information is available to establish trends in young peoples diets. An exception is the detailed dietary data collected in four schools in the North of England with 11-12 year olds in 1980 and again in 1990 using a standard methodology (Hackett et al, 1984; Adamson et al, 1992a). These two surveys reveal that over a ten year period total intakes of energy, protein, unavailable carbohydrates and fat changed little. There were changes in the importance of food groups as contributors to total intakes. For example, an increase in the role of confectionery as a contributor to total energy was noted, as was an increase in the importance of meat and meat products as sources of energy, protein and fat. However, over the ten year period the proportion of energy, protein and fat derived from milk had decreased

The only other similar study was completed twenty years ago with a group of 14 year olds from Glasgow when dietary data was collected in 1964 and 1971 (Durnin et al, 1974). The main trends emerging from these four surveys over a thirty year period indicate a steady decline in the contributions to total energy intakes of milk, bread and biscuits and cakes. Such a pattern is supported by data collected from the National Food Surveys over a similar time period (MAFF, 1991)
A useful source of data assessing changing dietary habits of young people is the studies in Wales where dietary information from a large national sample of 11-16 year olds has been collected between 1986, 1988, 1990 and 1992 (Roberts et al, 1993). These data reveal that there is a trend amongst Welsh young people to consume greater amounts of fat, salt and sugary foods. For example, since 1988 the frequent consumption of crisps/peanuts, confectionery and soft drinks have all steadily increased. For meal patterns, the numbers of young people in Wales missing breakfast on a regular basis has steadily increased whereas there has been an increase in the proportion eating school meals.

2.4.8. Summary
Dietary consumption patterns have a significant influence on health. A broad consensus exists on what constitutes a health promoting diet. In spite of this many people, including a large proportion of adolescents continue to consume a diet that is harmful to their health. Changes in dietary consumption patterns have taken place in recent years with many people modifying certain elements of their diets. What is not clear is the reason why these changes have not taken place across all groups in society. There is a need therefore to assess the factors that influence dietary habits to determine what factors are central to promoting dietary change.

The next section of this review will therefore assess the range of factors that have been shown to influence individual dietary behaviours with a particular focus on young peoples dietary patterns.
2.5. Influences on Food Choice and Dietary Patterns

A vast and complex array of factors have been identified as having both direct and indirect influences over peoples food consumption patterns. In this review these factors will be separated for convenience into two broad categories (Figure 1). Those which operate at an individual level and those which are considered as having a environmental or socio-cultural influence. In reality, such a division does not occur. Instead an array of these factors work together (Parraga, 1990).

![Diagram of Factors Influencing Food Choices and Dietary Patterns](image)

**Figure 1 - Factors Influencing Food Choices and Dietary Patterns**

2.5.1. Influences Operating at an Individual Level

2.5.1.1. Biological Factors

The extent to which biological factors control food intake in humans is controversial, although it is now generally agreed that compared to the complex interplay of psychological, social and environmental factors, biological
influences only contribute a relatively minor effect (Garrow, 1978). Early research work with both animal and human infant experiments suggested that given a free choice a varied and nutritionally balanced diet would be selected and consumed, this being determined by biological mechanisms (Richter et al, 1938). These findings have been challenged (Story and Brown, 1987). In the study with human infants only nutritional and unsweetened foods were offered therefore the infants did not have real alternatives to a nutritional selection of foods. Indeed a large body of evidence exists supporting the existence of an innate preference for sweet tasting substances in human infants and that a preference for sweetness persists throughout childhood (Desor et al, 1973; Crook, 1978; Cowart, 1981; Lawless, 1985). Other examples in humans where biological processes appear to influence food intakes are during certain extreme physiological events such as following large doses of insulin when a craving for carbohydrates takes place and a powerful urge to eat salty foods that accompanies adrenocortical insufficency Clearly such events are rare in everyday human life (Rogers and Mela, 1992).

More recently dietary snacking patterns have been shown to be influenced by serotonin levels within the brain which are also linked to mood disturbances. It has been suggested that pharmacological interventions which increase serotoninergic activity may be useful in the treatment of recurrent weight gain and depression (Wurtman, 1993). Further research may reveal the extent of such biological factors on food choice.

2.5.1.2. Sensory Properties of Foods

Birch (1979) has argued that as children grow and develop they acquire experience of the consequences of eating particular foods through a conditional association between food cues and the physiologic consequences of eating these foods. Food cues being largely determined by the taste, appearance,
colour, texture, smell and temperature of foods and drinks. This view is supported by Rolls (1986) who has demonstrated that food intakes in humans increase as the variety of foods and therefore their sensory properties, offered at meals increases. This phenomenon is known as sensory specific satiety.

2.5.1.3. Dietary Knowledge, Attitudes and Skills

Individual knowledge, attitudes and skills all have an important influence on food choice. The precise extent of this influence and the relationship between dietary knowledge, attitudes and skills is less certain (Thomas, 1979; British Nutrition Foundation 1985; Charny and Lewis, 1987, Blaxter, 1990, Trexler and Sargent, 1993). Although there is generally a high level of general awareness of the role of diet on health and disease amongst the UK population, including young people, there are areas where the public is clearly confused and uncertain (Sheiham et al, 1987). Many people state that fibre is good for health but are often unable to either describe the function of fibre or identify its sources in the diet (National Dairy Council, 1992, Whichelow, 1988). There is also considerable confusion about "starchy" foods which many people believe to be fattening and therefore best avoided. This confusion is often a result of changing professional dietary messages which the public have been subjected to in the past. Dietary knowledge is related to social class with the non-manual groups displaying a higher level of knowledge than those in the manual groups (Bull, 1985, British Nutrition Foundation, 1985; Whichelow, 1988; Blaxter, 1990).

Surveys assessing public attitudes towards food reveal that food and eating are pleasurable experiences where taste, enjoyment and habit are the most important concerns, and health relatively unimportant. The importance of eating a "proper" meal every day, of eating a varied and balanced diet, and eating all things in moderation are all commonly held beliefs, whereas "healthy eating" is considered as rather an extreme or boring point of view (Sheiham et al, 1987).
Health education messages regarding food and health are commonly viewed with a strong sense of scepticism, especially by men (British Nutrition Foundation, 1985; Sheiham et al, 1990; Price and Sephton, 1991). Men and in particular younger men have also been shown to have more negative attitudes and behaviours towards healthy foods (Sheiham et al, 1987). Different perceptions of what constitutes a "healthy" diet exist between different social classes. Middle class women perceive a "healthy" diet in terms of a "balanced" diet and "everything in moderation". In contrast to this working class women were more concerned about their meals being "substantial" and "filling" (Calnan, 1990).

Many young people hold similar views towards foods and eating as older people. Most 15-25 year olds did not hold a long term view of the importance of diet in relation to health, instead believing that if they were currently healthy their diets must be harmless (Bull, 1985). The major concerns expressed were that foods should taste good and not cause excess weight gain. Such views were also expressed in a survey of 16-19 year olds conducted by the Health Education Authority (Health Education Authority, 1992). Men, young people from social class IV and V and those living in the North and Midlands particularly supported such a viewpoint. Both surveys revealed that young people were very cynical towards expert nutrition advice believing that professionals never agree and are constantly changing their advice.

In most households women are largely responsible for food and cooking skills, although in many cases skills may well be very limited and therefore have a large influence over food choice (Price and Sephton, 1991). Indeed, partly as a reflection of this, the extent of sales of frozen ready meals in the UK, is currently £264 million a year, having increased by over 36% in five years (Lang and Baker, 1993). With younger people basic food and cooking skills are very
limited. Many young people are incapable of cooking a meal at home (Bull, 1985; Get Cooking!, 1993). In a national survey assessing the levels of food skills of young people aged 7-15 years although 77% were able to use a compact disc player only 38% could cook a jacket potato in an oven. However 49% of the sample did help with the cooking at home at least once a week. The majority of those able to cook learnt either at school or were taught by their mothers. 75% wanted to learn more about cooking (MORI, 1993). Bull (1985) showed that single young men were the least able to perform basic cooking functions.

Although the necessary knowledge, attitudes and skills are all clearly important in enabling people to increase control over their eating patterns, many other environmental and socio-cultural factors have a major influence over peoples eating patterns. Indeed lay explanations of the cause and distribution of illness clearly identify the overriding influence of environmental and social factors on health which are beyond individual control (Davison et al, 1992).

2.5.2. Influences Operating at an Environmental or Socio-cultural Level

2.5.2.1. Economic Factors and the Effects of Poverty
As highlighted previously, people who are economically deprived are more likely to consume a nutritionally inadequate diet compared to more affluent groups in society (Gregory et al, 1990). Consequently, diet related health problems are much more common in people on low incomes. Nelson and Naismith (1979) showed that in a group of economically deprived children living in London over 10 per cent of the sample were malnourished, resulting in the children being physically underdeveloped. One of the main reasons for these nutritional differences between deprived and affluent groups is the inequitable access to economic resources and the higher costs of healthy compared to
unhealthy foods (Lang et al, 1984; Cole-Hamilton and Lang, 1986; Mooney, 1990, Cade and Booth, 1990, National Childrens Home, 1991; Price and Sephton, 1991; Leather, 1993). People living in poverty and on low incomes allocate a greater proportion of their household expenditure on food than do higher incomes groups (Leather, 1993) but food expenditure is the most flexible element of the household budget and is therefore greatly affected when money is limited. A National Childrens Home survey (1991) showed that 20% of parents and 10% of children had gone hungry due to a shortage of money. Unemployed people have been identified as being most vulnerable in terms of the effects of poverty and diet (Lang et al, 1984), mostly due to the inadequate levels of income support available that do not provide sufficient money to purchase healthy food options (Leather, 1993). People on low incomes are very aware of the problems they face in terms of their diets and the very limited options open to them. Price and Sephton (1991) showed that in a group of mothers of young children on low incomes the cost of foods was considered the most important influence over what they and their families ate Healthy foods were seen to be too expensive but should more money become available the majority of the women interviewed reported that they would eat more "proper" meat, fresh fruit and vegetables and wholemeal bread.

Healthy foods cost 35% more than unhealthy choices (Cole-Hamilton and Lang, 1986) and differences in prices are greatest in the more deprived parts of towns and in rural settings (Mooney, 1990; National Childrens Home, 1991). Therefore many people living on low incomes are aware of the benefits of healthy foods but unable to choose them because of differences in shop price combined with the greater storage, transport, preparation and cooking costs.

In contrast to this perspective, McKenzie (1979) whilst acknowledging the influence of food prices on eating habits, has shown that increased sales of
many food items has taken place in spite of increased retail prices. It would therefore appear that the costs of foods do influence eating habits but that this influence is greatest for those on low incomes.

2.5.2.2. Access and Availability of Foods

As well as the economic influences on eating habits, access and availability of a selection of foods is also clearly very important in determining food choices. In the last 15 years the food retail sector in the UK has undergone a rapid change which has had a major effect on the UK populations shopping and therefore eating habits, as well as exacerbating existing nutritional inequalities within society (Henson, 1992). The proportion of household expenditure spent on food has persistently declined over the last 50 years (MAFF, 1992) which has meant that there has been increased competition for business within a rather stable retail market. Partly as a result of this supermarket chains now dominate the retail food sector in the UK with 80% of the market share whereas there has been a steady decline in the number of local small independent shops - from 58% to 12% of total food retailing (Institute of Grocery Distribution, 1993). Part of this trend has also included a move by large food retailers to out of town sites, often located near to high income neighbourhoods. Within inner city areas where many less affluent people reside many budget food stores have been opened providing a limited range of cheap but often poor quality foods (Henson, 1992). These changes in the retail food sector have greatly influenced shopping habits. More people now use one shop to buy all or most of their food, people tend to shop less frequently, travel further for their food shopping and use a car more often. People on low incomes, the elderly and unemployed are not able to fit into this pattern and therefore are often limited in the food choices open to them (Mintel, 1991)
Mooney (1990) in her survey in North London showed that healthy foods were less available than unhealthy products, especially in the more deprived areas of the district studied. Less than 25% of young families on low incomes in the National Children's Home survey (1991) owned a car. Many reported the high costs of travelling to larger shops, meant that they had no choice but to use local shops where the selection of foods were very limited. Price and Sephton (1991), in their survey of young mothers on low income by contrast found that most used large supermarkets for their shopping and therefore reported no difficulties in physically accessing healthy foods although in reality due to economic difficulties most were not able to afford many of the foods on offer.

As outlined earlier school meals provide a valuable source of energy and nutrients to schoolchildren especially those on low incomes (DHSS, 1989). However the role of school meals has been undermined over recent years firstly by the abolition of nutritional guidelines and price controls in schools, by the introduction of cash cafeteria services in many schools and finally the reduction in eligibility of children to free school meals (White et al, 1992). Consequently there has been a steady decline in the numbers of schoolchildren who regularly eat school meals and many more now eating in cafes and takeaways (MAFF, 1992)

2.5.2.3. Advertising and Food Labelling
There is much evidence that children and young people are highly influenced by food advertising and to a greater degree than adults (Atkin, 1975; Goldberg et al, 1978; Stoneman et al, 1981, Goldberg et al, 1982; Thomas, 1991; Donkin et al, 1992; Dibb 1993). In the UK in 1992 over £523 million was spent on advertising foods and soft drinks with food adverts on children's television being dominated by cereals, confectionery, fast food, snacks and soft drinks (Dibb, 1993) Donkin and colleagues (1992) found that the more television and hence
advertising children watched the higher the number of advertised products they requested. This resulted ultimately in a higher sugar consumption. They concluded that advertised products play an important role in the study of children's nutrition.

As well as encouraging children and young people to consume confectionery and soft drinks, advertising of healthy products such as fresh fruit has been shown to increase sales of these products (Goldberg et al, 1978). Many mothers often feel pressured by their children to purchase advertised products even when the costs of the products may be very high (Price and Sephton, 1991)

Only around 20% of people read food labels on a regular basis and that most people are not very interested or concerned with the list of ingredients on food labels although women and older people tend to be more interested in this topic (Bull, 1985; Health Education Authority, 1990b) Bull (1985) in her survey of 15-25 year olds identified television, friends and parents as the main sources of food information young people depended on.

2.5.2.4. Government Policy

In the UK a complex and vast array of Government policies and legislation influence food and nutrition, although in many cases health concerns are not the key priority (Hurren and Black, 1991) For example, the primary production of food is influenced by historical, cultural, geographical and market forces. Health considerations are often a minor influence. The main legislative controls over food in the UK which do have an impact on health and nutrition include laws governing basic health and safety, food standards and food labelling. Increasingly European and international policies affect individual daily food choices although these policies are most often developed and based on
economic and trading considerations as opposed to the health implications for food consumers (Jukes, 1992).

2.5.2.5. Socio-cultural Influences on Food Consumption Patterns

Individual behaviour in general, including food consumption patterns are greatly influenced by the complex and dynamic social and cultural context within which people's everyday lives are set.

Research into the socio-cultural influences on food consumption was pioneered by Audrey Richards and Margaret Mead (Freedman, 1977). Richards (1969) employed an anthropological functionalist framework in her study of the socio-economic factors relating to the diets of the Bemba tribe in Southern Africa. She highlighted the importance of social and economic factors determining their diet and demonstrated that food production and distribution were core elements of social structure. Mead (1964, 1976) on the other hand conducted socio-cultural food research in industrialised countries and adopted an approach based on ideas of cultural patterns in which culture is considered to be the essential determinant of behaviour. She showed that food habits were part of the total cultural pattern and that food changes involved substituting one culturally standardised set of behaviours for another, these changes being transmitted from generation to generation through childhood development. Although both these researchers have led the development of socio-cultural interest in food research, their approaches have been criticised as presenting too static a picture of what is essentially a dynamic set of processes and of placing insufficient emphasis on the influences of economic and environmental forces (Prattala, 1989).

More recently two opposing socio-cultural approaches to food research have emerged, the structuralist perspective led by Levi-Strauss (1966) and Douglas
1984) and the materialist viewpoint proposed by Mintz (1985) and Mennel (1985). The structuralist approach emphasizes the symbolic aspects of food consumption. Levis-Strauss (1966) parallels cooking to language with people universally classifying reality into opposing viewpoints such as the opposition between nature and culture. Applying this notion to food he developed the idea of the culinary triangle where foods are considered either raw, cooked or rotten this representing the ways in which man through choosing, cooking and distributing foods demonstrates a civilised ability to order life. A more contemporary example of this theory demonstrated the symbolic significance of health foods as being related to a desire in modern society to combine the simplicity and harmony of nature with modern cultural needs (Atkinson, 1979). Douglas (1984) although adopting a similar structuralist approach considered the cultural and social uses of food to explain the elementary relations between food sharing and social integration. Her work has focused on the symbolic meanings of food, their classification and the influences of cultural rituals on food consumption.

In contrast to these structural and symbolic approaches a materialistic and historical perspective has been developed by Mintz (1985) and Mennel (1985). Mintz (1985), assessing the history of sugar availability in the UK, demonstrated how the symbolic meaning and availability of sugar changed within the context of the changing political, economic, social and material conditions of the country. Mennel (1985) on the other hand has assessed the similarities and differences in the culinary cultures of France and Britain in an attempt to ascertain how groups develop. Through the investigation of eating he identifies competition and conflict as the major driving force of social and cultural development. Although materialist studies of Mintz and Mennel have shed light on the food habits and help to understand the material and social aspects of
eating they do not provide a detailed picture of current food consumption patterns (Prattala, 1989).

In terms of its social significance, food and eating are intimately involved in social structures and relationships. "Food is an expression of creativity, affection, a demonstration of group acceptance, prestige, status, wealth, an expression of individuality and a means of rebellion" (Wardle, 1977) At a household level partners and children exert a strong influence over eating patterns. Charles and Kerr (1988) showed that for women, food played an important function in determining their role within the family structure with women being largely responsible for all the domestic food chores. Male partners through their personal food likes and dislikes largely dictated the family's choice of foods. Although Price and Septon (1991) also identified that family preferences were one of the strongest influences over what people ate. The most influential members of the family were the children and not the male partners. The mothers identified that their personal food likes and dislikes were often directly passed on to their children and that grandparents often exerted a significant influence over children's diet especially in relation to snack foods this frequently creating family tensions within households (Price and Septon, 1991). Blaxter and Paterson (1983) in their Scottish study of working class women also identified generational differences in relation to concepts and patterns of food consumption. Graham (1979) showed that family influences and pressures on young women involved in feeding babies often took precedence over the medical information on infant feeding practices. Many women were under conflicting pressures and obligations and that ultimately priority was frequently given to family needs

In terms of the social influences on young peoples food consumption patterns Thomas (1991) assessed the key influences on the various stages in childhood
and adolescent development and proposed the idea of an eating career with various processes and influences occurring at different stages in development. At the infant stage the innate food preferences (Crook, 1978; Desor et al, 1975) were strongly influenced at a very early age by the social learning experiences of the infants mother (Birch, 1981). As the young child develops the mother, through the process of primary socialisation still plays the most important role in determining food consumption patterns. For example, Birch (1987) has shown that mother-child food preferences in relation to sweet eating are very strong, although Pilner (1983) found the greatest degree of similarity in food preference was between siblings as opposed to parents and children. The social value associated with foods also has been demonstrated to have a major effect on children's eating patterns. Foods used as rewards for good behaviour are often part of a child's early upbringing (Birch, 1987). Once the child enters the school environment the process of socialisation in relation to food widens in scope, with the influence of immediate family members becoming less important whereas the influence of peer becomes increasingly powerful (Birch, 1981).

James (1981) in her study of young schoolchildren's perception of eating and foods uncovered a clear dichotomy between children's and adult's views thus reflecting the increasing influence of peer values in relation to food and eating. She illustrated her case with reference to "Kets", a term children used to describe popular and cheap sweets. The consumption of "Kets" by children is an attempt by them to create a small element of their childhood world which is separate and distinct from the adult structured world of "proper" foods and meals. "Kets" by their very nature have to be disapproved of by adults and considered rubbish whereas in the child's world they are items to be shared and exchanged in an exclusive social context. Rousseau (1984) in a study with primary schoolchildren in Edinburgh compared the meanings attached to foods eaten with peers as opposed to those consumed with adults. The foods eaten
with peers were consumed between meals in unstructured settings without the use of utensils. They tended to be very diverse in colour, texture, shape and presentation and had to be portable and easy to share.

A study of Finnish young peoples eating patterns found that major practical and symbolic differences existed between foods eaten at home and at school ("real foods") compared to those eaten independently elsewhere ("junk foods"). Typical independent food choices were buying sweets with friends during the school lunch times, eating sandwiches as a snack after school and visiting hamburger outlets with friends. Sharing food with peers was the norm, the aim being to have fun together. Those individuals who did not eat sweets with friends were found to be more socially isolated. Many of the young people interviewed were aware of parental and teacher disapproval of their eating patterns but were not concerned about food and nutrition. Eating "junk" food was seen as an expression of teenage subculture (Prattala, 1989). Frequent snacking amongst adolescents has also been associated with intergenerational conflict (Croucher and Rodgers, 1984).

Chapman and Maclean (1993) assessed, using qualitative methods, the meanings of food in adolescent female culture in terms of how foods were classified and used. The results produced support and complements the findings of James (1981), Rousseau (1984) and Prattala (1989) as they illustrate the extension of the conflict that exists between the adult and childhood food culture extends into the adolescent female world. Their research showed that adolescent females classified and used foods in a dichotomised fashion into "healthy" and "junk" foods. The "junk" foods were associated with weight gain, pleasure and enjoyment, friends, independence and guilt, whereas "healthy" foods were seen to associated with weight loss, parents and being at home. Conflict over food was seen to symbolise the conflict young people felt
between their growing autonomy as young adults and their family relationships. "Junk" food symbolising independence and loyalty to peer group influences whereas "healthy" foods were seen to have an important role in family life. Conflict also arose in relation to satisfaction with appearance as although "junk" foods were associated with weight gain and peer sociability, a desire to be thin and attractive was also seen to be a result of peer expectation. "Healthy" foods were considered very much in association with family values and roles and therefore totally separate from adolescent concerns.

For young people the symbolic significance of food as an expression of resistance and separation from the adult world is very similar to the role smoking performs for young people. One of the attractions of smoking to young people and especially young women is the symbolic significance of smoking as a means of resisting adult expectations and values (Rapoport, 1992).

2.5.2.6. Dieting and Eating Disorders Amongst Young People

With adolescents and young adults, the peer and social influences on eating become stronger as young people gain autonomy as an adult (Truswell and Damton-Hill, 1981). Although concerns about appearance and body shape start much earlier it is not until this stage in their development that young people have greater freedom and ability to select foods that are perceived to have an influence on body shape and size (Thomas, 1991). As a result dieting in an attempt to achieve a desired body image is a very common feature of adolescent eating patterns (Bull, 1985; Wardle and Beales, 1986; DHSS, 1989; Currie and Todd, 1990, Health Education Authority, 1990b; Balding, 1995). Indeed dieting and a preoccupation with body size has been described as the norm amongst young people.
Precise estimates of the extent of dieting amongst young people vary greatly. Most previous studies have been conducted among selected groups of either single school/college populations or among persons attending health services and are therefore unrepresentative of the wider population. However within the US a recent population based survey of 11,467 reported that 44% of high school female students and 15% of male students were trying to lose weight (Serdula et al, 1993). These findings are comparable to the results of two previous US national surveys which reported that between 21-61% of females and 8-28% of male students were dieting (Drewnowski et al, 1988; National Adolescent Student Health Survey, 1989). In the UK, the extent of dieting amongst young people has been reported to be lower than in the US (Wardle and Beales, 1986), although a national survey of 7,711 young adults discovered that 33% interviewed had been on a diet to lose weight (Heath Education Authority, 1990b), whereas a more recent study suggests a far higher percentage of young people are dieting (Balding, 1995). The prevalence of eating disorders such as anorexia and bulimia nervosa within the general population is unclear although estimates of 2-4% have been proposed based on the results of studies within school populations (Kagan and Squires 1984).

Concerns about body size and dieting practices are not evenly spread amongst all sections of young people within the population. A far higher proportion of young women, those from the higher social classes and who are White have been shown to be more dissatisfied with their body size and to engage in dieting practices than is the case with young men, people from lower social classes and minority ethnic groups. Many more young women perceive themselves to be overweight when this is not the case and express more dissatisfaction with their body shape than young men. With eating disorders 90% of bulimics and 95% of anorexics are female (Neuman and
Halvorson, 1983). In contrast young men often desire greater weight with a more muscular shape (Moore, 1990; Balding, 1995). Clear social class differences for weight concern, dieting and eating disorders have been reported in both the UK and US (Kendall et al, 1973, Rosen and Gross, 1987; Wardle and Marsland, 1990). Although only limited research into differences between ethnic groups has been undertaken the available evidence suggests that greater proportions of White young people are concerned about their weight and engage in dieting as compared to young Black people (Serdula et al, 1993; Wardle and Marsland, 1990; Casper and Offer, 1990).

Recent evidence suggests that weight concerns and dieting practices amongst young people may be increasing in prevalence (French and Jeffery, 1994) and are starting at an early age than was previously thought to be the case. Koff and Rierdan, (1991) reported that in a survey of 11 year old girls the majority interviewed wished to weigh less and that weight concerns had emerged between the ages of 9 to 11 years. A sizeable proportion had adopted a "dieting mentality" claiming to be avoiding fat, counting calories, thinking excessively about food, feeling guilty after eating and exercising to lose weight. Such practices were found to be common even among girls who did not describe themselves as overweight. In the UK, children aged 9 were shown to be dissatisfied with their body shape and to have a desire for thinness, with girls already expressing greater levels of dissatisfaction than boys (Hill, Draper and Stack, 1994).

It is evident that a sizeable proportion of young people and especially young women are concerned about their body size and as a result frequently diet to lose weight. Although relatively rare, eating disorders are most prevalent during the adolescent years. Recognition of this raises certain key questions.
Is there a link between dieting and the more severe eating disorders? What are the effects of these patterns of behaviours on the health status and development of young people? Is dieting linked to other health related behaviours engaged in by young people?

Although the vast majority of individuals who engage in chronic dieting practices do not go on to develop any recognised eating disorder there are certain shared common characteristics between both groups such as a preoccupation with body weight and shape, body dissatisfaction and perfectionistic tendencies (Polivy and Herman, 1987). Indeed it has been proposed that dieting behaviours may be characterised as a continuum with severe eating disorders at the extreme (French et al, 1995). Certainly, dieting with cycles of weight loss and regain, increase the likelihood of developing eating disorders (French et al, 1995).

With dieting the effects may be less severe but may include psychological and physical effects, as well as longer term detrimental impacts on growth and development (Lifshitz and Moses, 1988). Dieting has been linked prospectively with increased levels of stress (Rosen et al, 1990) and it has been suggested that dieting by normal weight individuals can lead to impairment of cognitive performance (Rogers and Green, 1993). Additionally because most dieting attempts do not succeed, episodes of losing and gaining weight can have negative effects on self-esteem and mood, producing feelings of guilt, failure and depression (Henderson and Vickers, 1995; Wardle and Beales, 1986; Casper and Offer, 1990). Repeated attempts at dieting disrupt normal metabolism and actually increase the probability of weight gain (Garrow, 1978). Physical health problems such as electrolyte abnormalities may arise when dieting drugs are used (Mitchell et
al, 1988) and it has been suggested that chronic dieting may be linked with the development of cardiovascular disease (French and Jeffery, 1994).

As well as the direct negative health effects those individuals who engage in dieting practices are also involved in other health risk behaviours such as smoking, alcohol abuse and drug use. With smoking, concern about weight has been shown to be a factor preventing smoking cessation and encouraging smoking initiation (Charlton, 1984, Feldman et al, 1985). Women are more likely to believe that smoking helps control body weight and are more likely to report actually using cigarettes as a means to control their weight (Halek et al, 1993; Camp et al, 1993). A prospective study amongst 1,705 adolescents supported this view and revealed that young women who diet or who are concerned about their weight initiate smoking at higher rates than non dieters or those with fewer weight concerns. A similar finding was not discovered amongst the young men (French et al, 1994).

The increasing emphasis placed upon fitness and athleticism in the developed world has exerted both positive and negative effects on the health of adolescents. Motivations for exercise are more often linked to a desire for beauty than health amongst many adolescent women (Freedman, 1984). Some adolescents are so intent on changing their appearance that they become obsessed with exercise, a common symptom of anorexia nervosa (Collins, 1988). This obsession with exercise and body consciousness has been noted amongst cheerleaders and gymnasts (Cockenill and Quinton, 1995; Lundholm and Littrell, 1986).

Recent research indicates that a selection of health-risk behaviours, including abnormal eating attitudes and behaviours may cluster together in vulnerable adolescents. Those who were most unhappy about their weight
and had the most abnormal eating attitudes were more likely to have lower self esteem and higher anxiety (Fisher et al, 1991). In addition these individuals participated more in health-risk behaviours such as cigarette smoking, alcohol use, drug use and sexual activity with more total partners. These findings are supported by a recent study which analysed the dieting patterns of 33,393 adolescents in Minnesota. Dieting frequency was associated with history of binge eating, poor body image, social isolation, greater alcohol use and greater tobacco use (French et al, 1995). The authors concluded that frequent dieting efforts in adolescents should not be viewed in isolation but rather in the broader context of health and risk-taking behaviours. Both the studies also revealed that those individuals who never dieted had high levels of self esteem and low anxiety and had the most healthy pattern of health related behaviours.

Although theoretical and empirical research on the aetiology of excessive weight concerns and eating disorders in adolescents is not well developed (Garner, 1993), certain sociocultural and psychological determinants have been identified (Rodin, 1993). Westernised society has developed an intense and powerful preoccupation with the body and its appearance and as a result immense sociocultural pressures are placed on individuals to conform to an idealist and most often unachievable body image. Although physical appearance has been associated with status and esteem for centuries, modern society has extended this notion greatly. People deemed to be physically attractive are also considered to be more popular and to be more successful in school, career and intimate relationships (Story, 1979; Garner et al, 1985).

Images of beauty and attractiveness have developed and changed over time. Historically women have endured discomfort and physical disability in
the pursuit of societal standards of attractiveness. Contemporary dieting has been compared to foot binding and corseting, all of which are attempts at conforming to society's view of beauty (Brownmiller, 1984). In recent times media and fashion image of female beauty have stressed an increasingly thin ideal (Garner et al., 1980). This has occurred despite the fact that women have actually become heavier in recent times. From a feminist perspective research findings have highlighted that women resent the pressures placed upon them directly and indirectly to conform to what is a male ideal of female beauty (McKie et al., 1993).

Although the pressures on women are far more intense than for men, men are now also being increasingly exposed and pressurised through advertising and media messages to conform to an ideal body image which is young, lean and muscular (Drewnowski and Yee, 1987). For both sexes the pressure to look good has intensified during the last 15 years (Rodin, 1993).

In addition to the pressures to look good increasing emphasis has been placed on the need to be healthy and fit. This new social force places yet more emphasis on body awareness within society and although improved physical fitness has clearly positive benefits in terms of disease prevention there is a danger that body size will be seen as a reflection of individuals ability to conform to societal ideals of health and fitness (Rodin, 1993).

From a psychological perspective, body image has been identified as playing a major role in self concept, a complex structure that embraces not only the body but also social roles, material possessions and personal relationships. Heightened focus on the body increases its influence on a persons sense of self. The more people focus on their bodies, the more they scrutinise themselves, feel guilty and then attempt to conform to peer images.
(Scheier and Carver, 1979). Attractiveness relates to self-acceptance for both sexes but is a more important component of self-concept for women than for men, this difference emerging by adolescence (Lerner et al, 1974). Adolescent young women are more concerned with their looks than their male peers and also perceive themselves to be less attractive. Several studies have demonstrated a link between low self esteem and dieting practices, especially amongst young women (Kagan and Squires, 1984; Grant and Fodor, 1986; Casper and Offer, 1990) Young women who feel less attractive have lower self-esteem scores than do young women who are satisfied with their appearance (Simmons et al, 1973). Indeed men and women have been shown to have fundamentally different concepts of the body, with men seeing their bodies as more functional tools, whereas women view their bodies more in an aesthetic dimension (Franzoi and Shield, 1984).

2.5.3. Summary

This section of the review summanises a selection of the diverse array of factors that influence food consumption patterns. Although certain biological and individual preferences exert some influence, the most important factors determining food consumption patterns are related to environmental and socio-cultural factors (Parraga, 1990). Economic factors and social pressures on peoples eating patterns are clearly powerful effects. These social influences are especially important influences on the dietary patterns of young people. What is not clear is the process and influences that occur when individuals embark on making changes to their diets. The final section of this review will present key research findings in the field of health related behaviour change with particular reference to dietary behaviour.
2.6. Understanding Behaviour Change

Changes in public health which require alteration or modification of individual habits will be enhanced through an understanding of the nature and context of human behaviour change (Blaxter, 1990, Bunton et al, 1991). This view has been shared by many investigators who have done considerable research on health related behaviour change. Studies have investigated and assessed the variety of factors involved in behaviour change and have proposed various models and theories to explain the processes involved in health related behaviour change. An often quoted definition of health behaviour is "any activity undertaken by a person who believes themself to be healthy, for the purpose of preventing disease or detecting disease at an asymptomatic stage." (Kasl and Cobb, 1966). This definition has serious limitations.

2.6.1. Research Investigating Dietary Behaviour Change

Many people have adopted modified eating patterns in recent years and the trend overall is to follow healthier eating practices. Price and Septon (1991) showed that the women in their study reported reducing their fat intakes both by changing the types of foods eaten and the cooking methods used. The women also reported eating a greater variety of foods, selecting fewer foods that contained additives and increasing their wholemeal bread consumption. Results from three sections of the British Social Attitudes Survey on diet and health carried out in 1986, 1989 and 1991 (Table 5) support these findings and reveal that many people interviewed had some experience in changing certain elements of their diets (Sheiham et al, 1990). Women were the group most likely to have changed their eating habits with the elderly making the fewest changes. Overall those in the manual social groups had made fewer changes than those from non manual occupations.
Table 5 - British Social Attitudes Survey Percentage of Sample Reporting Dietary Changes in Previous Two Years

<table>
<thead>
<tr>
<th>Dietary Change</th>
<th>1986</th>
<th>1989</th>
<th>1991*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating more grilled food instead of fried food?</td>
<td>56%</td>
<td>61%</td>
<td>68%</td>
</tr>
<tr>
<td>Eating more wholemeal bread instead of white bread?</td>
<td>56%</td>
<td>55%</td>
<td>52%</td>
</tr>
<tr>
<td>Using more low-fat spreads or soft margarine instead of butter?</td>
<td>54%</td>
<td>60%</td>
<td>65%</td>
</tr>
<tr>
<td>Eating more fish and poultry instead of red meat?</td>
<td>44%</td>
<td>45%</td>
<td>52%</td>
</tr>
<tr>
<td>Drinking or using more semi-skimmed or skimmed milk instead of full cream milk?</td>
<td>33%</td>
<td>43%</td>
<td>49%</td>
</tr>
<tr>
<td>Eating more boiled or baked potatoes instead of chips or roast potatoes?</td>
<td>n/a</td>
<td>56%</td>
<td>63%</td>
</tr>
</tbody>
</table>


It is less clear what are the main motivating factors initiating dietary changes or the processes and outcomes involved. This uncertainty may however be a reflection of the differing research methodologies adopted in the various studies. An investigation of lay perspectives of self-initiated behavioural changes revealed that financial and social reasons were the key motivations for modifying dietary patterns (Hunt and Macleod, 1987). Stott and Pill (1990) in a study of working class mothers and changes made in their health related behaviours over a five year period showed that dietary changes were not undertaken directly for their health consequences but rather for social and appearance reasons. They found little evidence of a rational approach leading to changes in behaviours, rather that a mixture of influences including immediate triggers from the social environment combined with longer term influences were involved. The women were reacting and adapting to a variety of pressures and their actions could only be understood by considering the contexts within which they were living. For example, some dietary changes were made in an attempt to improve appearance prior to a beach summer holiday or in direct response to changes made by friends. The social environment, especially the attitudes and behaviours of friends and partners...
had the greatest influence on dietary behaviour changes. Indeed many attempts by the women interviewed to initiate changes for themselves or their family were thwarted through lack of support from husbands and to a lesser extent children. The research findings of Price and Sephton (1991) support the work of Stott and Pill in that they showed the main reasons given by women for changing their diets included a change in social and family circumstances such as moving away from home, having children or a member of family suffering some health problem. Concerns over weight control was also mentioned as being an important influence on dietary change.

The British Nutrition Foundation Survey (1985) showed that in a national sample people mentioned distinct changes in eating patterns as they moved through stages in the lifecycle. For instance, when young people left home they tended to eat less "proper" meals, at marriage they ate more regularly but more adventurously, when they had children there was more routine and less eating out and on retirement it was sensible to move the main meal of the day to midday. In contrast to these findings, Sheiham et al (1990) showed that the main reason cited for changing dietary patterns in their British Social Attitudes Survey was direct concerns over health and to help control weight. Health reasons were considered of greater importance by those already eating a healthy diet and those in the sample from social classes I and II whereas people from social classes IV and V were more likely to give personal taste as a reason for change. Currie and colleagues (1991) in their study of the dynamics and processes of behavioural change revealed that for dietary change a common underlying predisposing factor was concern about health, generally positive health rather than illness per se. However their findings showed that after its initiation the process of change was highly influenced by non-health related factors. Those individuals changing to a vegetarian diet frequently cite moral motives in relation to animal welfare as the predominant reason for
change, although health concerns provide additional benefits (Beardsworth and Keil, 1991).

Dietary behaviour change is a gradual process rather than a one off sudden event (Lewis and Booth, 1985, Stott and Pill, 1990; Price and Sephton 1991; Barker and Cook, 1992). With adults most changes follow a long period of consideration and thought. Sporadic attempts at change are common before a successful outcome is achieved (Hunt and Macleod, 1987). In a study of dieting patterns with obese people, Barker and Cook (1992) revealed that most of their sample considered dieting not as a short term exercise but instead part of a long continuing cycle of losing and regaining weight. Similar findings have been reported for those changing to a vegetarian diet where a "vegetarian career" has been identified, a process of progressively moving along the vegetarian scale of eating (Beardsworth and Keil, 1991).

The main perceived barriers preventing healthy eating include the high costs of healthy foods (Sheiham et al 1990), partners and families reluctance to modify eating habits (Price and Sephton 1991; Stott and Pill, 1990; Charles and Kerr, 1988; Curne et al, 1991) situational factors such as leaving home, partners working patterns and staying with ones family (Hunt and Macleod, 1987), the difficulty inherent in making the change itself, that is breaking old habits and making new ones (Curne et al, 1991) and a general lack of interest and motivation to change (Scottish Office Home and Health Department, 1993). The connection between losing weight and smoking is strong especially with women (Hunt and Macleod, 1987; Stott and Pill, 1990; Curne et al, 1991). Information on healthy eating from the media and health professionals often has very little direct and immediate impact on individuals interest or ability to change their diets (Lewis and Booth, 1985; Price and Sephton, 1991).
In a survey of dietary beliefs, practices and attitudes within an adult population living in Camden and Islington in London, men had poorer dietary patterns than women, as did younger (age 18-29) and older (age 60 plus) groups compared to middle aged adults. However nearly 20% expressed a desire to eat a more healthy diet although they identified two main barriers preventing change taking place. Firstly, a lack of time as they considered their lives too busy to have a healthy diet, and secondly, the cost of healthy eating was seen to be too high (Griffiths et al, 1994).

Currie and colleagues (1991) also showed that the main facilitators and benefits gained from dietary change included a sense of feeling better, support from friends and family and a willingness of friends and family to be more flexible in their eating patterns.

2.6.2. Young People and Dietary Behaviour Change

Compared to the amount of research data on dietary behaviour change in adults very little detailed information exists on this topic in relation to young people. The limited data that is available indicates that dietary changes are also taking place amongst young people but there is a major difference between what young people report they are changing and the actual behaviour changes that have taken place. For instance, as outlined above, young people are consuming greater quantities of high fat and sugary snack foods and drinks (Hackett et al, 1984; Adamson et al, 1992a; Roberts et al, 1993). This evidence conflicts with the attitudinal data from dietary surveys of young people, which, in contrast presents a picture that a large proportion of young people are changing their diets in mostly a healthy direction. For example, in the National Dairy Council (1989) survey of 14-18 year old females, 78% reported that they had decreased their sugar consumption in the last year with 64% reporting they had increased their fruit and vegetable intake over the same period. These changes
were more common in the older ages with health and weight control being the main reasons for the changes. In her large-scale detailed survey of 15-25 year olds Bull (1985) revealed that the majority of the sample reported making some changes to their diets within the previous year. These changes were associated with moving away from home and consisted of eating less foods overall but a tendency to experiment with more exotic food types and to consume more convenience foods. In the British Nutrition Foundation Survey (1985) the sample of young people aged 11-15 years reported eating more fruit, milk, chips, crisps and soft drinks and to have reduced their consumption of confectionery and sweets. This survey did not assess the motivations nor processes involved in these reported changes but suggested that there was a trend for young people to modify their eating patterns and attitudes towards those of adults.

Using a small group discussion format and qualitative survey methods, the views on food and nutrition were assessed from a sample of 900 high school students in Minnesota (Story and Resnick, 1986). There was a high level of knowledge regarding good health and nutrition practices although this knowledge was not translated into food behaviour. The vast majority of the participants identified poor eating habits as consisting of skipping meals, eating imbalanced meals and snacking too much, all of which were commonly practiced by the sample. Indeed these habits were considered as characteristic of adolescents eating patterns. Two reasons for this were cited. Firstly, adolescents did not have the time to eat nutritiously and secondly healthy food was considered not to be available to adolescents either at home or at outside places. When the participants were asked to describe the barriers that prevented them improving their diets, three reasons were identified. Firstly, they perceived themselves to be too busy to worry about food, nutrition, meal planning and eating properly. Busy personal and family schedules meant that
time was just not felt to be available for changes to occur. Secondly, the inconvenience and expense involved in improving the diet was considered as a major barrier. In contrast to healthy food, fast foods were seen to be cheap, easily available and convenient requiring no preparation. Lastly healthy eating was considered to be an issue for adult life and something to worry about in later life and therefore of little urgency for adolescents.

In an investigation into sugars consumption amongst a sample of Danish adolescents the most important predictor of sugars consumption was previous sugar consumption which was found to be mainly determined by peer group norms. Cognitive and environmental factors were not found to be as important. Two explanations for these results were proposed by the authors. Firstly, as adolescence is a period of life characterised by weakening influences of parents and increased involvement with peers, the study sample viewed sugar consumption as a means of opposition to adult authority. A second supplementary explanation was that sugar consumption is a habitual behaviour established in early life which once established does not involve cognitive processes (Rise and Holund, 1990). Within the study population changes in sugar consumption were achieved through the implementation of an interactive school based programme. The programme focused attention on issues deemed most relevant to young people and involved peer group discussions on body image, sex appeal, overweight, smartness and group norms with respect to eating habits (Holund, 1990).

As has been previously outlined, Chapman and Maclean (1993) interviewed a number of young women and explored the meanings and significance of foods to them. The majority of those interviewed were attempting to reduce their "junk" food intake and were trying to eat only healthy foods in order to reduce or maintain their weight. However these intentions were frequently not
implemented due to the unfavourable social context the participants were placed in. "Junk" foods were associated with pleasure, friends, independence and being away from home, while "healthy" food was linked with the family, meals and being at home. Liking healthy foods was considered as an oddity within the young women's social networks.

The results of a study investigating the health behaviours of young people within the context of their family units revealed that many young people who had altered their patterns of eating had done so through a process of negotiation within their household. For most, a balance was struck between young peoples' desire for greater freedom and autonomy and their parents' wishes. However in some cases conflicts over eating were apparent. In these cases the young people used their preferred patterns of eating as a means of rebelling within the family structure and as a challenge to parental control. The study revealed that these young people who ate family meals had the healthiest diets (Brannen et al, 1994).

The available evidence suggests that many young people are fully aware of the healthy changes they ought to adopt but that these intentions and attitudes are not always translated into actual sustained behaviour changes (Story and Resnick, 1986).

There is a definite lack of detailed empirical research data on behaviour change in young people. The final section of this review will therefore present and analyse the main theoretical models of health related behaviour change to provide a theoretical framework for a detailed investigation of young people's dietary behaviour change.
2.6.3. Theoretical Models of Health Related Behaviour Change

Several extensive reviews of the health behaviour theoretical models have been published which provide a valuable insight into the limitations and values of the various models (Sheiham, 1986; Siegrist, 1988; Sogaard, 1993). In this review some of the most influential theories will be described together with an overview and analysis of common factors shared by several of the models. Such an analysis will provide a theoretical framework for an investigation of adolescent dietary behaviour change, the central focus of this research.

The Social Learning Theory originally developed by Rotter (1954) and Bandura (1969) is based on the idea that the likelihood of any specific behaviour is dependent on the individual's perception of the resultant consequences of carrying out the behaviour. This theory, which has more recently been relabelled as the Social Cognitive Theory (Bandura, 1986), holds that behaviour is learned through the observation of others and the subsequent development of personal skills. The theory maintains that behaviour is determined by expectancies and incentives (Figure 2). The expectancies are divided into:

1. expectancies about environmental cues - beliefs about how events are connected and linked
2. outcome expectancies - beliefs how individual behaviour is likely to influence outcomes. Outcomes could include improved health status, social acceptance or financial gain.
3. efficacy expectancies (self efficacy) beliefs about one's ability to perform the behaviour needed to influence outcomes
Figure 2 - Social Learning Theory

Incentives are defined as the value of a particular object or outcome. Self-efficacy, which is essentially referring to how people judge their capabilities, has been extensively used both in the development of health promotion research and practice. It is derived from four sources of information: verbal persuasion, vicarious experience, successful practice and the physiological feedback experienced from emotional arousal.

Health Locus of Control (Rotter et al, 1972) which, like the concept of self-efficacy, has also been derived from the social learning theory, measures to what extent people believe that their health is influenced either by their own behaviours or by external factors. Whereas self-efficacy is situation specific, locus of control is a more generalised perception of who or what is in control of one's health. Research investigating the predictive power of these two concepts have produced mixed results but have shown that self-efficacy to be more strongly related to health behaviour than locus of control and as a result the former is now more prominent in health promotion research (Beck and Lund, 1981; Kaplan and Atkins, 1984; Alagna and Reddy, 1989). Aspects of the social learning theory have used in a variety of settings and topics from school-based dental health education (Sogaard et al, 1987) to community action programmes.
such as the North Karelia project (Puska et al, 1985). Some researchers have applied self-efficacy to dietary change, in particular weight loss and have shown the concept to predict successful change (Chambliss and Murray, 1979; Bernier and Avard, 1986; Glynn and Ruderman, 1986; Sallis and Pinski, 1988).

Similar to the self-efficacy theory, the attribution theory (Kelly, 1973) is based on the assumption that behaviour is determined by the cognitions people have about their behaviour. The theory aims to explain the way in which people account for human actions, either their own or others. It attempts to understand how we perceive the motives, intentions and causes of people's actions.

The Theory of Reasoned Action (Ajzen and Fishbein 1977, 1980) principally focuses on the relationship that exists between attitudes and behaviour. The model suggests that volitional behaviours are predicted by one's intention to perform the behaviour. The model is based on the hypothesis that people act rationally and in intending to perform a behaviour make use of information in considering the implications of the behaviour in question. A key element of the theory is the importance placed on the role of significant others in influencing individuals behaviours (Figure 3). The model has been tested in several studies including investigations into smoking cessation (Chassin et al, 1984) weight loss (Schifter and Ajzen, 1985) and sugar consumption (Freeman, 1984). The model has however been criticised for assuming that a simple rational relationship between attitudes and behaviours exists, and that attitudes mediate completely the effects of cognitions on intentions (Liska, 1984).
Figure 3 - Theory of Reasoned Action.

The concept of the Diffusion of Innovation Model (Rogers, 1983) is closely related to models developed in mass media communication research. It describes how people subjected to new information pass through five stages of firstly awareness, to interest, then trial, decision and finally adoption. The model proposes that a set communication pattern exists in a community exposed to new ideas and that different groups in the community react at different times to the novel event. Those who adopt an innovation earliest, the innovators tend to be middle class people who are more adventurous and actively seek information about new ideas. These new ideas are often initially communicated to a community via the mass media. The next group to accept the innovation are termed early adopters who tend to be respected members of the established social system. Following this group are what is known as early majority who adopt a new idea deliberately just before the average member of the given society. In all the first three groups the decision to adopt the innovation is based on a reasoned assessment of the costs and benefits of the change. The penultimate group to change, the late majority tend to be of lower social status and social influence than the previous groups and learn of the new ideas from
peers rather than through media channels. The final group of adopters, the laggards are more socially isolated than the others from traditional networks and their behaviour is less responsive to new ideas and peer influence. An important aspect of this model is it's concentration on the process of change through time and the recognition of the influence of social norms on varying groups within a community. The model appears not to have been extensively tested or developed in health promotion research or practice although it has been adapted to lifestyle changes (Green and McAlister, 1984).

The Health Belief Model (Rosenstock, 1966; Becker, 1974; Janz and Becker, 1984) is a decision making theory based on the field theory (Lewin, 1951). The model hypothesises that an individual will decide to take a certain action dependant on their perception of the following a) their own susceptibility to a given disorder, b) the seriousness or severity of the disorder, c) the benefits of taking action, d) the barriers to action and e) cues to taking action (Figure 4). Although the health belief model has been extensively used in health promotion research the model has been heavily criticised in terms of it's low specificity, it's poor predictive power with regard to changes in individual health behaviour and it's overemphasis on psychological as compared to social factors (Langlie, 1977). This model has been used to predict dietary behaviour in terms of mothers' adherence to a dietary regimen for their obese children (Becker et al, 1977); vitamin and protein intakes (Langlie, 1977), and the limitation of sugar and fat and intakes of vitamins (Harrns and Guten 1979) although the results of all of these studies have been largely disappointing. The best results for this model have been produced in retrospective studies which therefore suggests that past behaviour is a good predictor of actual behaviour (Kegeles and Lund, 1984).
In the Theory of Social Behaviour (Triandis, 1980) intention is considered in most cases as a major predictor of behaviour. However in the case of what are termed habitual behaviours intention to act is considered less important than habit. In this model behavioural intention is determined by four main factors (Figure 5):

1) a cognitive component identical to Fishbein's beliefs about the consequences of performing a behaviour and an evaluation of the subsequent consequences

2) an affective component expressed as the individual's emotional response to the thoughts of performing a given behaviour

3) a social component relative to the behaviour studied

4) personal normative beliefs which measure the individual's belief concerning the felt obligation to perform the behaviour in question.

Unlike several other health behaviour theories this model stresses the importance of social factors as a major influence on individual behaviours and also highlights the importance of the habitual nature of many behaviours.
Figure 5 - Theory of Social Behaviour.

The PRECEDE Framework proposed by Green et al (1980) is not strictly a theory of health behaviour although a component of this health education planning model seeks to explain the causes of health behaviours. Three distinct factors are identified as influencing health behaviours (Figure 6):

1) Predisposing factors include knowledge, attitudes, beliefs, values and perceptions, as well as demographic factors such as socio-economic status, age and gender. These factors are considered as antecedent to the behaviour and provide the motivation for the behaviour.

2) Enabling factors act as antecedents to a behaviour that allow a motivation or aspiration to be realised. Appropriate skills and resources are essential enabling factors.

3) Reinforcing factors are those factors subsequent to behaviour which provide the continuing reward, incentive or punishment for a behaviour and therefore influence whether or not the behaviour is maintained long-term or disappears.

This model has been tested with a selection of behaviours and has produced some favourable results (Mullen et al, 1987).
Based more on a sociological understanding of health, the Model of Cultural Lag has been developed to explain the persistence of health damaging behaviours and the under utilisation of preventive services by certain groups in society due to the powerful socio-cultural norms and orientations operating within society (Schneider and Lysgaard, 1953; Siegrist, 1988). In particular the model highlights the differing influence of primary socialisation on individuals from middle class as compared to working class families. In middle class families skills and cognitive patterns are related to deferred gratification and to long term planning, both of which favour preventive health attitudes and behaviours. In contrast socialisation of working classes are directed towards current problem solving, neglecting long term prospectives and preventive concerns. As a consequence delayed utilisation of preventive health services and resistance against behavioural change without immediate benefit are more probable in lower socio-economic groups.
Based upon research conducted during a successful obesity intervention the Model of Social Comparison has been developed which assumes that personal health behaviour is subjected to considerable change if significant others in an individual's social world introduce, reinforce and expect new instrumental behaviours (Brownell, 1986; Siegrist, 1988). A behaviour is considered instrumental if it supports a favourable presentation of self in an individual's relevant social setting.

Prochaska and DiClemente (1983) originally focused on self initiated behaviour change in relation to smoking cessation have proposed a model, the Transtheoretical Model of Change which identifies various stages in the process of change and reflects existing motivational, social learning and relapse theories. This model is highly critical of the traditional conceptualisation of health behaviour change which implicitly defined change as a dramatic movement from chronic unhealthy behaviours to stable healthier alternatives. Prochaska and colleagues have challenged this view of change both in terms of the assumption that change takes place quickly and that it is a dichotomous one off event. They present clear evidence demonstrating most people do not change chronic behaviours quickly. With smoking their data suggests that most people take 3-4 attempts at change spaced out over a 7-10 year period before they successfully stop smoking (Prochaska and DiClemente, 1984). The notion that people shift for example from eating completely unhealthy diets to totally healthy diets is also challenged as being unrealistic as people do not change chronic behaviours discretely. Based on retrospective, cross sectional and longitudinal studies of self change and on intervention studies the Transtheoretical model proposes an alternative conceptualisation of change which involves movement through a series of stages (Figure 7). Initially the model identified five stages: precontemplation, contemplation, action, maintenance and lapse. More recently the model has been modified slightly
and now comprises six key stages of change (Prochaska and DiClemente, 1991).

![Transtheoretical Model of Change]

Figure 7 - Transtheoretical Model of Change.

In the precontemplation stage individuals are not intending to change their behaviour usually within the next 6 months. This is the time period considered about as far in the future most people can anticipate making behaviour changes. People can be at this stage for a variety of reasons: 1) they are uninformed about the longterm consequences of their behaviour, 2) they are demoralised about their abilities to change and have decided not to think about change and/or 3) they are defensive in part because of social pressures to change. Precontemplation is a very stable stage. Many people are in this stage for several years. At this time the negative consequences of change are viewed as being stronger than the possible positive outcomes of adopting a change. In order to move ahead in the cycle of change, precontemplators need to acknowledge or take ownership of the problem behaviour, increase awareness
of the negative aspects of the problem and accurately evaluate self regulation capacities.

At the contemplation stage people are seriously intending to change in the next 6 months although for many they may remain in this stage for up to 2 years during which time they are continually delaying actually taking action. For people contemplating change the pros and cons of their behaviour are evaluated as about equal and as a result there is considerable ambivalence about changing. During this evaluative stage contemplators engage in information seeking and begin to re-evaluate themselves in light of the particular behaviour.

The next stage, preparation, is the time when individuals are intending to take action in the near future, usually the next month. People at this stage often have a plan of action and may have either taken action in the past year or have made some recent small behaviour change. Unlike the first two stages which are only based on intentions, this stage has both intentional and behavioural criteria. During the preparation phase people assess the positive consequences of action more favourably than the negative. On the verge of taking action individuals set goals and priorities accordingly. It is not a very stable stage with most people likely to progress onto the subsequent phase within a 6 month period.

The fourth stage, action, is when overt behavioural changes have occurred within the last 6 months. This is a very active phase when most processes of change are being used. It is also the least stable stage when the risk of relapse is highest. The ability to actively change a behaviour therefore requires appropriate skills, a supportive environment and effective strategies to prevent slips from becoming complete returns to the problem behaviour.
The penultimate stage of maintenance is the period from 6 months after the change has taken place until the risk behaviour is finally terminated. This is a period of continuing change although fewer processes are typically needed to prevent relapse than is the case in the action stage. A period of 5 years has been suggested as a reasonable timescale for maintenance leading to termination with smoking behaviour. Maintenance is most difficult in an unfavourable environment or when the new behaviour is one which occurs infrequently.

The final stage of termination is defined as the period when there is zero temptation to engage in the old behaviour and 100% self-efficacy across all previously tempting situations.

In a national health survey on smoking behaviour in the United States of America the data was assessed to estimate the percentage of the sample population who were in the various stages of the model. Of those individuals smoking in 1985, in the following year 4 per cent were in the maintenance stage, 12 per cent in action, 15 per cent ready for action, 34 per cent in contemplation and 35 per cent in the precontemplation stage (Prochaska, 1991). A similar pattern has been identified in other health related behaviours and therefore demonstrates that only a relatively small percentage of a given population are either ready or engaged in the process of behavioural change which clearly has very important implications for the design and implementation of health promotion policies (Rollnick, Kinnersley and Stott, 1993).

One of the important elements of this model is the recognition that the majority of people who attempt to change elements of their behaviour normally do not succeed on the first attempt at change. Instead, they frequently lapse at some point in the process but invariably recycle back to the contemplation stage as
they prepare for future action. The process of change proposed by this model is based on a spiral pattern with most people learning from their lapse experiences. This point is supported by the research work undertaken by Marlatt and Gordon (Marlatt and Gordon, 1980; Marlatt, 1982; Marlatt and Gordon, 1985) into maintenance of modified behaviours. Their research demonstrated that 75 per cent of lapsed behaviours could be explained by three factors:

(1) Negative emotional state such as depression which are not associated with other people
(2) Interpersonal conflict such as arguments or confrontations
(3) Social pressures from other individuals or groups exerted directly or indirectly.

The Transtheoretical Model has been tested extensively on a wide variety of behaviours including smoking, dieting, exercise and alcohol use (Prochaska and DiClemente, 1983; Prochaska and DiClemente, 1985; DiClemente and Hughes, 1990). Overall it has generally produced promising results in terms of explaining how people change various behaviours. In terms of dietary change very few published accounts of application of this model have occurred although Curry and colleagues (1992) have applied the model to dietary fat reduction and demonstrated that in two samples of adults males and females differed in their distribution across the stages of change. Males were more likely to be in a precontemplation stage with females more likely to be in a maintenance stage. Significant positive correlates with stage for men and women were age, education, body mass index, number of chronic conditions and being told one had a high serum cholesterol level. For both genders, stage of dietary fat reduction was significantly associated with percent of calories from fat, even when controlling for demographic and health status covariates.
Although the Prochaska and DiClemente model has been widely applied in a variety of settings and behaviours it has been recently subjected to some criticism from within the field of psychology (Davidson, 1992). The principal arguments against the model include, firstly, that it is not based on a sound theoretical concept and is rather taxonomy or description of dispositional states which reveals nothing about the nature, aetiology nor development of behaviour, secondly, that it does not explain why some people change behaviours without contemplating, acting or maintaining and, lastly, there has been a lack of critical objective analysis of the model in the UK. From a sociological perspective the model could easily be criticised for a lack of recognition of the importance of the social context and influences on individuals abilities to change behaviours. In a response to some of these criticisms Prochaska and DiClemente have acknowledged that no one model, including theirs, should be considered the sole theory capable of explaining the complex topic of behaviour change (Prochaska and DiClemente, 1992).

Recognition that no single model can fully explain the complexities of behaviour change researchers have attempted to bring together the various elements of different models and theories in an effort to present a more universal understanding of health behaviour change. Cummings et al (1980) reviewed and analysed 14 empirical psychosocial models which in total included 109 variables. The analysis of the various models identified 6 common sets of factors:

1) accessibility to health care
2) evaluation of/attitude to health care
3) perception of symptoms and threat of disease
4) social network characteristics
5) knowledge about disease
6) demographic characteristics
These 6 factors are most relevant to the assessment of health care utilisation than health promoting behaviours in that the important dimensions of self efficacy, health locus of control and perceived control are absent.

Kersell and Milsum (1985) have constructed a systems model that incorporates social, environmental, psychological and physiological factors. Four key levels have been defined within this model:
1) external antecedent conditions - parental and hereditary/genetic processes and socio-cultural environmental factors
2) personal antecedent conditions - personal demographic dynamics, personal socialisation processes and personal health dynamics
3) social-psychological conditions - self perception, perception of social influences, perception of health status and perception of environmental factors
4) behavioural conditions - skills and behavioural factors

Hunt and Martin (1988) have recently proposed a new model of behaviour change which has been developed from their empirical qualitative research findings. Their model is based on the understanding that although many behaviours may be health related, many are not carried out primarily for their health implications. This important distinction questions the underlying basis of many of the other models which highlight the concept of susceptibility as one of the main stimuli for inducing healthy persons to engage in health protective behaviours. By investigating self initiated behavioural changes various categories of behavioural patterns have been identified. Activities such as eating, the amount of exercise taken and smoking are characterised as habitual routines which once established become a predictable and relatively stable element of people’s lives. Such habitual routine behaviours are relegated to a low level of contemplation not requiring a high degree of conscious effort or thought. In contrast to these habits are the other categories of behaviour which
occur only sporadically and require a higher degree of contemplation. Such activities include for example certain activities at work or new and novel social experiences which are a consequence of certain alterations to the physical or social environment. Changes in routine behaviours often occur after a prolonged period of consideration and in the absence of an actual health problem are not a consequence of concerns of health instead being related to factors such as financial worries, changes in social circumstances or structural changes such as a job change. These alterations in the social milieu have the effect of bringing behaviours that were previously taken for granted sharply into focus. This model very much supports the suggestion proposed by Prochaska and DiClemente (1991) that behaviour change should be considered as an ongoing process. The model also highlights the important influence of the social context on health related behaviours.

2.6.4. Limitations and Criticisms of Health Behaviour Models
Although the models and theories outlined above and elsewhere have undoubtedly provided some helpful information on health behaviour, no single grand theory or model exists which can fully explain health behaviour in all its complexities (McQueen, 1991). Many of the existing models have been heavily criticised either on the grounds of the methodologies employed in their development or their theoretical basis.

Methodological criticisms include: 1) the fact that many of the models adopt variables and interrelationships which have not been fully validated or tested making it difficult to judge their predictive powers, 2) where attempts at validation have been made these have often been based on data collected from retrospective studies rather than prospective longitudinal studies, 3) many of the models have been developed in specific settings in relation to specific types of health behaviour and have not been applied generally.
Perhaps of even greater concern are the theory-based limitations of many of the existing models. These include:

1) the underlying basis of many of the models highlight the concept of susceptibility as one of the main stimuli for inducing healthy persons to engage in health protective behaviours. This concept is based on two false assumptions. Firstly, that health is the main motivating factor influencing many behaviour changes and, secondly, that people act in a reasoned and logical fashion with intentions and attitudes always leading to alterations in behaviour.

2) a large number of the existing models and theories are largely individualistic in their focus and ignore the prime influence and importance of social, economic, environmental and political factors on human behaviours. Failure to include these factors in any analysis of health behaviours ultimately results in a very negative and "victim blaming" understanding of this topic which can distort the underlying truth leading to the development of potentially harmful and largely ineffective health policies (Bunton et al, 1991).

2.6.5. Summary

From this review of some of the frequently used health behaviour change models several key points emerge that are of relevance to this research study:

1) Health behaviour change is very complex. So far no model or theory has been devised that is able to explain fully the nature of change. Many factors have been identified that clearly play a role but no single variable has been shown to be universally applicable in all forms of health behaviours.

2) On an individual level it has been shown that the possession of adequate health knowledge is essential to enable informed choices to be made by individuals. A persons attitudes and beliefs towards a particular behaviour are also clearly very important, especially the issues of perceived control and self-efficacy. The possession of adequate and appropriate skills also greatly influences the ability of a person to modify aspects of their behaviour.
3) The relationship between knowledge, attitudes and behaviours is complex and a dynamic one. It is rarely a logical and rational association as was once assumed.

4) Individual health behaviours do not take place in isolation. Social, economic, environmental and political factors all greatly influence individual members of society. For example, the social context in which an individual operates has considerable impact on the actions they take. Family members, peers and other social groups exert, through social norms and socialisation, a role in determining individuals behavioural patterns.

5) Individuals whose lives involve many problems and whose coping strategies and resources are limited will be least likely to change behaviours. Disadvantaged groups in society who often have the greatest health needs frequently have neither the opportunity nor support to modify health damaging behaviours.

6) When people do have the opportunity and support to change elements of their behaviours that are linked to health, the underlying reasons for change are frequently not directly related to health concerns. Often other considerations are seen to be of greater relevance such as financial reasons or social concerns.

7) Daily activities such as eating, drinking, smoking and exercise all of which can have a direct impact on health are largely routine habits which people adopt into the everyday flow of their lives. For people to successfully change these well established habits requires an engagement in a prolonged and often difficult process which most often involves many attempts at change. Very rarely it is possible for such behaviours to be successfully modified at a single attempt. Health related behaviour change should therefore be considered as a process which often takes a considerable length of time to complete.
2.7. Conclusions

This review presents and analyses the key research literature from a wide and diverse range of disciplines which are of relevance to an improved understanding of adolescent dietary patterns and behaviour change. Much evidence exists demonstrating the importance of diet in determining the health and well-being of individuals and communities. The dietary patterns of many young people do not accord with current health and nutritional advice which may therefore increase their risk of both short and long-term health complications. It is uncertain the extent to which dietary patterns developed during adolescence are maintained into adulthood.

The review has presented a collection of the complex array of influences that govern individual dietary patterns from the effects of innate biological food preferences to the socio-cultural symbolism of food within society. Socio-cultural and environmental factors have been identified as having a major influence on young peoples dietary patterns through the power of peer influence and sociability and the symbolic nature of foods in relation to the perceived worlds of adults and young people.

An overview of the main health related behaviour change theories and models indicate that although no single theory or model fully explains the nature of behaviour change certain key points emerge. Firstly, it is evident that direct health considerations are not often the main motivating factor initiating change. With young people, concerns about physical appearance and body shape are often dominant in determining their decision to attempt changing their diets. Secondly, behaviour change in most cases can be considered as a process involving various stages of change rather than an one off sudden event. With young people many are engaged in an almost constant process of repeated
attempts at altering elements of their diet. Lastly, the important key influence of social factors on behaviour change is very evident.

Research evidence suggests that many adults have engaged to a certain extent in modifying their dietary patterns in line with health professionals advice. Very little is known about dietary behaviour change in young people. It is not clear how many young people are engaged in changing their diets, what factors predispose or motivate young people to attempt change or what are the main barriers preventing successful maintained change.

A need clearly exists to study in depth the topic of young people's dietary behaviour change to improve scientific understanding of this complex and important area.
Chapter 3

Methodology
3.1. Introduction

A range of methodological issues relevant to this study will be presented in two parts in this chapter. The first section will outline a broad overview of theoretical considerations in social sciences research. Particular emphasis will be placed on the philosophical basis and features of both quantitative and qualitative methods and the value of utilising a combined approach. Consideration will also be given to the issues of sampling, data analysis and issues in assuring good quality data collection. The second section will present a detailed account of the research design and process used. Each stage of the study will be fully described and where appropriate links to the previously outlined theoretical concerns will be made.

3.2. Theoretical Considerations in Social Sciences Research

3.2.1. Choices in Research Methods

Traditionally two types of research methods are used, quantitative and qualitative. Before embarking on a description of the nature and differences between these approaches the philosophical basis of both will be briefly outlined as this is considered of fundamental importance in understanding the value and nature of each research method.

The quantitative approach is derived from a positivist philosophy of science developed by Bacon (Kolakowski, 1972). A central tenet of the positivist position is the view that the study of society and human behaviour should be as scientific as the methods used in the natural sciences. Such an approach is based on the positive belief that research can and should be value free and that reality exists as a single truth independent of human beings and subject to general laws that predict and determine causality for all physical and social phenomena. Such objectivity as demanded of investigators within this paradigm, has led to an emphasis on numerical data. Numbers are
considered to be objective and amenable to comparison and statistical analysis which therefore produces findings that are broad and generalizable (Keat and Urry, 1975; Giddens, 1979). This approach has dominated research in the field of health behaviour research (Research Unit in Health and Behavioural Change, 1989).

The qualitative approach on the other hand is based on a naturalistic philosophy and has been widely used in anthropology, history and political science since the beginning of this century. A qualitative approach views reality as being constructed and shaped from the human mind and since clearly people vary, multiple realities can exist. Objectivity is therefore considered to be an impossible notion since all inquiries are value and context bound (Hammersley and Atkinson, 1983). Qualitative research attempts to present the social world and perspectives on that world in terms of the concepts, behaviours, perceptions and accounts of the people it is about (Ritchie and Sykes, 1986). This method is therefore concerned with depth and detail of understanding, and in assessing contexts, accounts and systems. This approach has been utilised to a fairly limited extent in the medical and dental fields of investigation (Blinkhorn et al, 1983; Schou, 1985; Nettleton, 1986; Finch et al, 1988).

3.2.2. Comparisons Between Quantitative and Qualitative Methods

A useful means of comparison and contrast between both approaches is to consider each in terms of the four main purposes of social research, namely contextual, diagnostic, evaluative and generative purposes (Ritchie and Sykes, 1986). The contextual purpose of social research is concerned with the description of the form and nature of what exists. Qualitative methods can provide detailed information on the form and nature of the phenomena under investigation whereas quantitative methods in contrast would be able to
provide data on the extent and location of the phenomena. The diagnostic purpose of social research focuses on an examination of the reasons for or causes of what exists. Here qualitative methods would enable identification of the underlying factors, exploration of the decision processes and a possible mapping of the range of contributory elements. Alternatively quantitative methods would provide evidence for statistical correlation, identification of discriminatory variables and provide possible causal modelling. Thirdly the evaluative purpose of social research seeks to appraise the effectiveness of actions and interventions. To that end, qualitative methods facilitates the processes and systems involved to be exposed and understood, whereas quantitative methods would be concerned with uncovering the outcomes of the actions and interventions. Finally, in terms of the generative purpose of research on the development of theories, models and actions, qualitative methods generate new ideas, theories and strategies, together with the possible case testing of hypotheses. In contrast quantitative methods would enable the development of predictive modelling and the numerical and statistical testing of hypotheses.

3.2.3. Combined Use of Quantitative and Qualitative Methods

Although some social science researchers (Lincoln and Guba, 1985; Schwandt, 1989) have argued that qualitative and quantitative approaches are incompatible due to their differing philosophical assumptions about the nature of reality and science, others (Reichardt and Cook, 1979; Eisner, 1981; Fielding and Fielding, 1986; Patton, 1990) have stressed the value of combining both approaches to provide a better understanding of the complexities of human behaviour. Indeed the simplistic notion that reality and research can be so simply dichotomised has been challenged and the focus is on how best to link both approaches most effectively (McQueen 1986). If the ultimate goal of research is to reveal meaning and increase understanding of
social and physical phenomena, then there is a need for both methods to be utilised in a complementary manner. The different approaches ultimately converge and provide a common understanding of reality (Research Unit in Health and Behavioural Change, 1989).

Traditionally such a combined approach has resulted in qualitative methods being initially used to provide initial insights into a topic and then a quantitative approach adopted to study the area using a larger representative population (Filstead, 1970). Although such a combination of approaches may be appropriate with certain settings or topics other more inventive options are possible (Ritchie and Sykes, 1986; Pope and Mays, 1995). Indeed it has been argued that the optimal research strategy in nutritional anthropology is the combination of both approaches at each stage of the research process (Pelto et al, 1980; Pelto, 1981; Brown, 1986).

3.2.4. Key Considerations in Research

Before embarking on a detailed description of this study's design and the research process undertaken a theoretical overview will be given to the various research methods available in both qualitative and quantitative approaches, sample selection, methods of data analysis and finally quality considerations relevant in assessing data.

3.2.4.1. Research Methods

Quantitative research data has traditionally been collected using questionnaire methods either in a self-complete or structured interview format. Such an approach is largely under the control of the researcher who not only decides the topics to be investigated but also the format and structure of the questions. The strengths of this approach include the ability to collect a range of data from a potentially large sample population, the data analysis is often
fairly simple with responses being directly compared and easily aggregated
and process of data collection can be completed relatively rapidly and
cheaply. The disadvantages of quantitative methods are principally related to
the degree of control the researcher exerts over the respondents (Blinkhom et
al, 1989). Questionnaires, by presenting a limited range of questions and
response categories previously determined by the researcher, may limit and
distort the respondents ability to express their true feelings and experiences.
Questionnaires may therefore be perceived as being impersonal, irrelevant
and mechanistic (Patton, 1987). A comprehensive and more detailed
description of quantitative methods, including their development, use and
analysis options has been presented elsewhere (Oppenheim, 1992).

Although the main focus of this study is dietary behaviour change, part of the
investigation involved a general assessment of dietary consumption patterns.
It is important therefore to consider what dietary methods of assessment are
available. A range of quantitative research methods have been developed for
use in dietary surveys. The choice of method selected is dependent on the
nature of the research investigation and the resources available. For detailed
assessments of dietary nutrient intakes the weighed inventory method (Marr,
1971; Bingham, 1987) is generally considered to represent the "gold
standard" of dietary survey methods. This technique involves subjects
recording 7-day weighed intakes. Nutrient analysis of food intakes is then
carried out using food tables. This technique requires skilled and experienced
nutritional researchers, is very time consuming, expensive and can be very
disruptive to subjects. The method has been extensively used in nutritional
surveys (Department of Health, 1989, Nelson et al, 1990) and as the bench
mark against which other methods are judged (Hackett et al, 1983; Yarnell et
al, 1983). An alternative dietary survey method advocated for use in
epidemiological investigations is the food frequency questionnaire (Wiehl and
Reed, 1960; Willett, 1990). The purpose of food frequency questionnaires is to provide a reliable and accurate method for describing eating patterns, not nutrient intakes and to relate these to behavioural measures. The technique allows collection of data from large samples of individuals, is easily administered and measures the frequency or number of times common foods have been eaten over an extended period (Frank et al., 1992). The method has been extensively used in studies which have focused on assessing dietary patterns in young people (Health Education Authority, 1990b; Currie et al., 1990; Roberts et al., 1993). The reliability and validity of the technique has been extensively assessed (Willett, 1990; Frank et al., 1992).

In contrast to quantitative research techniques, the primary purpose of qualitative methods is to explore and uncover in detail the respondents feelings and experiences of the topic under investigation. This therefore necessitates the active involvement of the respondent in the research process. The main types of qualitative methods used include participant observation or ethnography, group interviews and individual interviews (Walker, 1985).

Participant observation is a technique where data are collected by an observer who is a regular participant in the activities being observed (Spradley, 1979). The technique enables an observer to gain a sense of the underlying beliefs, explanations and meanings that a group of people have for certain events in their lives and has the advantage that people are functioning in their own social and natural environments. Therefore it has been widely used by nutritional anthropologists (Richards, 1969). However it involves very long periods of data collection and is not acceptable and feasible for many types of study samples.
Group interviews aim to bring together small numbers of people with a facilitator to discuss and exchange ideas in a dynamic group atmosphere. The technique is based on the assumption that individuals who share common experiences will be more able and willing to share their views in a group setting and is therefore useful in identifying common reactions and ideas (Chapman and Maclean, 1993) but is not designed to reflect the views of individuals (Walker, 1985).

There are three basic approaches to collecting qualitative data through individual interviews. Each approach has strengths and weaknesses and each serves a somewhat different purpose. The main differences between the approaches is the extent to which interview questions are determined and standardised before the interview. The three choices are the informal conversational interview, the semi-structured interview and the standardised open-ended interview (Patton, 1987). The informal conversational interview relies entirely on the spontaneous generation of questions in the natural flow of an interaction. These interviews are normally part of an ongoing participant observation and allows the respondent to determine the topic areas to be discussed. Such a technique has the advantage that it provides great flexibility and immediacy in assessing the respondents views and circumstances. The weakness of this technique is the time needed, the danger of introducing interviewer effects and the complexity and difficulty of analysing the data collected (Spradley, 1979).

In the semi-structured interview the investigator comes with a prepared topic guide which lists out the issues which need to be addressed in the interview. The topic guide therefore provides a list of issues about which the interviewer is free to explore, probe and ask questions that will elucidate and illuminate that particular subject. Some degree of flexibility is maintained as the wording
and sequence of interview questions are adapted to specific respondents in the context of the actual interviews. The advantages include the more efficient use of time and resources and, by following a common guide, provides more systematic and comprehensive data between different interviews (Achterberg, 1988).

The standardised open-ended interview consists of a set of predetermined questions worded, ordered and sequenced to ensure that each interview follows a common pathway. Flexibility and responsiveness to the respondents answers is therefore very limited. This technique is selected when it is especially important to minimise variation in the questions posed to respondents. The advantages of this structured approach include the ability to use relatively inexperienced interviewers, speed of data collection and data analysis tends to be easier in terms of coding and locating ideas. The disadvantages include the inability to pursue topics or issues not anticipated when the interview was prepared and the lack of opportunity to explore individual differences and circumstances between interviews (Patton, 1987).

3.2.4.2. Sample Selection

Sampling procedures in qualitative and quantitative methods have differing purposes reflecting the differences between the research approaches and the aims of the investigations. In qualitative research the primary purpose of sampling is to discover and describe categories of phenomena (Glaser and Strauss, 1967). A selection of purposive techniques may be used to ensure that subjects with a wide range of specific characteristics are selected to enable the diversity and depth of understanding of the social processes and actions under study to be fully uncovered (Walker, 1985). In contrast quantitative research adopts a probability sampling approach based on statistical laws in which each element in a population is chosen in a totally
random fashion. Probability sampling methods are best used when the investigator is attempting to describe accurately the characteristics of a sample in order to estimate population parameters. These techniques are also most appropriate for analytic studies which involve testing empirical hypotheses (Gilbert, 1993).

3.2.4.3. Data Analysis

Data analysis in quantitative and qualitative approaches are fundamentally different in their objectives and techniques used. With quantitative data the analysis aims to assess, using statistical methods, the strength and direction of any relationships between variables. Once this has been achieved the presence and nature of any causal relationships between variables is established. Quantitative data analysis follows a widely accepted standardised approach which has been fully documented elsewhere (Oppenheim, 1992). In contrast qualitative data analysis has not developed an explicit standardised approach (Strauss, 1987) and has therefore been considered as a highly personal activity (Walker, 1985). In view of this difference an overview and framework of qualitative analysis will be presented.

The analysis of qualitative data is a process of making sense, of finding and making a structure in the data, and giving this meaning and significance to the relevant audience. The primary concern of the analysis is to understand the world of the research participants as they construct it, that is to be "grounded" in reality (Glaser and Strauss, 1967). This "grounded" process of analysis systematically assesses between and through cases the form and nature of phenomena such as social processes, attitudes and behaviours. It searches for associations and explanations of why phenomena occur and is therefore able to develop new theories and typologies (Ritchie and Sykes, 1986).
The analysis of qualitative data is a creative process requiring intellectual rigour, a systematic approach and a great deal of hard work (Patton, 1987). The first step in the process involves the systematic aggregation and sorting of the data. This is initially achieved by repeatedly reading interview transcripts and listening to interview tapes. Through this process a "grounded" index of themes and topics can be devised from the data enabling all the transcripts to be then indexed and labelled. The second stage of the analysis involves content and inductive analysis of the data for its underlying patterns, themes and typologies. Typologies are classification systems made up of categories that divide some aspect of the world into parts. These can be either indigenous typologies arising directly from the data or analyst constructed typologies devised by the researcher. At this stage it may be useful in certain circumstances to create cross-classification matrices using the various dimensions generated. This can provide new insights into how the data can be organised and patterned. Once the task of organising and describing the data is completed, the final stage of analysis can be commenced, consideration of the causes, consequences and relationships within the data and the subsequent generation of a theoretical framework. It is important to note that naturalistic inquiry is not aimed at testing causal propositions although it may be possible through "grounded" analysis of the data to speculate, to make conjectures and formulate hypotheses over relationships within the data (Ritchie and Sykes, 1986; Patton, 1987).

3.2.4.4. Issues in Assuring Data Quality

Many quantitative researchers have been highly critical of qualitative methods in terms of the lack of explicit recognition given to the validity and reliability of qualitative data (Moser and Kalton, 1971; Lincoln and Guba, 1985). Others have argued that quantitative research is high on reliability but low on validity while the reverse is true of qualitative research (Filstead, 1970).
The validity and reliability of qualitative research can be improved by using a "grounded" and systematic approach in both data collection and analysis and through the process of triangulation. "Grounding" helps to ensure the validity of the data by ensuring that every generalisation and theory developed from the data was linked either directly or indirectly from the original data set (Glaser and Strauss, 1967). Triangulation is the process by which different data collection techniques and different research strategies are used to study the same topic to maximise the validity of the findings produced. Four types of triangulation are possible: (1) collecting different kinds of data on the same question; (2) using different researchers and interviewers to avoid the biases of any one person working alone; (3) using multiple methods to study a topic; and (4) using different perspectives or theories to interpret a set of data (Patton, 1987).

Reliability in qualitative methods can be improved by adopting a rigorous and systematic approach to the entire research process and by using more than one person in the research process (Walker, 1985)

3.2.5. Application of Research Theory to Practice

In view of this investigation's proposed aim and objectives and in the light of the theoretical considerations described above the optimal research approach for this study is the combined use of both qualitative and quantitative research methods. Any detailed assessment of the social context, motivating factors, influences and processes involved in food choices and dietary behaviour change necessitate a qualitative approach. An appropriately designed and implemented qualitative technique should enable the "private accounts" (Cornwell, 1984) of the young people involved to be uncovered and thereby produce a richer, fuller and more comprehensive understanding of the issues and concepts involved in the process of change. In addition to this qualitative
data there is also a clear need to assess quantitatively the extent and nature of dietary behaviour change within a wider population of young people as currently very little baseline information of this sort is available. The combination of both approaches will enable a more complete picture to be created of the topic under investigation. The second section of this chapter will now be presented the research design and process.

3.3. Research Process

3.3.1. Plan of Study and Background Preparation

The design of this study consisted of 3 key phases of data collection (Figure 8). An initial qualitative phase in which face-to-face semi-structured exploratory interviews were conducted. This was followed by a quantitative survey which collected data using a self-complete questionnaire. The final phase of data collection, the main qualitative element of the study was designed to collect detailed dietary information from a sub-group of young people who had completed the questionnaires and had identified themselves as engaged in some modification to their fat and/or sugar eating patterns. Again, as before, face-to-face semi-structured interviews were used.

![Figure 8 - Study Design.](image)
3.3.2. Consent

Prior to the commencement of the study a research outline was submitted to the University College London Medical School Ethics Committee for consideration and approval. Contact was also made with the local education authorities in Camden and Islington and the relevant departments in the local health authority to inform them of the research plans. It was especially important that the local schools health education co-ordinators should be fully informed of the research programme. Prior to each stage of data collection consent letters were sent to all the parents/guardians of the subjects (Appendix 1 and 2). In addition, all those students interviewed were asked for consent prior to commencing the interviews and at the same time reassurance was given in relation to confidentiality. The following sections will outline in some detail the exact process undertaken in each of the phases of the study.

3.4. Phase 1 - Initial Qualitative Study

3.4.1. Aim

The aim of the initial phase of the study was to uncover and determine, from a sample of young people, their views, feelings and experiences in relation to food and drinks, and in particular changes they may have planned or experienced. This information was collected through face-to-face semi-structured interviews and provided an initial insight into the topic and also assisted in the development of a self-complete questionnaire to be used in the next phase of the study.

3.4.2. Preparation and Piloting

The first stage in the research process was the development of a topic guide for use during an initial set of interviews (Appendix 3). A series of open questions were developed and then grouped into six sections. These included sections assessing basic biographical information, details of the social context...
and pattern of present dietary behaviour, experience and development of personal food skills, control over present diet, knowledge and attitudes towards healthy foods and past and present experience of dietary change. Once the topic guide had been constructed an initial series of pilot interviews were conducted to develop the appropriate interview technique and assess the suitability of the topic guide. Ten 14-15 year olds who were attending an orthodontic Community Dental Service clinic in the Camden and Islington area were approached, all ten agreed to be interviewed. All the interviews took place within the health centre and lasted between 25-50 minutes. Each interview was tape recorded and once all ten interviews had been completed minor modifications to the guide topic guide were undertaken as required. This included shortening and simplifying sections of the interview.

3.4.3. Sample and Main Interviews
This element of the study involved a series of face-to-face semi-structured interviews with 34 students aged 15 year olds who attended two Inner London secondary schools. The schools were randomly selected from school lists produced by Islington Education Authority. Two mixed ability form classes were then selected from each school and volunteers from each class asked to participate. Using the piloted topic guide, tape recorded interviews took place within the selected schools during school time. These lasted between 40-70 minutes and all the tapes were then fully transcribed.

3.4.4. Analysis of Data
Initially a sorting process was undertaken with the data in which all the transcripts were read through repeatedly and all the tape recordings listened to. This enabled the transcripts to be indexed and labelled. Resulting from this process it was then possible to assess any emerging themes and connections
within and between the interviews. This was achieved by mapping out the data and then grouping together similar and divergent ideas.

3.5. Phase 2 - Quantitative Study

3.5.1. Aim

Using a self-complete questionnaire the aim of the second stage of the research programme was to collect dietary behaviour data from a sample of young people and in particular identify the extent of any reported dietary changes. The information collected could then be used to identify young people currently engaged in modifying elements of their eating behaviour who could then be interviewed in greater depth about these changes.

3.5.2. Questionnaire Development

Utilising the key elements arising from the qualitative data from the first phase of the study and referring to a collection of questionnaires already used in previous dietary surveys involving young people (Health Education Authority, 1990b; Roberts et al, 1993), a self-complete questionnaire was designed for use in this section of the survey. During the early stages of the questionnaire development in order to assess the general acceptability and clarity of the questions a draft copy of the questionnaire was sent to ten 14-15 year old orthodontic clients attending the same Community Dental Services clinic used in the pilot stage of the first phase of the study. All ten questionnaires were returned with several useful comments which only suggested very minor modifications were required. The draft questionnaire was also shown to several experienced nutritional researchers who were able to make suggestions for modification particularly in relation to the food groups used in a variety of questions. In the light of these comments the questionnaire was modified.
3.5.3. Questionnaire Piloting

The two Islington Education Authority secondary schools used in the Phase One of the study were contacted and asked for their co-operation with this second phase of the research process. Only one of the schools agreed to be involved, the second school being too busy with exams to co-operate. From the pilot school two mixed ability classes of 14 year olds were selected and consent letters sent to all the parents/guardians of the students. During a 50 minute period the researcher distributed the questionnaires to each class and provided any additional information and guidance as required. The students were actively encouraged to write comments on the questionnaires where questions or instructions were not clear. In total all 54 students from both classes agreed to fill in and return the questionnaire.

The questionnaires were then assessed to determine how appropriate and acceptable they had been to the students. This pilot exercise identified several key problems with how the questionnaire had been designed. First, it was very apparent that the questionnaire was too long for many students to complete within a reasonable time span. Of the 54 questionnaires handed out, only 40 were completed fully during the 50 minute class. Second, the order in which the questions were asked was not suitable as a very important section on dietary change was placed as the final section of the questionnaire and this had been missed out by many of the students. Third, the pilot exercise revealed that certain questions were too complex and therefore not clear to the students. The questionnaire was shortened considerably with eight questions being totally removed and several others reduced in length, the question order modified and several questions were also simplified. The final questionnaire consisted of six key sections which included questions covering socio-demographic information, food frequency, eating patterns, food skills, dietary behaviour changes and knowledge and attitudes to food and drink (Appendix 4).
3.5.4. Sampling and Main Data Collection Process

From a full list of Camden Education secondary schools, four schools were selected for the main element of the research study. The schools were chosen to ensure that the final sample would be balanced in terms of gender, therefore two single sex and two mixed schools were selected. Initial contact with the schools was made by letter to a named teacher responsible for health education activities within each school. Following this initial contact the researcher visited each school to meet the individual teachers and explain in more detail the background and conduct of the study. All four schools agreed to participate, with all Year 9 students aged 13-14 years being the study sample from each school. Prior to the distribution of the questionnaires each student was given a letter of consent to take home to their parent/guardian which outlined the basis of the study and a contact name, address and telephone number should further details be required. During the study the researcher did not receive however any enquiries or refusals from any parents/guardians.

During May-July 1994 each school was visited and questionnaires were distributed to all Year 9 classes. In total 485 students completed questionnaires. At each visit an introduction to the study was given to each class together with instructions on how to complete the questionnaire. The study was described to the students as being interested in their dietary habits and views. At no time was the link between health and diet mentioned. Although students were requested to write their name on each questionnaire the confidentiality of their results was stressed. The questionnaires were all filled in during school time and took between 35-45 minutes to complete.

3.5.5. Data Coding and Analysis

Each returned questionnaire was subsequently coded and the data entered on to an Apple Macintosh computer for analysis using the Statistical Package for
Social Sciences (SPSS, 1990). Initially a descriptive analysis was undertaken to assess the general characteristics of the sample and their dietary patterns and behaviours. The chi-squared test was used to determine any statistically significant differences between the sexes and social classes. The analysis then focused in detail on the dietary changes undertaken by the sample. Three separate outcome variables were created to reflect the nature of changes undertaken (i) recent fat reduction only, (ii) recent sugar reduction only and (iii) recent fat and sugar reduction. A selection of 14 explanatory variables were then identified for inclusion in the analysis. Initially univariate relationships between each of the three outcome variables and the explanatory variables were examined using the chi-squared test. All explanatory variables which were found to have no statistical association with the outcome variable were then excluded from further analysis. To examine the relative importance of the remaining significant explanatory variables for each of the three outcome variables, three separate sets of multiple logistic regression analysis were performed. (See Table 22. for details of the explanatory variables used in analysis)

Logistic regression is a mathematical modelling approach which is very popular in quantitative research where an assessment of a relationship between several explanatory variables and a dichotomous outcome variable is being investigated. The logistic function has two key properties which render the technique particularly well for epidemiological research. Firstly the logistic function upon which the model is based always ranges between a value of 0 and 1, a feature which is good for describing probabilities within epidemiology. Secondly the S-shape of the logistic function appeals to epidemiologists as it indicates a threshold effect which is often applicable to the multivariable nature of many epidemiological questions (Kleinbaum, 1994).
<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>Variable Categorisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
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</tr>
<tr>
<td></td>
<td>female</td>
</tr>
<tr>
<td>Social class of household</td>
<td>manual</td>
</tr>
<tr>
<td></td>
<td>non manual</td>
</tr>
<tr>
<td>Self assessment of health</td>
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<tr>
<td></td>
<td>quite healthy</td>
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<tr>
<td></td>
<td>not healthy</td>
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<tr>
<td>Self assessment of weight</td>
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<td>rightweight</td>
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<td></td>
<td>underweight</td>
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<tr>
<td>Body mass index</td>
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<td>low</td>
</tr>
<tr>
<td>Healthy eating index</td>
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<td>fairly healthy eaters</td>
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<tr>
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<td>less healthy eaters</td>
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<tr>
<td>Snacking frequency</td>
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<td></td>
<td>one per week</td>
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<tr>
<td></td>
<td>two per week</td>
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<td></td>
<td>three per week</td>
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<tr>
<td></td>
<td>more than three per week</td>
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<tr>
<td>Breakfast frequency</td>
<td>five times per week or more</td>
</tr>
<tr>
<td></td>
<td>less than five times per week</td>
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<tr>
<td>Evening meal frequency</td>
<td>everyday</td>
</tr>
<tr>
<td></td>
<td>five to six times per week</td>
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<tr>
<td></td>
<td>four times a week</td>
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<tr>
<td>Lunch consumption</td>
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<td>Frequency of helping with cooking at home</td>
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<td>once per week or less</td>
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<td>more than once per week</td>
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<tr>
<td>Frequency of helping with food shopping</td>
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<td></td>
<td>two to six times a week</td>
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<tr>
<td></td>
<td>once per week or less</td>
</tr>
<tr>
<td></td>
<td>never</td>
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<tr>
<td>Frequency of reading sell by dates on food labels</td>
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<td></td>
<td>some times</td>
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<tr>
<td></td>
<td>rarely or never</td>
</tr>
<tr>
<td>Food and health attitude index</td>
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</tr>
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<td>intermediate</td>
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<tr>
<td></td>
<td>negative</td>
</tr>
</tbody>
</table>
3.6. Phase 3 - Main Qualitative Study

3.6.1. Aim

The central aim of the third phase of the study was to explore in depth using face-to-face interviews the background, processes and outcomes of dietary changes reported in the questionnaire. In addition to this, young peoples' conceptualisations of food were also investigated.

3.6.2. Sample

Following the completion of the questionnaires in Phase Two, an initial analysis was undertaken to identify those individuals who had reported making some changes to their eating patterns. Over 40% of the Phase Two sample were actively engaged in changing either or both their fats or sugars consumption. It was decided for both practical and theoretical reasons to interview only a 15% sub-sample of the Phase Two population making changes to their diets. This number would provide a sufficient diversity of opinion and experience to reflect the main themes and issues on the topic under investigation. On a practical basis any larger number of interviews would cause an unacceptable degree of disruption to the schools and therefore endanger the excellent co-operation received from the students and teachers involved so far. The final sample selected for interviewing was chosen to ensure a balanced mix of males and females and also a diverse range of experiences of dietary change. In total 81 individuals were interviewed, 41 males and 40 females.

3.6.3. Interview Preparation

Prior to the interviews with those who had changed, a topic guide was developed which included three key sections (Appendix 5). The interviews were planned to commence with a set of general questions about the young persons background including details about their family, friends, social interests and thoughts about school. This was designed to encourage the interviewees to
relax and feel comfortable talking in an open manner. The second section in the interview explored the young persons' concepts of foods and drinks by presenting the subjects with a selection of cards each with a food or drink written on it (Appendix 6). The named foods and drinks were previously listed in the food frequency section of the questionnaire used in Phase Two. The subject was then asked to consider the range of foods and drinks presented and rearrange them into any groupings that linked the items together in some way. Once this had been achieved the basis for the associations were explored together with their feelings, experiences and thoughts towards the foods and drinks involved. The final section of the interview was planned to focus in detail on the reported dietary changes highlighted in the previous Phase Two questionnaire. As an aid to this process a summary sheet was devised which summarised the responses given in the previously completed questionnaire (Appendix 7). The background and basis of the reported dietary changes were discussed as well as the processes involved in the changes.

Due to the large numbers of interviews planned and the limited access to schools it was decided to use two interviewers, the main researcher and an experienced social sciences researcher (KP). To ensure a standardised interview approach several steps were taken. Initially both researchers met and discussed in some detail the background and aims of the study and in particular the content and approach of the planned interviews. Minor modifications and clarifications were then made to the interview topic guides. For the first set of interviews each researcher observed the other doing the interviews and afterwards both discussed in detail the interview techniques and methods used. This lead to minor modifications to the interview process. Throughout the data collection both researchers visited schools together each interviewing approximately even numbers of females and males.
3.6.4. Data Collection

In total 81 individual interviews took place from the four Camden secondary schools. All the interviews took place within the school environment during school time and lasted between 15-35 minutes. Only one student refused permission to tape record the interviews, all others consented willingly. All the tapes were then fully transcribed.

3.6.5. Analysis of Data

The Phase Three data set was initially analysed in the same manner as was the case with the Phase One data. All interview transcripts were read through several times and interview tapes listened to to assess if any additional information had been omitted from the transcripts. The data was then sorted and labelled. This enabled a more detailed content analysis to be undertaken in which any underlying patterns, themes and typologies within the data were assessed. This process was "grounded" by constantly checking with the original interviews. The final stage in the analysis involved producing a theoretical framework from the content analysis.

3.6.6. Steps Taken in Assuring Data Quality

Several steps were undertaken prior to, during and after data collection to assure the validity and reliability of the research findings. Firstly, as has been described in some detail, an ordered and systematic research design and process was undertaken throughout this study. The methods used in each phase of the study were fully piloted and every effort was made to ensure a standard approach was adopted within the different schools involved. An added strength of the research design was the ability to link and build upon the different phases of the study. The research design was therefore very much "grounded" within the original data.
In addition through a complex process of triangulation a series of other quality checks were undertaken (Figure 9).

![Triangulation Process Diagram]

Figure 9 - Triangulation Process.

The use of both quantitative and qualitative research methods enabled a comparison to be made between the data. For example, answers to certain questions within the questionnaire used in Phase 2 could be assessed against the responses given during the Phase 3 interviews. To avoid individual bias during the Phase 3 interviewing two interviewers, one male and one female were used in all four schools visited. A standard interview technique was employed by both interviewers. With the analysis of the Phase 3 interview data an experienced qualitative researcher independently assessed and analysed the transcripts. This enabled an independent comparison to be made with the results from Phase 3. Lastly the findings from all three Phases of the study were compared and contrasted with published data. In addition comparison was also made with a local study conducted by the Public Health Department, Camden and Islington Health Authority which assessed a range of health behaviours including dietary patterns of young people attending local secondary schools.
3.7. Summary

To satisfy this investigations aim and objectives a combined qualitative and quantitative research approach was adopted. The complementary nature of both approaches has produced a complex data set which should provide detailed insight into the nature and processes of dietary behaviour change within the study samples population of young people. The next chapter will present the results of the study.
Chapter 4

Results
4.1. Introduction
The results from the three separate phases of the study will now be presented. The interview data from Phase 1 provides an initial overview of the eating patterns of a group of young people attending two Islington secondary schools. The results from the Phase 2 questionnaire based element of the study will quantitatively assess, from a sample of young people attending four Camden secondary schools their eating behaviours and patterns. A particular focus is the description of the extent and features of diet changes undertaken. The final section presents the qualitative data collected in Phase 3 which concentrates on a detailed account and analysis of the process and experiences of diet change undertaken by a sub-group from the Phase 2 sample.

4.2. Phase 1 Initial Qualitative Study
The primary purpose of the Phase 1 interviews was to gain an initial insight into young peoples dietary patterns and their experiences of diet change. The results from this initial stage will be presented in two sections. The first section will describe an overview of the eating patterns and behaviours of those interviewed, including their involvement in family meals and the degree of control they exert over their eating habits. The second section will then explore their views towards healthy foods and their experiences of changing any elements of their dietary patterns.

The interview data also facilitated the appropriate development of the Phase 2 questionnaire, both in terms of the language used and the specific content of various questions. In addition these initial interviews provided some guidance in the development and design of the Phase 3 interview topic guide.
4.2.1. Eating Patterns

The majority of the young people's eating patterns followed a regular habitual routine in terms of the location of eating, it's timing, the social contacts associated with eating and the actual foods and drinks consumed. All these factors appeared to fall into a regular pattern which fitted into the general structure of their daily lives.

A number reported missing breakfast, especially on schooldays. The main reasons given for this included a lack of time first thing in the morning and the inability to eat anything at that time of day. At lunch time a very clear pattern of behaviour was evident. The majority choosing to buy lunch from local shops outside school and then to wander around the local streets eating their food with friends. The main reasons for not eating school meals included perceived high cost, the poor quality of food provided within school, the lack of choice, the excessive time spent queuing in the school canteens and the small portions of food served.

For Peter school dinners were clearly not felt to be a good option for his lunch:

Lunch time well I used to have school dinners when there was a good variety but I didn't like the size of queues and I don't like waiting too long......... the food isn't very nice so mostly I go out and sort of buy whatever I feel like.

In the evenings, during the week the majority ate their meals in front of the television. This was seen as being the standard thing to do, some watched television and ate alone, often in their bedrooms, whereas others would eat their meals and watch television with other members of their family. During the week, meals at home were seen to be very casual and flexible occasions with different family members eating separately depending upon their other
commitments. At weekends however meals were seen to be more of a family affair when families would sit together and eat "proper meals" without the television on.

Snacking was commonly reported and was considered an important and routine element of their dietary patterns. Principal snack foods consumed included fizzy drinks, confectionery and crisps. During school time snacking took place at two clearly defined times of the day, on the way to school and during morning break.

Although the young people lived in a diverse range of family units a very similar pattern of family roles in relation to food and eating was evident. Mothers/stepmothers and to a much lesser extent fathers/stepfathers were the key members of the household responsible for shopping, preparing and cooking foods. Shopping, very much like eating, also fell into a habitual routine. For the majority of the households most of the foods used were bought on a weekly shopping trip. This very often took place on the same day of each week with the same shop being visited and very largely the same foods being bought each week.

Discussion over the exact content of meals were often held in the households, parents consulting with other members of the family on what they would prefer to eat. These discussions often led to some conflict and disagreement due to the varying individual tastes and preferences between members of the family.

In Sue's family, conflict over eating was very evident:

We all choose different things sometimes and then mum gets angry, she says she's not going to cook separate dinners. 
............ my mum doesn't like to throw good food away, but dad
doesn't care. Mum gets angry because she's a strict Catholic, so if my mums in the kitchen I throw it out of the window. The birds will eat it or I chuck it in the bin.

In terms of food skills the majority, both males and females lacked general experience in cooking and preparing foods and expressed a lack of interest in this topic. Most could not cook a meal for other members of their family although the majority helped clear the meal table or washed up after meals. A small number of the females expressed their open resentment over the idea of learning to cook, associating it with traditional gender roles that they did not wish to follow.

Jenny was very clear in her hostility to cooking:

No I don't really want to learn, I don't want to be a housewife........ I can make cakes but I can't cook dinners.

4.2.2. Views of Healthy Eating and Experiences of Diet Changes

When the respondents discussed their views of healthy and unhealthy foods some interesting points emerged. The perceived reasons why healthy foods were considered beneficial to health for some were linked to notions of growing, building up muscles and bones and general body functioning

Gary considered eating healthy foods as having lots of positive benefits:

They sort of help the muscles and make the bones healthy as well and make the body function better.

However, for a number of others there was some uncertainty as to what the exact benefits of healthy eating was. It appeared for some just to be an accepted fact which they did not really understand.
In general there was clearer agreement on the perceived reasons that unhealthy foods were harmful, this being linked to the notion of disease development. Foods and drinks with high levels of fat in particular, but also sugar and salt were seen to be unhealthy. They were seen to be associated with development of diseases such as heart disease, dental caries and diabetes, although the mechanisms involved were often unclear.

With Jeremy the dangers of a high fat diet were very apparent:

Fatty foods, chips and burgers ...... they get stored round your heart and you get heart disease.

However Diane stressed the importance of moderation in her eating and appeared less certain over the hereditary as opposed to dietary causes of disease:

All the cakes and biscuits, you can eat a bit but not a lot of them. I don't eat things with a lot of fat on them anyway apart from crisps, so I eat a lot of salt as well. Salts bad for you and sugar. If you eat a lot of sugar you can get diabetes, my nans got it. I'm not sure though if you do inherit it as well - I think it can be contracted through eating a lot of sugar.

In spite of these responses it was clear that for the majority of the young people interviewed healthy eating was not a topic that interested or bothered them. Most appeared to hold the general view that at this point in their lives healthy eating was not relevant to them even although they appeared well informed of the factual information.

Although Tom appeared to be well informed about the topic, it was seen as being personally not relevant to him:
It's bad for your heart if you're fat you can have a heart attack, I don't really think of that. If we talk about it at school it goes in one ear and out the other, I don't really pay much attention......... I don't really like things like healthy foods that much.

For some like Jed healthy foods did not fit into their busy schedules and were therefore dismissed:

I can't be bothered it is too much of a problem for me I need to have things quickly and to have healthy things takes a lot longer and is more of an effort.

When the issue of dietary change was discussed, many reported that in the past when they were younger and attending primary school their parents and teachers exerted a stricter degree of control over their eating patterns. Therefore more of them reported eating breakfast and school meals and there was a greater restriction in the types and amounts of snack foods routinely consumed in the past.

For many, growing up and gaining greater autonomy within the home had an impact on their eating patterns as was the case with Nick:

When I was about nine things were much more strict at home with what we could eat, whereas now I can go to the fridge and eat anything.

Most of those interviewed reported personal experience of current and/or previous attempts to alter their diets in some way. The main food items where change was attempted included fatty foods, sweets and chocolates and fizzy drinks. The reasons given for trying to change by both females and males
included a concern about weight, body shape, spots and teeth all of which were seen to be related to body image and social attractiveness. When asked in detail about their experiences of modifying their diets most had made frequent repeated attempts at change. Very few individuals appeared to succeed with a change at a first attempt.

Helen's experience was similar to many others:

I'm quite happy with everything at the moment but sometimes I feel too fat so I try and lose some weight. It never works but I try.

The main barriers preventing successful change included pressure from friends and family, the availability and costs of alternative food options, and the unpleasant taste and unappealing nature of alternative food options. Factors identified as assisting changes to be maintained included a modification of school and family routines associated with the previous eating behaviours, support and encouragement from friends and family and lastly a greater selection of food items to select at school and within the home environment.

4.2.3. Summary

These interviews provided an initial insight into young people's dietary patterns and experiences of diet change. The results highlight the influence of social factors upon dietary patterns and of the apparent complexity of maintaining diet changes. These points will now be explored in greater detail.
4.3. Phase 2 Quantitative Study

A descriptive presentation of the Phase 2 results will initially be presented. This will include general details of the sample, information on their consumption of different foods and drinks, their eating patterns and their level of knowledge and attitudes towards food and health. Valid percentages will be used unless otherwise stated. The results of cross tabulations for both sex and social class differences will be presented for statistically significant results (set at 0.05 level) using the chi-squared test.

General details of dietary changes in fat and sugar consumption will then be presented, together with the reasons given for the changes and the facilitating factors supporting potential future changes. Results from analysis assessing the more detailed nature of dietary changes will then be presented. The results from three separate sets of analysis comparing 14 key explanatory variables with those reducing, within the last six months their fat intakes, sugar intakes and then both fat and sugar intakes will then be presented. Differences being assessed by the chi-squared tests. From this analysis the significant variables related to recent fat reduction, recent sugar reduction and combined fat and sugar recent reduction are identified. The final stage of the analysis involved assessing through the use of logistic regression analysis the relative importance of the significant variables in predicting reductions in fat only, sugar only and combined fat and sugar.

4.3.1. Sample Characteristics

In total, 485 questionnaires were returned from the four Camden schools visited, 479 were amenable to analysis. The sample consisted of 289 males (60.3%) and 190 females (39.7%) with a mean age of 14.3 years (SD 0.47) and 14.3 years (SD 0.54) respectively. A broad range of ethnic groups was represented within the sample (Table 6).
Table 6 - Ethnicity of Study Sample (n=476)

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White UK</td>
<td>293</td>
<td>61.6%</td>
</tr>
<tr>
<td>Insh</td>
<td>14</td>
<td>2.9%</td>
</tr>
<tr>
<td>Black Caribbean</td>
<td>25</td>
<td>5.3%</td>
</tr>
<tr>
<td>Black African</td>
<td>20</td>
<td>4.2%</td>
</tr>
<tr>
<td>Indian</td>
<td>9</td>
<td>1.9%</td>
</tr>
<tr>
<td>Pakistani</td>
<td>5</td>
<td>1.1%</td>
</tr>
<tr>
<td>Bangladeshi</td>
<td>35</td>
<td>7.4%</td>
</tr>
<tr>
<td>Chinese</td>
<td>8</td>
<td>1.7%</td>
</tr>
<tr>
<td>Greek</td>
<td>13</td>
<td>2.7%</td>
</tr>
<tr>
<td>Turkish</td>
<td>4</td>
<td>0.8%</td>
</tr>
<tr>
<td>Other</td>
<td>50</td>
<td>10.5%</td>
</tr>
</tbody>
</table>
| **Total**        | **476**   | **100.0**%

Sixty three percent of the sample lived with two parents and 37% with a single parent. Using the Registrar Generals Classification of Social Class (OPCS, 1990), each young persons household was classified (Table 7).

Table 7 - Parental Social Class of Sample Based on Occupation of Head of Household (n = 412)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Manual</td>
<td>161</td>
<td>39.1%</td>
</tr>
<tr>
<td>Manual</td>
<td>251</td>
<td>60.9%</td>
</tr>
</tbody>
</table>
| **Total**      | **412**   | **100.0**%

Based on self reported measures, the mean height of the males was 1.64m (SD 0.09) and for females 1.61m (SD 0.08). The mean weight of the males was 52.6kg (SD 9.22) and for females it was 51.6kg (SD 8.63). The Body Mass Index (BMI), measured as weight (kg)/height (m$^2$) was 19.0 (SD 2.96) for the males and 19.8 (SD 3.21) for the females. For the whole sample, the minimum BMI score was 11.4 and the maximum value was 35.1. Only 16 (5%) individuals had a BMI score of over 25.

In terms of money spent each week on food, meals or snacks 68.1% of the sample spent more than £5 each week, 12.2% between £3 and £4.99, 13.7% between £1 and £2.99, and 6.1% less than £1 each week. Cross tabulation by
sex and social class revealed a statistically significant difference between males and females but not between the social class groupings.

When asked to rate their health 21.0% considered themselves to be very healthy, 62.9% quite healthy and only 5.7% not healthy. With their weight, 23.5% felt they were overweight, 58.8%, the right weight and 11.4% considered themselves to be underweight. There was a significant difference between males and females, with females more likely to perceive themselves to be overweight than the males. When the BMI scores were compared to their weight perceptions, it was found that 82% who perceived themselves to be overweight had a BMI score of less than 25, indicating that they were not in fact overweight.

4.3.2. Food Frequencies
The frequency of reported consumption of twenty six food and drink items is presented in Table 8, divided into food groups. The items most likely to be consumed at least daily were semi/skimmed milk, fresh fruit, tea or coffee, fruit juices, and sweets. Full fat milk, yams, milkshakes and diet fizzy drinks were eaten never or very rarely by over one third of the sample. Significant differences in consumption were demonstrated by both social class and sex for meat, meat products, chips, other vegetables, fruit juices, fizzy drinks, wholemeal breads, biscuits and cakes, sweets and savoury snacks. Males and individuals from manual households consumed meat, meat products, chips, fizzy drinks, biscuits and cakes, and savoury snacks more frequently than did females and those from non manual households. Significant differences by social class alone were discovered for cheese, fruit and pasta with individuals from non manual homes eating these foods on a more frequent basis than those from manual households. For full fat milk, potatoes, milkshakes, white breads and rice a significant difference between the sexes was shown with males
Table 8 - Food frequency percentages for 26 food items according to sex and social class (n = 479)

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Never or very rarely</th>
<th>Once week or less</th>
<th>2-6 times week</th>
<th>Once day</th>
<th>More than once day</th>
<th>Missing</th>
<th>Social Class</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meats, Poultry &amp; Fish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>meats</td>
<td>11.5</td>
<td>31.1</td>
<td>41.8</td>
<td>8.8</td>
<td>4.2</td>
<td>2.7</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>meat products</td>
<td>15.2</td>
<td>43.2</td>
<td>30.5</td>
<td>6.1</td>
<td>1.3</td>
<td>3.8</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>poultry</td>
<td>11.5</td>
<td>53.2</td>
<td>27.3</td>
<td>3.1</td>
<td>2.1</td>
<td>2.7</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>fish</td>
<td>31.7</td>
<td>42.6</td>
<td>18.2</td>
<td>2.5</td>
<td>1.5</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dairy Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>full fat milk</td>
<td>38.6</td>
<td>9.4</td>
<td>12.5</td>
<td>16.5</td>
<td>16.1</td>
<td>6.9</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>sem/skimmed milk</td>
<td>27.1</td>
<td>10.6</td>
<td>15.0</td>
<td>21.9</td>
<td>18.6</td>
<td>6.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cheese</td>
<td>15.0</td>
<td>26.5</td>
<td>38.2</td>
<td>12.3</td>
<td>4.4</td>
<td>3.5</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>eggs</td>
<td>15.2</td>
<td>39.0</td>
<td>35.3</td>
<td>5.0</td>
<td>2.7</td>
<td>2.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit &amp; Vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fruit</td>
<td>2.3</td>
<td>16.1</td>
<td>30.9</td>
<td>22.5</td>
<td>25.9</td>
<td>2.3</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>potatoes</td>
<td>5.4</td>
<td>34.7</td>
<td>44.9</td>
<td>10.6</td>
<td>2.9</td>
<td>1.5</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>chips</td>
<td>6.1</td>
<td>34.4</td>
<td>46.6</td>
<td>7.9</td>
<td>3.1</td>
<td>1.9</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>yams</td>
<td>65.3</td>
<td>16.1</td>
<td>7.3</td>
<td>1.7</td>
<td>1.0</td>
<td>8.6</td>
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<td></td>
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<tr>
<td>other vegetables</td>
<td>14.8</td>
<td>27.3</td>
<td>36.1</td>
<td>13.8</td>
<td>5.0</td>
<td>2.9</td>
<td>*</td>
<td></td>
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<tr>
<td>beans &amp; pulses</td>
<td>17.5</td>
<td>38.2</td>
<td>33.8</td>
<td>5.2</td>
<td>1.5</td>
<td>3.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tea or coffee</td>
<td>22.1</td>
<td>16.3</td>
<td>21.5</td>
<td>17.5</td>
<td>19.8</td>
<td>2.7</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>fruit juices</td>
<td>5.8</td>
<td>16.8</td>
<td>24.6</td>
<td>25.9</td>
<td>21.9</td>
<td>2.9</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>milkshakes</td>
<td>32.6</td>
<td>45.1</td>
<td>13.8</td>
<td>3.5</td>
<td>1.9</td>
<td>3.1</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>diet fizzy drinks</td>
<td>35.1</td>
<td>25.7</td>
<td>13.8</td>
<td>11.7</td>
<td>8.6</td>
<td>5.2</td>
<td>*</td>
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<tr>
<td>fizzy drinks</td>
<td>8.8</td>
<td>21.3</td>
<td>32.2</td>
<td>18.4</td>
<td>16.1</td>
<td>3.3</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Breads, Rice &amp; Pasta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>white breads</td>
<td>4.6</td>
<td>17.7</td>
<td>34.4</td>
<td>24.4</td>
<td>16.1</td>
<td>2.7</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>wholemeal breads</td>
<td>15.7</td>
<td>26.5</td>
<td>27.8</td>
<td>16.3</td>
<td>8.4</td>
<td>5.4</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>rice</td>
<td>12.5</td>
<td>45.7</td>
<td>28.0</td>
<td>6.7</td>
<td>5.0</td>
<td>2.1</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>pasta</td>
<td>8.6</td>
<td>46.1</td>
<td>37.6</td>
<td>2.1</td>
<td>1.9</td>
<td>3.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweets &amp; Snacks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>biscuits, cakes &amp; buns</td>
<td>6.9</td>
<td>33.2</td>
<td>29.9</td>
<td>18.0</td>
<td>10.4</td>
<td>1.7</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>sweets</td>
<td>4.2</td>
<td>19.6</td>
<td>31.7</td>
<td>23.2</td>
<td>19.0</td>
<td>2.3</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>savory snacks</td>
<td>6.5</td>
<td>19.6</td>
<td>34.9</td>
<td>22.8</td>
<td>14.2</td>
<td>2.1</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

(* p < 0.05)
consuming more frequently full fat milk, milkshakes, and white bread and females eating more frequently potatoes.

4.3.3. Healthy Eating Index

To assess how healthy the study samples eating habits were a healthy eating index was constructed using a selected number of items from the food frequency section of the questionnaire. Following detailed discussions with three experienced research nutritionists 9 items were selected for inclusion in the index. They were sweets, wholemeal bread, fizzy drinks, other vegetables, fruit, chips, meat products, skimmed milk, and pasta. These items were considered relevant to the study sample's consumption patterns and were considered to be good indicators of both good and poor eating practices for fat, sugar and fibre consumption. It must be stressed that due to the limitations of the food frequency questionnaires such an index does not provide a detailed or very accurate indicator of healthy eating practices. However, as a means of comparison between population groups such an indicator has some value. Each selected item was firstly recoded and allocated a value of either 1 indicating a healthy choice or 0 a unhealthy option. Finally, a total score was calculated by adding individual scores together which were then grouped into three categories, "healthy eaters" (score 7-9), "fairly healthy eaters" (score 4-6) and "less healthy eaters" (score 0-3) (Appendix 8). When this index was applied 23.2% of the sample were classified as "healthy eaters", with 61.3% as "fairly healthy eaters" and only 15.5% as "less healthy eaters" (Table 9). There were significant differences between the healthy eating scores for sex and social class, with males and individuals from manual households being more likely to be amongst the "less healthy" eating group.
Table 9 - Healthy Eating Index Groups (n = 406)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Less healthy&quot;</td>
<td>63</td>
<td>15.5</td>
</tr>
<tr>
<td>&quot;Fairly Healthy&quot;</td>
<td>249</td>
<td>61.3</td>
</tr>
<tr>
<td>&quot;Healthy&quot;</td>
<td>94</td>
<td>23.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>406</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.3.4. Eating Patterns

53.3% reported consuming some food and drink every day at breakfast time, with 25.5% having breakfast at least once a week, 12.4% at weekends only and 8.8% less than once a week or never. The main items consumed at breakfast included cereals, toast, hot drinks and fruit juices. Females were more likely not to have breakfast every day compared to males.

For their lunch time meal, 31.1% reported having school dinners, 14.6% packed lunch, 35.9% fast food or takeaways, 8.0% went home for lunch, 7.2% reported to have something else and 3.2% never had lunch. Males were far more likely to eat fast food or takeaway than females and individuals from manual households were more likely to have school dinners than their non-manual counterparts. The majority (83.4%) ate an evening meal at home every day although females were less likely to eat at home every night than males. When asked about the number of snacks consumed the previous day, 32.0% reported consuming more than three snacks, 28.0% three snacks, 24.7% two snacks a day, 11.6% only one snack and 3.7% had no snacks the previous day. There was a significant difference for frequency of snack consumption between the sexes and social classes, with males and individuals from manual households more likely to consume more than three snacks a day. When questioned about their degree of choice over meal time foods 41.1% reported to have a choice over most things, 36.8% some things, 18.9% a few things and 3.2% nothing.
4.3.5. Food Skills

Over 70% reported helping with the cooking at home only once a week or less (Table 10). A significant difference for cooking frequency between the sexes and social classes was found, with females and individuals from non manual households more likely to be involved with cooking than males and individuals from manual households.

Table 10 - Frequency of Providing Cooking Assistance Within Household (n = 447).

<table>
<thead>
<tr>
<th>Cooking Assistance</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyday</td>
<td>25</td>
<td>56</td>
</tr>
<tr>
<td>2-6 Times Week</td>
<td>103</td>
<td>23.0</td>
</tr>
<tr>
<td>Once Week or Less</td>
<td>229</td>
<td>51.2</td>
</tr>
<tr>
<td>Never</td>
<td>90</td>
<td>20.1</td>
</tr>
<tr>
<td>Total</td>
<td>447</td>
<td>100.0</td>
</tr>
</tbody>
</table>

For those with experience of cooking, the main methods used to cook were heating up foods, baking, grilling and frying. When asked how they had learnt to cook by far the most important source of assistance was their family (84.2%) or through self learning (35.3%), with very few mentioning schools (13.1%), friends (5.6%) or magazines and books (10.7%). There was no statistical significant difference between learning to cook by sex or social class.

With food shopping 6.7% reported helping with family food shopping every day, 17.9% helped between 2-6 times a week, 65.5% helped once a week or less and 9.9% reported never helping with the shopping. Females were more involved with shopping than males.

Finally, in terms of reading information provided on food labels, the sell by dates was the information read most frequently, 77.9% did that on most occasions, compared to 16.3% and 14.5% for the list of ingredients and nutritional information respectively.
4.3.6. Knowledge and Attitudes Towards Food and Health

The overall food knowledge displayed by the majority of the sample was good. For example, nearly 90% correctly identified the positive role of fruit and vegetables consumption on health and the harmful effects of consuming sugary foods and drinks on teeth. One area where some confusion was apparent however was the importance of eating red meat where no clear consensus emerged. Over 25% of the sample also stated that they did not know enough about which foods are good for health (Table 11). Few statistically significant differences between the sexes and social classes were revealed for the majority of the knowledge questions. There were significant differences between males and females in relation to the importance of eating plenty red meat and fried foods, with significantly more males agreeing with these statement than females. Significant differences by social class only emerged for the question relating to heart disease, more individuals from non manual households agreeing with the statement linking diet with heart disease than their manual equivalents, while the reverse was the case over the statement stressing the importance of eating red meat.

Table 11 - Knowledge About Food and Health (n=479)

<table>
<thead>
<tr>
<th>Knowledge Statements</th>
<th>Number Missing</th>
<th>I agree (%)</th>
<th>I neither agree nor disagree (%)</th>
<th>I disagree (%)</th>
<th>I don't know (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Eating fruit and vegetables is good for people</td>
<td>66</td>
<td>95.2</td>
<td>2.9</td>
<td>0.7</td>
<td>1.2</td>
</tr>
<tr>
<td>b A poor diet increases most peoples' chances of a heart attack</td>
<td>74</td>
<td>73.7</td>
<td>11.1</td>
<td>3.5</td>
<td>11.9</td>
</tr>
<tr>
<td>c Sweets and soft drinks can damage teeth</td>
<td>75</td>
<td>89.9</td>
<td>3.7</td>
<td>3.5</td>
<td>3.0</td>
</tr>
<tr>
<td>d It's important to eat plenty of red meat</td>
<td>84</td>
<td>18.5</td>
<td>28.6</td>
<td>35.9</td>
<td>17.0</td>
</tr>
<tr>
<td>e Low fat milk is generally better for people than full fat milk</td>
<td>78</td>
<td>69.6</td>
<td>14.7</td>
<td>5.5</td>
<td>10.2</td>
</tr>
<tr>
<td>f Eating fried food is good for people</td>
<td>82</td>
<td>5.0</td>
<td>14.9</td>
<td>73.6</td>
<td>6.5</td>
</tr>
<tr>
<td>g I don't know enough about which foods are good for you</td>
<td>74</td>
<td>32.3</td>
<td>20.0</td>
<td>36.0</td>
<td>11.6</td>
</tr>
</tbody>
</table>

- 131 -
When asked where they would most likely get more information about food, the main food information sources identified included their family (80.6%), food labels (71.8%), health professionals (67.8%), cooking books (66.7%) and supermarket leaflets (58.8%).

In response to a range of questions exploring attitudes towards food and health a more diverse range of responses emerged than for the knowledge based questions (Table 12). To assess the samples' overall attitude towards food and health an index was constructed by combining their responses to the 5 attitudinal questions (Appendix 9).

<table>
<thead>
<tr>
<th>Attitude Statements</th>
<th>Number Cases</th>
<th>I agree (%)</th>
<th>I neither agree nor disagree (%)</th>
<th>I disagree (%)</th>
<th>I don't know (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. People of my age don't need to worry about the foods they eat</td>
<td>56</td>
<td>16</td>
<td>21.0</td>
<td>54.8</td>
<td>8.0</td>
</tr>
<tr>
<td>b. Experts never agree which foods are good for you</td>
<td>70</td>
<td>29</td>
<td>24.0</td>
<td>22.7</td>
<td>23.5</td>
</tr>
<tr>
<td>c. I find healthy foods too boring</td>
<td>69</td>
<td>30</td>
<td>24.4</td>
<td>39.0</td>
<td>6.3</td>
</tr>
<tr>
<td>d. As long as you are reasonably active you can eat what you like</td>
<td>71</td>
<td>31</td>
<td>24.0</td>
<td>32.8</td>
<td>12.0</td>
</tr>
<tr>
<td>f. Learning to cook interests me a lot</td>
<td>69</td>
<td>45</td>
<td>21.7</td>
<td>23.2</td>
<td>9.5</td>
</tr>
</tbody>
</table>

The Food and Health Attitude Index divided the sample into three groups according to their total scores for the five questions. 32.1% were classified as having generally "positive" views towards food and health, 49.4% expressed "intermediate" opinions and 18.5% were classified as "negative" in their overall attitude to food and health. There were significant differences between the attitudinal scores for both the sexes and social classes, with males and individuals from manual households being more likely to be amongst the "negative" attitude group.
4.3.7. Dietary Change

Just over 20% were either currently or previously a vegetarian (defined as someone who does not eat any meat, fish or poultry). Females and individuals from non-manual households were far more likely to have experience of vegetarianism.

4.3.7.1. Fat Change

During the last 6 months, 47.8% had not changed the fat consumption in their diets, 13.7% said they had previously reduced their fat intakes more than 6 months ago, with 36.4% reporting having reduced their fat intakes and only 2.1% having increased their consumption (Table 13). Significantly more females reported reducing their fat consumption during the last 6 months than males.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not changed</td>
<td>223</td>
<td>47.8</td>
</tr>
<tr>
<td>Already Reduced</td>
<td>64</td>
<td>13.7</td>
</tr>
<tr>
<td>Reduced In Last 6 Months</td>
<td>170</td>
<td>36.4</td>
</tr>
<tr>
<td>Increased In Last 6 Months</td>
<td>10</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td>467</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3.7.2. Sugar Change

Changes in sugar consumption were broadly similar to those for fat (Table 14); 14% making a previous change and 33.5% a recent reduction in their sugar consumption. Individuals from non manual households were more likely to have reduced their sugar consumption in the last 6 months than their manual equivalents.
91 individuals (20.3%) reported having changed both their fat and sugar intakes within the last 6 months.

4.3.7.3. The Transtheoretical Model of Change

The Transtheoretical Model of Change (TMBC) has been developed to describe and assess the various stages of change undertaken in various health related behaviour changes (Prochaska and DiClemente, 1991). One of the objectives of this study was to test the applicability of the model to diet change within a population of young people. Percentage scores were calculated for each of the stages in the model for fat and for sugar change. This was done by devising and applying a specially designed algorithm (Appendix 10). A broadly similar set of results were produced for both fat and sugar change (Table 15). Over 30% of the sample were in the 'precontemplation stage' for their fat and their sugar consumption. That is they had not thought about changing their diets in relation to fat or sugar. Much smaller percentages, only 9.2% for fat and 7.5% for sugar were at the stage of 'contemplating making a change', whilst 5.8% and 5.2% respectively for fat and sugar at the stage of preparation, having made the 'decision to change' but as yet had not taken any steps to put the decision into effect. 18.8% were in the 'action stage' that is currently engaged in the process of reducing their fat consumption compared to 15.4% who were actively reducing their sugar consumption. Within the defined 6 month period, 11.7% for fat and 11.3% for sugar had made a change and were now in the process of
'maintaining' their modified diets, whereas 2.5% for fat and 2.7% for sugar had attempted to change but had now 'lapsed' back to their original diets. Those that had changed either their fat or sugar consumption over 6 months ago and had maintained the changes since then were classified in the 'stable change' group; 13.4% and 13.2% for fat and sugar respectively.

<table>
<thead>
<tr>
<th>Stage of Change</th>
<th>Fat Change (Percent)</th>
<th>Sugar Change (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precontemplation</td>
<td>31.3</td>
<td>34.0</td>
</tr>
<tr>
<td>Contemplation</td>
<td>9.2</td>
<td>7.5</td>
</tr>
<tr>
<td>Preparation</td>
<td>5.8</td>
<td>5.2</td>
</tr>
<tr>
<td>Action</td>
<td>18.8</td>
<td>15.4</td>
</tr>
<tr>
<td>Maintenance</td>
<td>11.7</td>
<td>11.3</td>
</tr>
<tr>
<td>Lapse</td>
<td>2.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Stable Change</td>
<td>13.4</td>
<td>13.2</td>
</tr>
<tr>
<td>Missing</td>
<td>7.3</td>
<td>10.7</td>
</tr>
</tbody>
</table>

Total  100.0  100.0

When the model was applied to males and females separately, a very different set of findings was produced (Table 16). For both fat and sugar significantly more males were in the precontemplation stage, whereas significantly more females were found to be in the contemplation and action stages. With fat significantly more females were also found in the maintenance stage and with sugar more females were found in the preparation stage.

<table>
<thead>
<tr>
<th>Stage of Change</th>
<th>Fat Change</th>
<th>Sugar Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males (n=289)</td>
<td>Females (n=190)</td>
</tr>
<tr>
<td>Precontemplation</td>
<td>40.5</td>
<td>17.4</td>
</tr>
<tr>
<td>Contemplation</td>
<td>5.9</td>
<td>14.2</td>
</tr>
<tr>
<td>Preparation</td>
<td>6.2</td>
<td>5.3</td>
</tr>
<tr>
<td>Action</td>
<td>17.3</td>
<td>26.3</td>
</tr>
<tr>
<td>Maintenance</td>
<td>9.0</td>
<td>15.8</td>
</tr>
<tr>
<td>Lapse</td>
<td>2.4</td>
<td>2.6</td>
</tr>
<tr>
<td>Stable Change</td>
<td>13.1</td>
<td>13.7</td>
</tr>
<tr>
<td>Missing</td>
<td>5.6</td>
<td>4.7</td>
</tr>
</tbody>
</table>

Total  100.0  100.0  100.0  100.0
4.3.7.4. Reasons for Change

When those who had reported changing either their fat or sugar consumption within the last 6 months were asked the reason for the change, two main reasons were identified, a desire to improve appearance or for health reasons. Concern about appearance was the main reason given, over 60% stressed this as the motivation to change for both fat and sugar (Table 17). Females were significantly more likely to give appearance as the reason for their fat change than males. Individuals from non manual households were significantly more likely to give health reasons for their sugar changes than individuals from manual households.

<table>
<thead>
<tr>
<th>Reason For Change</th>
<th>Fat Percent (N = 172)</th>
<th>Sugar Percent (N =155)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To improve my appearance (eg improve figure, lose weight, stop spots developing)</td>
<td>69 8</td>
<td>61 9</td>
</tr>
<tr>
<td>For health reasons (eg to eat healthy foods or on advice from a doctor)</td>
<td>37 2</td>
<td>45.2</td>
</tr>
<tr>
<td>For cost reasons (eg to save money)</td>
<td>8 7</td>
<td>13 5</td>
</tr>
<tr>
<td>Feeling stressed at school or home (eg now don't feel like eating certain foods)</td>
<td>5 8</td>
<td>2 6</td>
</tr>
<tr>
<td>Wanting a change in daily routine (eg bored with certain foods now)</td>
<td>12 2</td>
<td>7.7</td>
</tr>
<tr>
<td>Change in circumstances at home (eg family member now on diet)</td>
<td>2 9</td>
<td>1 9</td>
</tr>
</tbody>
</table>

A range of factors were perceived as being helpful to promote future changes in general eating habits (Table 18). The most frequently cited factor was strong will power (83.3%). Other important factors included wider availability of healthy foods (67.3%), support from family (66.7%), advice from their doctors (58.2%), cheaper healthy foods (53.3%) and better food labelling (50.0%). Females were significantly more likely to identify friends support and the cost of healthy foods than males. Between the social classes a significant difference emerged for friends support, information booklets, wider availability of healthy foods, costs of...
healthy foods and own will power with these being considered more helpful by individuals from non manual households.

Table 18 - Factors Helpful in Promoting Future Diet Change, By Sex and Social Class

<table>
<thead>
<tr>
<th>Assistance With Change</th>
<th>n</th>
<th>%</th>
<th>Sex</th>
<th>Social Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. encouragement and support from close family</td>
<td>408</td>
<td>66.7 *</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. encouragement and support from friends at school</td>
<td>395</td>
<td>45 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. an organised support group</td>
<td>383</td>
<td>15 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. advice from your doctor</td>
<td>392</td>
<td>58 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. a booklet offering advice &amp; practical tips</td>
<td>389</td>
<td>44 0</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>f. better food labelling with details of nutrition</td>
<td>390</td>
<td>50 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. wider availability of healthy foods</td>
<td>382</td>
<td>67 3</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>h. cheaper healthy foods</td>
<td>377</td>
<td>53 3</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>i. drugs prescribed by your doctor</td>
<td>378</td>
<td>15 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. your own will power</td>
<td>390</td>
<td>83 3</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>k. school classes on cooking</td>
<td>371</td>
<td>21 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(* p < 0.05)

4.3.7.5. Analysis of the Key Indicators of Change

The final stage of the analysis involved a detailed assessment of factors influencing three separate categories of dietary change, those that had recently reduced only the fat in their diets, those that had recently reduced only the sugar content and lastly those that had recently reduced both fat and sugar intakes.

The first step in the analysis involved creating three separate outcomes variables:

1. recent fat reduction only (n=43)
2. recent sugar reduction only (n=33)
3. recent both fat and sugar reduction (n=91).

In all three cases the change groups were compared to those that had not changed either their fat nor sugar intakes, the non changers.

Next, 14 explanatory variables were identified for inclusion in the analysis. Socio-demographic variables included sex and social class of household, (social class categorised into 'manual' and 'non manual'). Three health and weight variables included a self assessment of health (categorised into 'very
healthy', 'quite healthy' and 'not healthy'), a self assessment of weight (categorised into 'overweight', 'rightweight' and 'underweight') and Body Mass Index (a continuous variable which was dichotomised into 'high' and 'low' using a median split). Five eating habit variables included a Healthy Eating Index (categorised into three groups 'healthy eaters', 'fairly healthy eaters' and 'less healthy eaters' based on the food frequency reports), snacking frequency (coded as 'none per week', 'one per week', 'two per week', 'three per week' and 'more than three per week'), breakfast frequency (dichotomised into 'five times per week or more' and 'less than five times per week'), evening meal frequency (categorised into 'everyday', 'five to six times per week' and 'four times a week or less') and lunch (categorised depending on the source of food eaten into either 'home based' or 'outside home'). Three food skills variables included the frequency of helping with cooking at home (categorised into 'never', 'once per week or less' and 'more than once per week'), the frequency of helping with food shopping (categorised into 'everyday', 'two to six times a week', 'once per week or less' and 'never') and frequency of reading sell by dates on food labels (categorised into 'most times', 'some times' and 'rarely or never'). A final explanatory variable, the Food and Health Attitude Index was based on the assessment of attitudes towards food and health (categorised into 'positive', 'intermediate' and 'negative').

Initially univariate relationships between each of the three outcome variables and the fourteen explanatory variables were examined. The statistical significance of any difference in the distributions was assessed using the chi-square test. All explanatory variables which showed no statistical association with the outcome variables were excluded from further analysis. In addition the Healthy Eating Index was excluded because it was considered to be too conflated with the outcome variables.
For the fat reduction group, only two explanatory variables, sex and weight rating were found to be statistically related. A much higher proportion of females were classified as recent fat changers than males (44% versus 15%). With the weight rating those who considered themselves to be overweight were far more likely to have reported reducing their fat intakes compared to those who considered themselves to be the right weight or underweight (40%, 23%, and 4% respectively) (Table 19).

With the sugar reduction group only two variables were shown to be significant, sex and cooking frequency. Again a higher proportion of females were classified as recent sugar changers than males (33% compared to 15%). A far higher proportion of those most frequently helping at home with the cooking were classified as sugar changers compared to those less frequently involved or never involved (37%, 19% and 9% respectively) (Table 20).

For the fat and sugar reduction group seven variables were significantly associated, sex; social class; weight rating; snack frequency; cooking frequency; lunch and Body Mass Index.

- Females were far more likely to have recently reduced both fat and sugar than males (57% compared to 33%).
- Individuals from non manual households were more likely to have changed than their manual counterparts (53% compared to 36%).
- Those who considered themselves to be overweight were more likely to be in the change group than those who thought their weight to be right or under normal (59%, 40% and 17% respectively).
### Table 19 - Characteristics Related To Recent Fat Reduction: Univariate and Multiple Logistic Regression Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fat Change n (row %)</th>
<th>No Change n (row %)</th>
<th>Odds Ratio</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX</td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>29 (44.1)</td>
<td>33 (55.9)</td>
<td>4.49</td>
<td>0.0001</td>
</tr>
<tr>
<td></td>
<td>17 (14.9)</td>
<td>97 (85.1)</td>
<td>1.27-5.97</td>
<td>0.009</td>
</tr>
<tr>
<td>SIZE RATING</td>
<td>Overweight 40 (40.0)</td>
<td>21 (60.0)</td>
<td>2.86</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>Rightweight 78 (78.8)</td>
<td>24 (21.2)</td>
<td>1.50-5.46</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Underweight 96 (96.0)</td>
<td>4 (4.0)</td>
<td>2.71</td>
<td></td>
</tr>
</tbody>
</table>

### Table 20 - Characteristics Related To Recent Sugar Reduction: Univariate and Multiple Logistic Regression Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sugar Change n (row %)</th>
<th>No Change n (row %)</th>
<th>Odds Ratio</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX</td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19 (92.7)</td>
<td>33 (67.3)</td>
<td>2.77</td>
<td>0.0001</td>
</tr>
<tr>
<td></td>
<td>17 (14.9)</td>
<td>97 (85.1)</td>
<td>1.27-6.07</td>
<td></td>
</tr>
</tbody>
</table>

### COOKING FREQUENCY

<table>
<thead>
<tr>
<th>COOKING FREQUENCY</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>4 (9.5)</td>
<td>38 (90.5)</td>
</tr>
<tr>
<td>Less Than Once Per Week</td>
<td>15 (19.2)</td>
<td>63 (69.8)</td>
</tr>
<tr>
<td>More Than Once Per Week</td>
<td>22 (62.9)</td>
<td>31 (37.1)</td>
</tr>
</tbody>
</table>
Apart from a very small number of cases who reported not eating any snacks on the previous day there was a clear pattern which showed that a higher proportion of those individuals eating fewer snacks were in the change group. (65%, 47%, 40% and 32% for those eating one snack, two snacks, three snacks and more than three snacks per day respectively)

A higher proportion who helped with the cooking at home frequently had changed compared to those who had never or infrequently helped. (58% who helped more than once per week had changed, compared to 41% who helped less than once per week and 27% who never helped with the cooking at home)

For lunch, those who consumed food at home or ate home prepared foods were more likely to have changed than those who ate lunch outside the home (57% compared to 36%).

Individuals in the higher BMI group were more likely to have changed than those in the lower group (51% compared to 33%) (Table 21).

To examine the relative importance of the significant explanatory variables for each of the three outcome variables three separate sets of multiple logistic regression analysis were performed. This involved firstly checking the linearity of all of the explanatory variables which were not dichotomous. All were linear. For the 'fat only' and 'sugar only' outcome variables, a two stage logistic regression analysis was performed, firstly with each explanatory variable unadjusted and then adjusted by sex and/or social class.

As shown in Table 19, when weight rating was adjusted by sex and social class the association remained statistically significant and the odds ratio did not alter greatly, reducing only from a value of 2.86 to 2.71. Weight rating was therefore not confounded by sex or social class indicating that it was an independent factor related to recent fat reduction. When sex was adjusted by social class,
Table 21 Characteristics Related to Combined Fat and Sugar Recent Reduction Univariate and Multiple Logistic Regression Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Change n (row %)</th>
<th>No Change n (row %)</th>
<th>Unadjusted</th>
<th>Adjusted By Sex and/or Social Class</th>
<th>Adjusted By All Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds Ratio</td>
<td>95% CI</td>
<td>P Value</td>
<td>Odds Ratio</td>
<td>95% CI</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td>SEX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>44 (57.1)</td>
<td>33 (42.9)</td>
<td>2.75 (1.56-4.85)</td>
<td>0.0005</td>
<td>2.72 (1.47-5.03)</td>
</tr>
<tr>
<td>Male</td>
<td>47 (32.6)</td>
<td>97 (67.4)</td>
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<td></td>
<td></td>
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<tr>
<td>SOCIAL CLASS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non manual</td>
<td>38 (53.5)</td>
<td>33 (46.5)</td>
<td>2.07 (1.15-3.74)</td>
<td>0.02</td>
<td>2.19 (1.18-4.05)</td>
</tr>
<tr>
<td>Manual</td>
<td>44 (35.8)</td>
<td>79 (64.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE RATING</td>
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</tr>
<tr>
<td>Overweight</td>
<td>30 (58.8)</td>
<td>21 (42.2)</td>
<td>2.48 (1.51-4.01)</td>
<td>0.0004</td>
<td>2.06 (1.19-3.56)</td>
</tr>
<tr>
<td>Rightweight</td>
<td>50 (39.7)</td>
<td>76 (60.3)</td>
<td></td>
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</tr>
<tr>
<td>Underweight</td>
<td>5 (17.2)</td>
<td>24 (82.8)</td>
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<td></td>
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<td>SNACK FREQUENCY</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>3 (42.9)</td>
<td>4 (57.1)</td>
<td>1.38 (1.09-1.74)</td>
<td>0.008</td>
<td>1.20 (0.91-1.58)</td>
</tr>
<tr>
<td>One Per Day</td>
<td>17 (65.4)</td>
<td>9 (34.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two Per Day</td>
<td>25 (47.2)</td>
<td>28 (52.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three Per Day</td>
<td>21 (40.4)</td>
<td>31 (59.6)</td>
<td></td>
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</tr>
<tr>
<td>More Three Per Day</td>
<td>25 (32.5)</td>
<td>52 (67.5)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>COOKING FREQUENCY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More Once Per Week</td>
<td>31 (58.5)</td>
<td>22 (41.5)</td>
<td>1.96 (1.29-2.95)</td>
<td>0.001</td>
<td>1.81 (1.14-2.92)</td>
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<tr>
<td>Less Than Once Per Week</td>
<td>45 (41.7)</td>
<td>63 (58.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>14 (26.9)</td>
<td>38 (73.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUNCH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Based</td>
<td>25 (55.6)</td>
<td>20 (44.4)</td>
<td>2.24 (1.15-4.38)</td>
<td>0.02</td>
<td>2.37 (1.12-4.98)</td>
</tr>
<tr>
<td>Outside Home</td>
<td>59 (35.8)</td>
<td>106 (64.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BODY MASS INDEX</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>43 (51.2)</td>
<td>41 (48.8)</td>
<td>2.14 (1.14-4.00)</td>
<td>0.02</td>
<td>1.99 (1.00-3.96)</td>
</tr>
<tr>
<td>Low</td>
<td>28 (32.9)</td>
<td>53 (67.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Missing 58)</td>
<td></td>
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</tbody>
</table>
statistical significance remained and the odds ratio again did not reduce greatly, reducing from 4.49 to 4.09. Therefore it can be concluded that the two key independent indicators of recent fat reduction were sex and weight rating, with sex being the more powerful indicator, females being over four times as likely to have recently reduced their fat consumption than males.

For recent sugar reduction, when cooking frequency was adjusted by sex and social class there was only a borderline statistical significant relationship. The odds ratio after adjustment was also reduced fairly substantially from 2.39 to 1.91, thus indicating that cooking frequency may be confounded by sex and social class. When sex was adjusted by social class statistical significance remained and the odds ratio did not reduce greatly, reducing from 2.77 to 2.42. Therefore it can be concluded that the only key independent indicator of recent sugar reduction was sex, females being twice as likely to have recently reduced their sugar consumption than males (Table 20).

For those reducing their fat plus sugar a three stage logistic regression analysis was performed. Firstly a simple analysis was undertaken when all the explanatory variables were tested individually and unadjusted. All seven explanatory variables were significantly related to the outcome variable and to have odds ratio values ranging from 1.38 to 2.75. The second stage involved adjusting each explanatory variable by sex and/or social class. After adjustment by sex and social class, snack frequency did not remain statistically significantly related to the outcome variable, whereas with BMI there was only borderline significance.

The final stage of the analysis involved creating a model in which all the explanatory variables were simultaneously entered onto the equation. It was not logical to enter both the weight rating and BMI variables together as they were
both essentially proxy measures for the respondents weights. It was decided to run two separate final models, one using the weight rating variable and an other with the BMI variable. In the final model with the BMI variable only cooking frequency was found to be significantly related to the outcome variable. However, as the BMI variable was considered to be a rather crude measure, being based only on self reported weights and heights of respondents, it was decided to concentrate the final analysis using the weight rating variable instead. When the model with this variable was run three explanatory variables lunch, weight rating and cooking frequency continued to be associated with the outcome variable (Table 21). In the case of both weight rating and cooking frequency their odds ratio values increased marginally in the final analysis to 2.15 and 2.31 respectively and both remained statistically significantly related to the outcome variable. With lunch following the final analysis the odds ratio value did not alter greatly, reducing only 2.37 to 2.31 when adjusted by all the explanatory variables. However a P value of 0.05 was calculated, indicating borderline significance. When associations between the explanatory variables were assessed using a chi-square test, it was shown that an association was apparent between lunch and weight rating. It was very likely that lunch had been over-adjusted within the final model and therefore was indeed a key indicator for the outcome variable. Associations were also shown between sex and both weight rating and cooking frequency. It is likely that in the final model sex had also been over-adjusted and therefore may well be an indicator of change, especially since in both the other models it had been identified as a key indicator. It therefore can be concluded that the four key independent indicators of recent combined fat and sugar reduction were weight rating, cooking frequency, sex and lunch.
4.4. Summary

The results from this Phase of the study revealed the extent of dietary change within the study sample, with over one third reporting to have reduced their fat or sugar consumption within a six month period. The major reason for changing was a concern about appearance. The main facilitating factors felt to promote future changes included strong will power, greater availability of cheap healthy foods and support from friends and family. Logistic regression analysis revealed key indicators of fat change were sex and weight rating, whereas with sugar change only sex was found to be an indicator. Finally, for both fat and sugar change weight rating, frequency of cooking, sex and type of lunch consumed were the key indicators of change.
4.5. Phase 3 Main Qualitative Phase

The results from the main qualitative phase of the study will be presented in two sections. The first section will describe the way in which the study sample conceptualised food and in particular the manner by which their conceptualisation was linked to the location and social significance of eating. The second section will then explore the process of dietary change undertaken by those interviewed including details of what was changed as well as the reasons behind and the influences affecting the changes.

Those interviewed in Phase 3 of the study were selected on the basis of their responses given to the dietary change questions in the Phase 2 questionnaire. The criteria for selection ensured a diverse range of individuals were interviewed in terms of both the type of change they had reported as well as the progress they had made with their reported change.

4.5.1. Conceptualisation of Food

The most prominent food classification system used involved the dichotomisation of foods into either "fast food" or "healthy food". This classification system was adopted, either directly or indirectly by the majority of those young people interviewed and to very similar extent by both males and females. Several of those interviewed subdivided the fast food group to create a subgroup "sweet foods" which shared many of the characteristics and meanings of fast foods but were considered to be sufficiently different to be a separate category. Overall there was broad agreement on which foods belonged in each of the groups. A minority of the sample used other classification systems which were based on either their likes and dislikes of foods, times of the day when foods were eaten, traditional nutritional food groups and foods that were considered as usually being eaten together. Although based on different criteria, during the course of these interviews where initially different food
groups were created, reference was frequently also made to fast, sweet and healthy foods.

Although the label "fast food" was used by many, other terms such as "snack foods", "junk foods", "fatty foods" and "bad foods" were also used to describe an essentially core selection of foods which consisted of chips, hamburgers, kebabs, crisps, pizza and milkshakes. These foods were considered by most to be high in fat and/or cholesterol and were frequently referred to as "greasy" or "fatty" in character. Some considered fast foods as being high in both fat and sugar and others stressed the additives and preservatives contained within these foods.

The term "healthy food" was the universally adopted label for the second group of foods, although some used terms like "good food" or "low fat food". This group again consisted largely of a set of common foods and drinks particularly fruit and vegetables, bread rolls, nce, skimmed milk, pasta and baked beans. These foods were generally considered to be low in fat and to contain a good balance of vitamins and other nutritional items.

Lianne summed up the positive features of healthy foods:

> They have more protein which is good for your body, they haven't got so much fat in them. If people say you need to eat something good they always suggest pasta or lots of vegetables and fruit and half fat milk. Baked beans have got protein in them and I know pasta has quite a lot of starch in it and can be quite fattening, I just eat some of that.

The sweet foods were also referred by some as "sugary foods" or "foods bad for teeth" and were perceived to have a high sugar content. Foods and drinks
commonly placed in this group included cakes, biscuits, coke and most prominently chocolate which was considered by many as a special food quite different in significance than the others.

Although there was a broad consensus over which foods were classified together, this was not entirely the case with meat and poultry. In some cases lamb chops and chicken were grouped together with healthy foods whereas others saw them as fast foods high in fat. In many cases the criteria used to classify meats was based on where and how they had been cooked. If cooked at home they were generally considered to be healthy foods whereas if they had been cooked and eaten out of the home they were frequently viewed as a fast food.

4.5.1.1. Food Groupings and the Social World

Conceptual analysis of the interview data uncovered two key constructs which provide greater clarity and insight into the samples' conceptualisation of foods and drinks and the associated social significance to adolescent eating habits. The first refers to the level of acceptability of certain foods by different social groupings. For example, it was very evident that some foods were considered to be a very much an accepted aspect and part of adulthood but not of adolescence or childhood. With other foods the reverse applied. The second construct refers to the location and setting of eating. The interview data revealed a clear difference between eating which took place in the home as opposed to that taking place at school and/or on the street. Both constructs are linked and therefore can be considered in a matrix (Figure 10).
Analysis of the interview data located the food groups in two contrasting cells within the matrix in terms of their perceived acceptability and routine location of consumption. Fast foods were generally considered to be highly acceptable to young people and were eaten most frequently outside the home environment at school or on the street. These foods were considered as being very much part of adolescent life, being with friends and relaxing. Frequently a link was also made between fast foods and young people who were not worried about their weight and who were physically inactive, sometimes termed "couch potatoes". The potentially fattening role of fast foods was frequently highlighted and will be discussed in detail later. Adults and most especially parents were not
considered to be associated directly with fast foods. Indeed a degree of parental hostility and disapproval towards fast foods was apparent.

Neil described the contrast between foods eaten at home and outside.

The good food I eat at home, but you cannot go out and have a meal and say it is really good for you, so I have the skimmed milk and the pasta and the jacket potatoes and that kind of thing at home and I eat a lot of fruit but when you go out it's unhealthy food rather than healthy food.

Why do you think that is?

I'm not sure because people are more concerned with taste rather than what has happened to it because I love eating ice cream and hamburgers because I like the taste of it. But people might not like skimmed milk or pasta because although they might be good for them they don't like it and won't eat it.

Sweets on the other hand were seen to be foods accepted and consumed largely by young people, mostly younger children than teenagers and again most certainly not routinely by adults. It was a commonly held belief that sweet eating is a characteristic of early childhood and not such a prominent feature of teenage food use. In line with the notion of an eating career where different foods and drinks are associated with different life stages, healthy foods were very much considered to be foods associated and accepted within the adult world, notably with parents and most especially with mothers. They were seen as foods largely prepared, cooked and eaten at home, at mealtimes within the family, often at a table in a structured and controlled setting where parents were largely in charge and friends had no place or influence. Others linked healthy foods with people, young and old who were interested or worried about their weight, or people that were very health conscious or sports enthusiasts. Weight
and especially health concerns were considered however as mostly adult fears, although many recognised that an interest in weight control was a major worry for many adolescents, especially females. Vegetarians were commonly associated with healthy foods as were "sensible people".

4.5.1.2. Basis for Food Groupings

When the reasons behind the associations between the food groups and different types of people were explored a range of interesting points emerged. With fast foods the link with young people was considered to be largely due to three key factors: the appeal of these foods to young people, structural factors impacting upon young peoples eating patterns and choices and lastly the social significance of these foods to young people.

In terms of their appeal to young people fast foods were considered to be tasty and have an attractive smell and appearance. They were seen as being "instant" food which required no preparation or cooking and could be consumed quickly and easily in the flow of daily activities. An added appealing feature by many was their perceived low cost.

Structural issues were also raised by many interviewed which included the convenience and general availability of fast foods in their lives, with school canteens and many of the shops and cafes near to their schools only selling these foods, therefore very few real alternative choices were often available. Several young people also mentioned the pressures they felt placed upon them by advertising and promotional campaigns for fast foods that were constantly directed at young people through the media.

Socially, fast foods were overwhelmingly seen to be associated with enjoyable social activities involving friends and peers, outside of the family home, either
during school time at break and/or lunch times or at the weekends or in the evenings. Eating fast foods was very much a street activity when young people "messed" about and had a good time together, when they were in control. Associated activities linked to eating fast foods included shopping with friends at the weekend and eating together after watching a football match or some other sporting events. Fast foods were most definitely not connected with the home environment. Indeed a degree of conflict often occurred within families over young peoples fast food eating habits. Several described how their parents openly disapproved of them eating too much fast food, largely because of their high fat and sugar content and the potential health hazards this presented. To avoid arguments at home with their parents, several young people either lied to their parents or simply kept quiet about their eating habits outside the immediate home environment.

Indeed, for some, part of the appeal of fast foods was the fact that parents disapproved of them eating these foods as indicated by Soni:

You might not be allowed them at home or wherever, it's the fact that they are not so good for you.

What do you think is appealing about them?

I suppose in a way it's because you know they are bad for you. They are more convenient to eat if you are walking down the road it would be easier to pick up a packet of crisps than it would be to buy some chicken. They don't have to be cooked, you can eat them cold and it's just easier to get hold of as well.

Although fast foods were considered to be very appealing to young people they were also the cause of some concern. They were fattening and caused acne and therefore had potentially serious effects on physical appearance and attractiveness. Eating a lot of fast food was also associated with lethargy, loss of
vitality and energy and general overall apathy. To a lesser extent they were also linked with the development of health problems such as heart disease in adult life.

Lianne articulated a common view of adult and youth foods:

Some adults eat chocolate and coffee but crisps and chips and pizzas and things I think a lot of children do eat them and ice cream and stuff

Why do you think this is?
Because they taste nice, they are easier to buy, they are cheaper, they are junk type of foods I suppose.

What do you mean by junk foods?
They are not very good for them, they haven't got much protein and goodness in them, they are just fattening and full of calories.

The basis of the perceived association between young people and children with sweets very much mirrored the explanations given in relation to fast foods. Sweets were appealing to young people because of their taste and texture, readily available at school and from shops and again eaten within peer groups during relaxation periods and free time.

For adolescents, chocolate was a sweet with a particularly powerful appeal. However, some concerns were apparent with regards sweet eating. Sweets were seen to be fattening and to cause tooth decay. With chocolate it's appealing character was considered by many to be addictive and associated with cravings and mood swings.

Reasons given why healthy foods were linked to the adult and not the adolescent world principally focused on their role in maintaining health, their
contribution to weight control and to a lesser extent with body fitness. Worrying about health was seen to be largely an adult concern, not relevant to most young people. A common explanation given for this difference was that as long as young people were physically active they could eat anything they liked and no harmful side effects would be produced. In contrast, adults were considered to be less physically active and therefore more vulnerable to the potential adverse effects of unhealthy eating practices such as weight gain and health problems. Many did express personal concerns about their fitness levels and weight control.

Richard expressed his view of the relationship between eating freely and being active:

I just eat everything, but I know it won't affect me because I usually eat sweets before I play football, I just bum it off, but when I am not doing any sports I can't eat sweets because if I am not doing anything sporty or an activity I can't really eat them, because I feel I am not burning it off I am going to get fat.

Healthy foods overall appeared to be largely unappealing to young people. Indeed for some they evoked fairly negative responses. They were commonly seen as being rather boring and dull in terms of their taste and overall image and to be a relatively expensive food choice rarely available to many young people outside of their homes.

The poor image of healthy foods with many young people was summed up by Matthew:

I think healthy foods are more tasteless, maybe that is because they have taken the flavourings out to reduce the fat in them, they
4.5.1.3. Summary
The card sorting exercise in which interviewees were presented with a selection of food and drinks named on cards and then were asked to arrange the cards into any appropriate groupings, very successfully enabled most of the sample to describe in some detail and depth how they would classify and link together a range of foods and drinks. Analysis of the interview transcripts revealed a very clear and consistent pattern in both the classification system adopted and the associated shared meanings and understandings linked to the food groups created. Further analysis and interpretation of the data highlighted the significance of the setting and social influence of eating

4.5.2. Young Peoples Experiences of Dietary Changes
4.5.2.1. Nature of Change
The vast majority of young people interviewed provided detailed accounts of changes in their diets which was very much in accordance with their questionnaire responses. However, in many cases the interview data revealed a far more complex and detailed description of the nature of changes undertaken or attempted than was indicated on the questionnaires. Many of those that had indicated on their questionnaires that they had changed only their fat or their sugar intakes, revealed in the interviews that they had actually changed a combination of both fat and sugar elements in their diets. It was relatively rare for individuals to describe making a single change of either fat or sugar. Linking very much to their conceptualisation of foods most of those interviewed described the various ways in which they had reduced or were reducing their fast and sweet food intakes and/or increasing their consumption of healthy foods. Many reported reducing or modifying in some way their

have taken the colouring out so that they are really dull and boring, so they really put you off.
consumption of foods such as chips, crisps, kebabs, burgers, sweets, chocolate, fizzy drinks and in a few instances completely removing certain of these items from their diets.

In a small number of cases changes that were made contrasted to the general shift from eating less fast foods and/or sweets to healthier options. They reported increasing certain high fat and/or sugary foods. For example, increasing the amount of chocolate or crisps they were eating.

As well as describing changes in the types and/or quantities of foods eaten there was a diverse range of other changes. In some cases young people described altering their pattern of eating in some way. For example, a shift from eating snacks to eating more meals or the regular timing of eating was changed in some way. A small number, mostly females, described their experiences of partial and/or complete vegetarianism. Many indirect references were made during the course of the interviews, again mostly by females, to the issue of eating disorders such as anorexia. Analysis of the interview data has clearly highlighted that the topic of dietary change is a very complex and diverse one in terms of it's nature, processes and contexts.

4.5.2.2. Reasons for Change

As a result of the complex and diverse nature of changes an equally complex range of reasons for the changes were uncovered. In most cases a combination of reasons were given. However it was apparent that the most important and frequently cited reason was a concern about the link between eating certain foods and a subsequent increase in body weight. This concern was apparent in relation to eating both fast and sweet foods although the association appeared stronger and more universally applied to fast foods. Concerns about weight were particularly evident amongst the females interviewed but many males also
expressed a similar fear. However, unlike the females who reported that they openly and frequently discussed their concerns about their weight with each other, males considered this issue as a private concern and not suitable for open discussion.

Kim described open discussions with female friends about her weight control.

They are always saying they are too fat to wear this and too fat to wear that and I say if they were that concerned about it they would stop but they are not that big most of my friends anyway. Most of my friends are the right weight for their height anyway, but they keep saying they are fat even if they are tiny little twigs.

This is in contrast to James' description of how boys deal with their weight concerns:

Privately I think they are worried, but they are not exactly going to talk about it with boys, I suppose girls do, I'm not sure really.

Exploration of the fears of fatness revealed a spectrum of negative associations and connotations. Feeling fat or being considered fat by ones peers clearly had a major personal impact on the lives of many at both an individual and social level. Being overweight was considered to be a very unattractive physical condition which for many females in particular had an adverse effect on their perceptions of self confidence and worth. In addition there was a strong indication that fat people were seen as socially more isolated than their thin peers and certainly were subjected to constant verbal harassment or "cussing" from peers or siblings.

Linda described how she felt when she considered herself to be overweight.
I don't think you feel as good about yourself, I know there are some overweight people that are really fun. I personally don't feel very confident with myself. I am always, if I am buying new clothes asking does this look fat on me or is it wrong and also we are doing a thing on women in society in Maths and we are asking do you feel a lot of pressure to lose weight and I think you do. I don't think you are treated nicely when you are fat. I hate comments mostly from boys and I just feel uncomfortable and I like to be slimmer so it wouldn't matter what you wore it wouldn't look wrong and give me more confidence.

With Jack dissatisfaction with his appearance and weight clearly caused him some distress at home:

No at home, because no-one knows here (at school) that I am fat because I don't mention it. Other people you can see it but you can't see it on me so no-one really takes any notice. There are only a few people who know I am fat and they don't bother.

What sorts of things would people say to you at home?

My sister's boyfriend was saying I was like a whale and I just took it and then I told him to shut up and then when I went upstairs I started seriously thinking about it and wondered if that was what people really think about me. Everybody was saying you are putting weight on, but if any one says it I just tell them to shut up.

If you saw someone in the street that was overweight what would you think of them?

If someone was really really overweight you usually laugh because it is so funny but then you think it is not really funny. I don't cuss him to his face, I cuss him behind his back.

What do you think is wrong with being fat?
Because you just look disgusting. There is all that extra flesh hanging off of you.

What would you like to look like if you could change anything?

I would be taller and I would have a lot less fat than what I have got now. I would have no nasty moles on my face. Sometimes people comment about my ears, they only joke but I am still a bit offended.

Another perceived impact of being overweight was the effect of feeling less energetic and generally more apathetic. Again in several instances these physical and emotional responses were linked to a restriction in social activities such as sport. Many reported feeling unable to participate in active sports due to a feeling of apathy and tiredness because of being overweight. Others associated these feelings more with their immediate health consequences such as breathlessness and discomfort on routine exertion.

Being overweight affected Jed's feelings of self confidence, his ability to socialise with his male friends and to take part in sports:

I don't think it makes you feel anything really. It depends how self confident you are. I wasn't very self confident. My sister is slightly overweight and she is very self confident of herself so it doesn't really make any difference to her but it does cause problems for me with teasing and looking at myself and thinking I don't want to be like that and tending to stop in.

Was this teasing at home or at school?

Everywhere, not the kind of general comments but I like to play a lot of sports so being overweight stops me from doing that. Well I can do it if I like but it puts you off a bit. If you are unhealthy you cannot do it for such a long time so I wanted to change it.
A common theme that was evident in many of the interviews was the belief that at a certain age people become vulnerable to weight gain. Most described how as a young child they had eaten anything and had no problems controlling their weight whereas for some they now felt very vulnerable to weight gain. Even those who personally had not gained weight stressed that as young adults they would soon have to be much more careful with their eating if weight problems were not to develop. Adults in particular had to take greater care of their weight. This link between weight control and getting older was presented by both males and females although again the females were more acutely aware of the issue. Part of an explanation presented by several interviewees for this link between ageing and weight control centred on the view that many younger people were far more active and sporty than their older counterparts and that the decrease in activity had the effect of increasing the risks of weight gain.

Although body shape was almost a universal concern and a major motivation to change their eating habits, there was some resentment, mainly among females of the pressure to be thin. The media portrayal of beauty was identified as a powerful pressure on young people to conform to an often unrealistic and unobtainable image.

The second most important and significant reason for reported dietary change was the perceived effect of eating fast and/or sweet foods on the skin. Many reported getting pimples after eating these foods, particularly what were considered "greasy" fast foods. Again very much in a similar manner to weight gain, spots were considered to spoil physical appearance and reduce self confidence. This often then resulted in less social interaction with peers.

In a relatively few instances the direct health consequences of eating certain foods was highlighted as a motivation for change. This was more so in relation
to sweets and sugary foods than fatty foods. Eating sugary foods was linked to tooth decay by many and also as a problem with wearing orthodontic appliances. Although tooth decay was principally considered as a health concern it was also considered by some as more of a threat to physical appearance than health. With fast foods the main health complication identified by a minority of those interviewed was the potential future risk of heart disease. In these cases a link was often made with some personal experience of medical care or some family member or neighbour being ill where diet had been identified as a key factor in the development of disease.

Neil described his experiences following a cholesterol test:

I have been going on a low fat diet now because when I went to the hospital for a blood test it was a bit high so they sent me to a diet person who said I had better go on a low fat diet and said I had to eat things like brown bread and stuff like that and nasty muesli and stuff, so I have to eat that now and have to cut down on the hamburgers and the chips and every time when I come home and my mum asks me what had for dinner I just say salad because I don't want to get grief because if I say I had hamburger and what I really had she would start saying you can't have that and that would be it.

In a few instances saving money was a factor influencing a decision to change. In these cases cost was often a supplementary reason and not a single motivation. Many sweets and fast foods were considered to be expensive and a waste of often very limited spending money. However as will be presented later in this chapter the costs of purchasing healthier options was often perceived to be even higher than the unhealthy choices.
Direct parental control was cited as a reason for changes in a very few instances. In these rare cases change had been imposed on the young people by their parents, mostly their mothers. This was most likely to be concerned with foods eaten at home where mothers could exert direct control over at least some aspects of their offspring's eating habits.

With those individuals who reported to be currently or previously vegetarian, the vast majority of whom were females, the main reason for their decision to become vegetarian was their concern for animal welfare and rights. In addition many added the additional association with meat and the high fat and grease content and the link therefore with weight control. In a few cases concerns over BSE and meat was also mentioned either as a personal or parental concern.

Lesley was a typical example:

Well I never ate much meat and I never liked it much and I suppose I've got to admit the animal side of it as well. I didn't like eating meat and hamburgers you think of eating cow and chicken you are eating little fluffy things and little lambs and I just couldn't do it and I didn't want to. I didn't like it much either so I just decided not to one day and did it the next and I haven't done for two or three years now.

In only a very few instances, in interviews with females, were there direct personal experiences of anorexia mentioned. In these cases, descriptions were provided of previous periods when eating had almost completely stopped. When reflecting back on these occasions it was seen very much as an extreme response to concerns about physical appearance and a desire to take control of an aspect of their lives. The interviews did not set out to explore this topic but the social pressures to be slim appear to play a significant role. In addition to
personal descriptions, others provided details of friends or acquaintances
experiences of anorexia. Several references were cited where parents had
been alarmed by the dieting behaviours of their daughters and where friends
had helped each other through a phase of severe dieting. There was strong
sense from the data that anorexia was very much a concern to many young
women and their parents.

Jenny's experiences illustrate well the pressures and fears of severe dieting
and how friends can support one another:

One of my mates is six and a half stone and they are quite tall as
well so they just worried in case they go anorexic by not eating
because they can do that, they can stop eating for a week.

Have you ever been on a diet yourself?
Yes I went on a diet and nearly did become anorexic because I
stopped eating and I started being sick, but my mate helped me
out and I'm OK now.

Why do you think that happened?
Because I used to be teased when I was in school and they used
to say to me you are fat and everything and I looked in the mirror
and saw myself as being fat and my real mates were telling me
that I was just thinking that, you are putting yourself down and I
didn't really listen to them and I just thought I had got to lose
weight, so I cut down on my food and thought I can't be bothered
with it any more, so then I just stopped eating.

Just stopped altogether?
Yes I would drink fizzy stuff and water but I would have something
to eat, when my mum came I had to have some of the dinner but I
was feeling sick after

Did your mum know about this?
No she asked me what I had for lunch and I had to make things up.

How did that make you feel?
I felt ashamed of myself because I was lying.

Did you talk to anyone about this?
Yes I have a really good friend, Sandy, she helped me through a lot and she stopped me from not eating. She kept on saying you have to eat, so I did, and she kept on buying me things so she got me back on and I was OK after because I used to be really moaning because I wasn't eating and tired but after I was OK.

4.5.2.3. Processes of Change

The interview data revealed certain clear ways in which the changes reported were undertaken. In most cases a sudden decision to change was the norm where no detailed planning or period of consideration or contemplation took place prior to enacting the dietary modification. In most cases the decision to change appeared almost as a spontaneous response to circumstances. It was not very clear which factors, if any, may have triggered the change. In a few cases specific triggers were mentioned such as some episode of "cussing" at school in connection with body size or a family or other close person becoming ill with a condition associated in some way to eating.

A clear trigger was evident in Sarahs' experience:

I stopped eating so many cakes because I used to eat lots of cakes and they never affected me and then my next door neighbour had a heart attack and it got everyone worried about it and my mum started buying healthy foods and I adapted to that.
In a minority of cases however individuals did report a period of planning and consideration prior to a change in behaviour. This often involved discussing plans with others such as family members or friends.

Dietary changes were undertaken by a variety of strategies. In most cases there was a gradual reduction in either the frequency and/or amount of fast foods or sweets eaten. It was very rare for a complete or total change of consumption. Instead most aimed to achieve a balance in their diets.

The importance of moderation was stressed by Lenny.

I haven't really eaten that much fatty food so I have done quite well. I don't think I will cut it out of my life completely. If I do cut it out of my life that would be too extreme for me so I just take it in small doses, not too much and not too little.

In some cases where gradual modifications were undertaken this was the entire extent of any change. However in many instances a gradual reduction was also associated with a shift in consumption to some form of perceived healthier alternative. A common form of substitution involved taking foods bought or prepared at home out into other social settings, a common example was packed lunches. These were prepared at home and brought into school as an alternative to the usual range of mostly unhealthy lunch time choices available within the school and/or immediate surroundings. Other examples of foods brought from home to school included fresh fruit and bottled water.

4.5.2.4. Social Influences on Change

A selection of personal and social influences affected the process of change. Although in many instances more than one factor was important, five contrasting clusters of cases will be presented to illustrate the range of key social
influences. Two clusters contained the majority of cases. The first of these was termed "sons and daughters" which contained 19 cases all of whom were highly influenced by their parents. The second main cluster contained 18 cases who were termed the "socialites". In these cases their dietary changes were mostly affected by the influence of their peers. Two other smaller clusters each contained 9 cases, the "patients" who were all influenced by contact or advice given by health professionals and the "athletes" all of whom were actively involved in sports and therefore affected by their coaches and trainers attitudes towards food. A small cluster of 4 cases were termed the "self motivated", all of whom were highly self motivated and driven in their attempts at dietary change. Twenty two cases were not included in any of the clusters either because insufficient information was available or they merely did not fit the descriptions of any of the clusters.

4.5.2.4.1. "The Socialites"

This group who were mostly female were very influenced by their close social peer networks. Peer acceptance and approval was considered a very important aspect of their lives. When describing their dietary changes, which mostly focused on controlling their weights or avoiding spots, the influence of peers was very evident. This influence acted in a supportive manner when female friends would discuss dieting and their body shapes with each other; often providing reassurance when individuals became over anxious about their weights. In several cases friends would help one another to prevent serious dieting becoming an obsession.

For Soni cutting down on chocolate and crisps at school was very much a joint effort with her close friends, with the main reason for the change being the avoidance of spots and the desire to look good:
My friend and I have been doing a thing and we are only allowed two packets of crisps a week and a chocolate a week because I realised I had been eating loads of it. Last week it didn't work because we had exams so it was difficult and the break times were all weird and we were allowed to bring food into the exam so I usually bought a packet of Friutellas or wine gums which are sweets rather than chocolate and crisps.

What was the reason for cutting down on chocolate and crisps?

It's just the spots you get when you eat them. I am a chocoholic so I had to cut down. If you are looking good it gives you confidence. It's like having a cut on your knee you would prefer if it wasn't there, it's the same with your face.

Peer influence also acted in a negative fashion too. Many described either their personal experiences or stories of others being teased or "cussed" over their weight, mostly by male peers. This "cussing" for some was merely a minor irritation but for others clearly caused considerable distress.

When Sarah described her attempts at cutting down on sugary foods it was apparent that her experiences of being teased about her weight at primary school still had an affect on her feelings several years later:

How did you feel when you were overweight?

I felt just like an outcast to everyone. If I was overweight now I don't think I would mind as much as when I was then because when I was tubby in the fourth year of primary school and everybody just used to take the piss and I thought that was evil but people like Louisa who is not exactly Kate Moss but she doesn't care and I think that is really good. I would like to be more like that but I can't.
When you think of people who are overweight are they outcasts still?

No not at all, it's just how you feel

What do you think has influenced how you feel?

I think it is a lot to do with the media and people saying that you have to look like this and be like this. I suppose you shouldn't take any notice of it.

4.5.2.4.2. "Sons and Daughters"

With this large group which was composed of roughly equal numbers of males and females, family influence was a key factor involved in their dietary changes. Invariably the most influential family member was the mother, although in few cases the father or other siblings were identified as being important. Within most of these individuals' households parents and most especially mothers were eating a more healthy diet than their children. Indeed it was evident that mothers were often worried about what their children were eating and the weight and other health problems that they may experience. They were constantly therefore pressuring their children to alter what they ate. In addition to this pressure, some mothers tried with varying degrees of success to "force" their children to eat different foods by either not buying or cooking certain foods at home or by limiting the money given to purchase foods outside the home. These direct techniques were often more successful with foods eaten at home but were far less effective with the foods eaten outside of the home.

In addition to the direct pressure applied to young people by their parents, more subtle influences were often apparent. Mothers were frequently trying to control their weight through dieting methods and this often had a knock-on effect with the rest of the households' eating habits. At times their children would try to
support and help their mothers to diet which often led to them changing their eating too.

Katherine provides a good example of this:

Because I am helping my mum with her diet I am cutting down at the same time so it helps me as well, and I used to drink a lot of coke but now I seem to drink more water in the last few weeks. I have drunk a lot especially in the hot weather.

In other cases the mothers behaviour seemed to causally affect their children's habits as in the case of Nick:

I think it was because my mum was on a diet and my mum was going to Weight Watchers and she came back with all these books and I just started looking at them, and when I saw how many calories were in some of the foods I thought I would change my diet around. Its not much better, but it is better than it was before.

4.5.2.4.3. "The Athletes"

In nine cases, mostly males, a keen interest in sports and fitness clearly played an important influence over their dietary behaviour. The foods and drinks consumed were scrutinised in terms of their potential value or harm in the maintenance of fitness. In some cases this involved very detailed assessments of calorie levels. Eating fatty foods was considered to adversely affect sporting performance and stamina especially if excess weight was gained. Sports coaches often gave direct dietary advice about the foods to avoid that was clearly taken very seriously.
Mark, a keen boxer described how he needed to control his weight very closely for competitions and the influence of his trainer had over his eating:

At the boxing club because when we go in for competitions the trainer tells you what foods not to eat because they are fattening and they tell you which food is all right for you....... To keep my weight at the same level, if you don't keep at the same weight you are allowed to go up a kilo and a quarter but still have to keep the fatty foods away. When I was at home and they were eating a proper dinner I was having beans on toast and things like that and boiled eggs to keep down the fatty foods.

For Richard losing weight had a major impact on his ability to play sports:

I am much better at sports now. I have got some more stamina and I am much fitter. My level of fitness has gone up a lot. I am good at running now, I never used to be good at running but now I can do long distance running and sprints and things like that.

4.5.2.4.4. "The Patients"

Health workers were identified by some individuals as being a key influence and source of support. In these cases a range of motivations for change were apparent although health concerns were prominent, including the avoidance of tooth decay and high cholesterol levels. Dentists appeared to play an important role in both suggesting a reduction in sweet eating and to a lesser extent in supporting a change. This support was in the form of helping young people identify which foods were high in sugar and on how to monitor their diets through the use of diet sheets. Reducing consumption of fizzy drinks was often linked to concerns about tooth decay. School nurses and dieticians were also mentioned by a few as being of importance in relation to weight control. In some
cases individuals were either referred to hospital for tests and advice or others were weighed at school and given help by the school nurse.

For Rash cutting down on sweets was due to a concern about the condition of his teeth which his dentist had highlighted:

I used to eat a lot more sweets when I was younger. I've cut down on that because my teeth were getting bad and I had a lot of fillings and I didn't want to muck up my second teeth. I also cut down on drinks a bit, soft drinks because they have a lot of sugar which is not good for you

Why is it not good for you?

Bad for your teeth. As I say I am trying to keep my teeth.

4.5.2.4.5. "The Self Motivated"
This small group who were mostly female were very insistent that the only influence acting upon them was their own will power and sense of determination to lose weight. They appeared highly motivated and determined to achieve their goal for their own benefit denying the influence of others such as family or friends. Their physical appearance was very important to them and in certain cases was clearly a very sensitive issue. This sensitivity may have masked a deep concern about how others perceived them.

Helen stressed how looking good was for her benefit:

Yes, it is not because what other people think. I don't care what other people think. But more for me. I feel better feeling good about myself rather than because I think it just depresses people if they are always thinking 'Oh I don't look very good'. So I always tend to try to eat properly but sometimes can't be bothered.
4.5.2.5. Progress of Change

It was very apparent from a large proportion of the interviews that successfully enacting dietary changes was not considered easy. Although the motivation and will to change was often very apparent the context in which these young people were placed was frequently unconducive to change being maintained. This was either due to the structural nature of the environments in which these young people lived in which food options and choices were often severely limited or due to the social contexts which again often did not facilitate change to proceed. Due to these factors, although many made repeated attempts to change, in only exceptional cases was a successful change undertaken with one attempt. Change can be seen as a process which involved repeated attempts which most often ended in failure but which were tackled again and again. The best example of this was the descriptions given by those trying to control their weight. This was a continual struggle involving repeated dieting attempts over an long time.

David describes the struggle very clearly:

I think fat can be a bad thing, I think I am overweight, I have tried dieting, no coke and chocolate, crisps and I have been good at it but then I keep going back on crisps and then I just think oh forget it and then start again.

The strongest indication of the powerful effect of the structural and social context was apparent when the differences between changes undertaken at school were compared to those attempted at home. Changes in the home environment were clearly far easier to maintain than was the case at school. In many cases young people portrayed the relative ease of changing at home where parents often provided encouragement and support and where the foods available provided real choices. This was in complete contrast to school which was seen
as a very hostile and challenging setting to adopt dietary changes. Peer pressure to eat fast foods was very strong and the availability of alternative food choices was often perceived to be very limited.

An interesting example of a particular food that was identified as being especially difficult to change was chocolate. In a number of interviews, mostly with females, chocolate was perceived as a very special food quite unique in character and it's associations. It was frequently considered to be addictive in character and therefore very difficult to stop eating. Many reported attempting to reduce their consumption of chocolate in an attempt to lose weight or prevent spots but invariably had failed due to its perceived addictive nature. Often they would describe themselves as "chocoholics" if they were unable to control their consumption. In addition many females described feeling a sense of guilt when they ate chocolate, reflecting the perceived appeal of the food and the fact that they felt they ought not to be eating it.

Matthew considered chocolate very appealing and addictive:

It's just it's filling and it is a nice taste and there are loads of different varieties of it, there is always a new one to try, you could say I am fairly addicted to chocolate.

How do you feel about that?

Stuck with it. Well I eat alot but don't seem to put any weight on, I might put a bit of weight on but I burn it off immediately afterwards, I don't think it affects me that much.

With Sharon eating chocolate was associated with feelings of guilt due to the evident pressures she was under to be thinner. Cutting down the amount she ate was seen as a personal challenge:
Before Christmas I used to eat chips, crisps and chocolate bars and stuff, but then I weighed myself and I felt really fat and really unhealthy so for a couple of months I went on this strict regime where I wouldn’t have any crisps or chocolate bars. But I don’t do that any more but I do eat healthier stuff now

How did you do that?

I don’t know actually. I don’t think I could do it again. I just made myself feel guilty when I was eating chocolate bars at home and if I went to the shop to buy a magazine and I saw a chocolate bar or packet of sweets or something I would just buy it. But I would feel really good afterwards if I didn’t buy it

I am really interested when you said it made you feel a bit guilty sometimes buying chocolate bars?

There’s all this sort of stuff in magazines and newspapers and everyone is always saying it is so much better to be thin. And it’s true you don’t want to be fat, it’s not good and everyone was telling me to be fat is to be unhealthy. I like having control particularly over what I eat.

4.5.2.6. Factors Facilitating Change

A range of factors, actual or potential were identified as assisting successful changes. These could be considered as operating at three different levels: the personal, the social or the structural.

At an individual level, it was very evident that many regarded strong personal will power as being an important factor promoting change to occur. Without this strength of character and determination, changes were not seen likely. There was very little indication of whether will power was an innate function or something that could be acquired and developed over time.
At a social level, the importance of support provided by family and friends was frequently clearly recognised. Within the home setting mothers were an especially important source of either emotional support or very practical help. Emotional support took the form of providing encouragement when enthusiasm was waning and by just recognising the difficulties of embarking on change. On the practical side mothers often provided information about different food types, particularly highlighting the problems with eating fast foods and sweets. As mothers were often on diets they enabled other family members to experiment with different and new food options. Mothers were largely responsible for domestic food within the home and were therefore able to exert some control over what the rest of the family ate at home. This enabled mothers to positively assist their children in their food changes even if this involved preparing separate meals for different family members, as was the case with Martin who was trying to lose weight by cutting down on fatty foods:

My mother really helps because she makes the dinner and she used to make me a separate dinner. She used to make me spaghetti bolognais, but a low fat one and all things like that.

Outside the home and especially within school, friends were an important source of support. This was more apparent amongst the females who discussed their eating habits more openly with each other than was the case with the males. For females, being able to chat with friends who understood and supported their actions was clearly very important. Many stated that when their friends were also trying to change elements of their eating this made the whole process so much easier. Individuals could support one another and deal with problems together.

For Lucy cutting down on the fat in her diet was a shared experience with her school friends:
When I am at school I have more crisps and stuff because I can go and buy them. So recently I have been trying to buy less and less and all my friends have as well because we have all realised that having looked at what we eat we try to have a proper lunch instead of just having a packet of crisps.

Structural factors such as the costs of foods, availability and appeal of alternative "healthier" options, and advertising pressures to purchase certain food brands were frequently cited as factors that had a major impact over young peoples eating habits. Therefore having affordable, appealing and easily accessible food choices was essential to enable sustained long term changes, especially with eating outside the home. Schools and the shops near schools frequently provided very limited real food choices to young people.

For David having a packed lunch from home was seen as a way of helping him to stop eating chips with his friends during school lunch breaks:

I would have a packed lunch because my parents give me money and if I have money I tend to use it. I would rather have a packed lunch and then I don't have the option of buying chips, that would be better.

Elaine was very aware of the widespread availability of fast food in her local area and of the influence of television advertising on her food choices:

If there wasn't so many fast food places and things like that and there are a lot of things on television which advertise buying hamburgers that make you think they are nice and good and you want to eat them...........Everywhere you go there are fast food places and the smell of it makes you hungry, even if you are not hungry just the smell and that can start you off and makes me want to eat.
4.5.2.7. Factors Hindering Change

Three main factors were identified as obstructing changes, the lack of available food choices outside the home, the social and peer pressures to continue to eat fast and sweet foods and the inability of many young people to prepare and cook food by themselves.

Although in many cases the desire and motivation to change was apparent this was not sufficient to enable the desired changes to be successfully maintained as frequently food choices were not considered to be readily available. Many of those interviewed stressed that school canteens and nearby shops offered very limited options either because of the lack of availability, high costs or unappealing nature of healthy foods that were sold locally.

For example, fruit which was often a popular food was not easily available outside the home as can be seen from Sams' comments:

Why would you have fruit as a snack at home and not when you are at school? .

Well you can't get fruit where our school is, we've tried going to Camden because I have another friend who likes fruit but you can't find anything there either, so you can't get fruit here.

The social nature of eating also clearly had a major impact on individuals ability to change. The fact that friends would be eating sweets or fast foods together in a sociable and relaxed atmosphere was identified as a temptation for those trying to change.

Sarah appeared to be very aware of the influence of others eating habits

People make it harder, not consciously harder just harder because all the people I know just eat so much junk food, like my two neighbours
they eat constant junk food. They live on it. One of them is 18 and one is 15 and he goes to this school and they live off junk food and they are both thin and I don't know how they manage it but they are quite healthy I suppose. I think how come if I eat junk food I don't stay thin, that is my main worry about eating crappy foods.

When discussions focused on possible future changes when individuals may have moved away from their parents it was identified by many that as they were not able to cook meals changing to a more healthy diet could prove to be very difficult. Reliance on their mothers cooking meant that in her absence instant foods or takeaways would be commonly consumed.

4.5.2.8. Perceived Benefits of Dietary Change
The more immediate physical and social benefits resulting from the changes were what interested the young people, not the possible longer term effects on their health which was very rarely considered as relevant to them. Losing weight and having fewer spots were the outcomes sought and most valued. Being thinner and less "spotty" was considered as an important means of improving physical appearance and attractiveness and for many as a way to increase their self-confidence. Improved appearance and self-confidence facilitated access to social opportunities and popularity with peers and ultimately greater social interaction and acceptance. Reducing weight was also linked to improved fitness and energy levels and a sense of feeling greater vitality and a zest for life. The social element and enjoyment of sport was also highlighted as a benefit as improved fitness encouraged greater involvement in sporting activities.
Direct health benefits were identified in a very limited number of cases although in relation to cutting down on sugar several felt they had needed fewer fillings and had encountered fewer problems wearing their orthodontic appliances.

For Adam cutting down on sweets meant that he didn't need more fillings on a subsequent visit to his dentist, a result he was clearly pleased with:

I went to the dentist and I had a few fillings and I cut down after that and the next time I went to the dentist he said my teeth were fine so it was alright.

4.5.2.9. Other Health Related Behaviours Associated With Dietary Changes

An association was made between dietary changes and physical exercise. This association was especially evident amongst many males interviewed although several females also made the link. Essentially it was believed that to reduce weight successfully not only did one have to alter what one ate but also often increase exercise as without this combination the desired effects would not be produced.

For Jed losing weight required him to cut down on certain foods and to exercise more:

I just went off and stopped eating all the foods I thought were fatty and ate the foods I thought were healthy. Thats all you can do on a diet I think and doing exercise as well is probably the best way of doing it I suppose. If you don't eat alot of fatty foods and excretes as well you are going to lose a lot of weight.
In other cases taking regular exercise enabled them to eat whatever they wished without gaining weight as the exercise used up the excess calories. Being sporty therefore enabled Richard to continue eating sweets:

I just eat everything, but I know it won't affect me because I usually eat sweets before I play football, I just burn it off but when I am not doing any sports or activity I can't really eat them because I feel if I am not burning it off I am going to get fat.

In the course of the interview no association or link was made with other health related behaviours such as smoking or alcohol consumption however.

4.5.2.10. Summary

The main reason given by those interviewed for changing their eating habits was a concern about their physical appearance, most notably their body shape and weight and their skin condition. Eating fast foods and sweets was considered to be a cause of weight gain and spots. For many, improving their physical appearance was a means of increasing their self confidence and enabling greater social interaction with peers. Direct health motivations were rarely cited as the main reason for change. In most cases changes were attempted after a sudden decision, a period of planning and contemplation was rarely undertaken. In a very few cases were changes maintained on the first attempt, mostly individuals were engaged in repeated attempts at modifying their eating habits. Close friends and mothers were identified as being especially important sources of support. Changes undertaken within the home were considered far easier than those attempted outside the home. This was mainly due to peer pressures at school and the lack of available and appealing food choices outside the home. For many changing their diets was closely linked to taking exercise.
In line with their conceptualisation of foods many of those interviewed described how they considered eating habits altered at different stages of life, what could be termed an eating career. For example, eating sweets was commonly recognised as a feature of childhood whereas burgers, crisps and canned drinks were considered more as popular adolescent foods in contrast to vegetables and other healthy foods which were linked more to adults eating patterns. Although only 13-14 years old the majority of those interviewed could be considered to be entering a transition in their eating habits moving from an adolescent to a more adult style of eating.

The results from the three different phases revealed a great deal about the nature and processes of dietary change amongst young people involved in this research study. The next chapter will discuss the findings in relation to other published data.
Chapter 5

Discussion and Conclusions
5.1. Introduction
This chapter will be presented in three sections. The discussion will firstly consider a selection of the most important results from the three phases of this study. The key findings will be compared to other relevant research. Particular emphasis will be placed on the insights gained into the processes and stages involved in dietary behaviour change. Methodological issues pertinent to this study will then be highlighted. Based on the findings and building upon previous work, a modified conceptual model for adolescent diet behaviour change will then be proposed. Finally, a set of conclusions and recommendations will be presented.

5.2. Discussion of Main Results
5.2.1. Dietary Patterns
The questionnaire based results indicate a complex and to a degree contradictory range of dietary behaviours and beliefs. Although the vast majority of the sample were not overweight, considered to be fairly healthy or healthy eaters, consumed an evening meal on a regular basis and had a good knowledge of food and health issues, there were some more negative attributes too. Almost 25% felt they were overweight, although the majority of these individuals were not overweight as assessed by their Body Mass Index score. Over a third regularly ate fast foods or takeaways at lunch time and 60% consumed three or more snacks a day. Over 70% rarely or were never involved with the cooking at home and food shopping. With regard to their attitudes towards food and health, a diverse range of views were expressed. Almost a third thought that healthy foods were boring and that if they are active they can eat anything they like. Males and those from manual households were consistently shown to engage in less healthy dietary behaviours and to hold more negative attitudes compared to their female and non manual counterparts.
Although comparisons between these results and other published research have to be cautiously interpreted due to the variety of different methods employed and the different ages and locations of the various samples investigated, certain clear comparisons regarding dietary patterns are possible. This study sample consumed snacks more frequently, ate takeaways and fast foods for lunch more often, consumed breakfast less frequently and were less involved in domestic food chores at home than reported by Bull (1985), DHSS (1989), Roberts et al (1993), and Anderson et al (1993). Amongst a Welsh sample of 13-14 year olds 34% ate 3 snacks or more per day (Roberts et al, 1993) compared to 60% of this Camden and Islington study. Between 14-23% of young people reported eating takeaways for lunch in two large scale surveys (DHSS, 1989; Anderson et al, 1993) whereas a considerably higher number, 36%, did so in this study. In previous surveys, over 60% of young people have been found to have breakfast daily (Bull, 1985; Roberts et al, 1993; Anderson et al, 1993 ; Balding, 1995) compared to 53% for this sample. Very little data has been collected on food skills, but a national survey found that 49% of 7-15 year olds helped with cooking at home at least once per week (MORI, 1993), whereas in this sample only 29% did so. One finding that was similar to other studies (Bull, 1985; Health Education Authority, 1990b, Anderson et al, 1993 ; Balding, 1995) was the high number of young people, especially females who perceived themselves to be overweight when they were not.

Although, as classified by the healthy eating index, only 15% of the sample were considered as "less healthy" eaters, when other results of the samples' dietary patterns are compared to published reports there was a far higher proportion engaging in dietary patterns that may have both short and long term detrimental health consequences. This is surprising when regional variations in dietary patterns have highlighted healthy dietary behaviours are more common in the south of England compared to the North and Scotland (Bull, 1985; DHSS,
1989). The poor dietary patterns of males and individuals from manual households were of particular concern, a finding supported by other studies (Bull, 1985; Hackett et al, 1986; Adamson et al, 1992a; Balding, 1995).

5.2.2. Conceptualisation of Food

A more detailed insight into the samples' beliefs and attitudes towards food was uncovered in the Phase 1 and 3 interviews (Figure 11). The conceptualisation of food and drink that emerged revealed how healthy foods were considered to be largely irrelevant, unappealing and expensive to most young people. In addition they were not considered to be readily available outside of their own homes as the food choices at school and in the surrounding shops often provided very limited options. Healthy foods were seen more as foods eaten by adults concerned about their longer term health. When healthy foods were eaten by young people it was most often within the home at mealtimes, mostly with other family members. Their consumption was in an adult dominated and structured setting where most young people felt they had little control or influence.

In contrast, fast foods were considered very much part of young people's independent lives. These foods were commonly eaten with friends outside the home, either in the streets or at school. They were associated with enjoyment and relaxation, were seen to be readily available, very appealing and to be instantly accessible and convenient requiring no preparation and little time to be eaten. Eating fast food fitted well into young people's busy routines. Undoubtedly part of the appeal of fast foods was the parental disapproval provoked when they were eaten. They were therefore considered to be more under young people's control rather than their parents or other adults. A major concern associated with eating these foods was however potential weight gain.
This conceptualisation, social significance and symbolism of foods accords with previous findings from children and young people. James (1981) and Rousseau (1984) described and explained the social significance to children of eating certain foods and the contextual separation that took place between eating children's and adults' foods. Certain foods eaten by children ("Kets") provoked adult disapproval but were valued and shared amongst their peers and therefore played an important role in the process of socialisation and development. Amongst Finnish adolescents, Prattala (1989) showed that major practical and symbolic differences existed between foods eaten at home and at school ("real foods") compared to those eaten independently elsewhere ("junk foods"). Eating "junk foods" was seen as an expression of teenage subculture. The finding that groups "real foods" as those eaten at home and school, contrasts with the data from this study which showed a clear separation from foods eaten at home and at school. This difference may well reflect the varying organisational structure and nature of secondary schools in Finland and England and therefore how young people perceive their school environments.
Female adolescent conceptualisation of food reported by Chapman and Maclean (1993) are also very similar to the findings in this study, both in terms of the predominant concepts and associated emotional and social significance of different foods. In addition the unappealing nature of healthy foods, combined with their perceived lack of relevance to young people (Story and Resnick, 1986) appears to be a common view amongst young people in the United States of America and in the United Kingdom.

5.2.3. Towards An Understanding of Dietary Behaviour Change

It is apparent from the results that a significant number of young people have recent experience of changing elements of their diets. Approximately 50% had changed either their fat or sugar intakes. The vast majority reporting a reduction in consumption. The main reason for changing was a concern about appearance, with direct concerns about health being far less frequently cited. Logistic regression analysis highlighted the key indicator variables for change as sex, perceptions of weight, level of involvement in cooking at home and type of lunch consumed. Females, those perceiving themselves to be overweight, those with greater involvement in cooking and those having lunch either prepared or eaten at home were all more likely to have changed their diets within the last 6 months.

A far more detailed insight into the experiences of diet change was possible through the collection of the qualitative data. This revealed the very complex and diverse nature of changes undertaken. Those interviewed reported various attempts at reducing mostly their intakes of fatty and sugary foods, the central motivation for this being a concern about weight control and body appearance. Being overweight was considered as a major problem which impacted upon young people's self confidence and ability to socially interact. With a small number of females these concerns became obsessive resulting in anorexic
behaviours. Young people considered themselves as now vulnerable to weight gain whereas when they had been younger this was not seen as a concern. Entering this age of vulnerability affected their beliefs and eating behaviours. The social and structural environments were a major influence upon young people's ability to sustain desired changes. For example, changes undertaken within the home were far easier to maintain than those attempted at school where support and available food choices were often severely limited.

Most of these findings confirm and support existing knowledge of dietary change. The high proportion of young people, especially females, reporting changes is similar to several other surveys (British Nutrition Foundation Survey, 1985; Bull, 1985; National Dairy Council, 1989; Health Education Authority, 1990b). For example, the National Dairy Council (1989) revealed that 78% of 14-18 year old females reported a reduction in their sugar consumption in the previous year. Concerns about weight control and body shape were identified as the major motivation for diet change (National Dairy Council, 1989; Health Education Authority, 1990b; Chapman and Maclean, 1993). Several studies have highlighted how adolescent females are more concerned about their looks than their male peers and how this impacts upon their ratings of self esteem and is linked to subsequent dieting practices (Kagan and Squires, 1984; Grant and Foder, 1986; Casper and Offer, 1990). The results from the logistic regression analysis which identified females and those perceiving themselves to be overweight as being more likely to have changed their eating patterns also confirms the existing research. The logistic regression also identified cooking frequency and type of lunch consumed as key indicators of change. Although these findings are less easily explained, a greater involvement in cooking may have equipped young people with the necessary skills to modify their diets. Alternatively a desire to change their eating patterns may have resulted in these young people becoming more interested and involved in cooking. This analysis
cannot identify the order of events in the relationship between these variables. With lunch, eating packed lunches or going home for lunch may be considered as a result of changing dietary patterns since changing was much easier within the home environment as opposed to the school.

A possible explanation for why so many young people are changing their diets is that many reported that they now felt vulnerable to weight gain, because they perceived they were at a particular stage of physical and social development. Whereas when they had been younger they could eat almost anything and not worry about gaining weight, many now perceived this was no longer the case. Although they were 13-14 years olds, in terms of their eating patterns, a significant proportion were adopting more adult-like concerns and behaviours towards what they ate. In addition to the effect of entering a perceived period of greater vulnerability to weight gain young people aged 13-14 years are also gaining greater control and autonomy over many aspects of their lives including their food choices. This explanation is supported by Thomas (1991) who proposed the concept of an eating career which reflects the impact of social and physical development on an individuals eating patterns as they mature and age. Backett and Davison (1995) have also highlighted the varying perceptions individuals at different points on the life course express towards the effects of eating on their bodies, with children being perceived as free to eat "junk" as their young bodies would "burn off" any bad effects. In addition to these sociological explanations, major pubertal biological changes are taking place in 13-14 year olds which would have a direct physical impact on their bodies. These physical changes are particularly apparent in females which could partly explain the higher proportions of females engaged in dietary change.

This study has clearly highlighted how aware many young people are of the range of social and structural factors that influence their eating patterns. The
social context in which young people are placed strongly determines their ability to change dietary behaviours (Chapman and Maclean, 1993). As well as social influences, structural factors such as the availability, appeal and price of alternative food options also have a major impact on young people (Story and Resnick, 1986; Chapman and Maclean, 1993). Recognition of the importance of these factors, which are largely outside individual control, has clear implications for efforts designed to assist young people adopt healthier dietary patterns.

5.2.4. Applicability of the Transtheoretical Model of Change

There are no published reports of the application of the Transtheoretical Model of Change to dietary behaviour change amongst young people. The results from this study indicate that the model can be used to assess dietary change within a sample of young people and in particular provide insights into different patterns of change between males and females. However the precise processes involved in progressing and maintaining dietary changes are still not clear.

The model was applied to dietary fat reductions in American adults. Relatively low proportions of the respondents were in the contemplation or preparation stages. Higher proportions were in the action, maintenance or precontemplation stages. Overall males were more likely than females to be at the precontemplation stage. Conversely, women were more likely than men to be maintaining fat reductions (Curry, Knstal and Bowen, 1992). The results from this Camden and Islington study are very similar suggesting that the process of diet change in young people and adults may have features in common. For example, low proportions of young people were in the contemplation, preparation or lapse stages for either their fat or sugar change. On the other hand higher proportions were in the precontemplation, action, maintenance or stable change stages. As with the adult population, major differences were evident between adolescent males and females. For both fat and sugar, males
were more likely to be in the precontemplation stage whereas females were more likely to be in either the contemplation or action stages. These results highlight the very different patterns of change between males and females. Males were far less aware and engaged less in diet change compared to the females who were more thoughtful and concerned about their diets and also more actively engaged in modifying elements of what they were eating.

Support and further explanations for the difference between males and females is provided by the Phase 3 interview results which showed that females were more open about their concerns over weight and body shape, frequently discussing the matter with their friends and family before attempting to lose weight. In contrast, males were far more shy and considered their fears over their weight as a private issue. For young women the process of dietary changes are more thoughtful and considered, whereas in young men when changes do occur they appear more spontaneous, and may not involve a period of contemplation.

One of the primary reasons for conducting the Phase 3 interviews was to gain a better understanding of the detailed nature of dietary behaviour change. Individuals from a variety of stages of change were therefore selected for interviewing. Although a good deal of interesting information was collected it remains unclear what precise factors are involved in progressing through the various stages to a successful maintenance stage. The fear of weight gain was the main motivating factor for individuals in all the stages. There appeared not to be different motivations for change as individuals progressed through the stages. Due to the relatively few individuals with very recent experience of lapsing, a detailed insight into the factors that cause young people to fail in their attempts at change was not uncovered. However, the interviews very clearly indicated the importance of social support and structural factors on young
peoples ability to succeed with their desired changes. This confirms earlier research into behaviour change amongst adults (Marlatt and Gordon, 1985; Stott and Pill, 1990).

The results from the application of the Transtheoretical Model of Change have important implications for the development and implementation of future dietary health promotion interventions. Rather than assume all individuals are at the same stage of change, interventions need to be designed to cater for the particular needs of individuals and groups. For example, many females may require support and assistance in the action and maintenance stages of change, in contrast to many males who may need help moving into the contemplation stage.

5.2.5. Fat and Sugar Changes Compared

It has been suggested that the two aims of reducing fat and non milk extrinsic sugars are incompatible and that limiting sugar results in an increase in fat intake, the so-called fat-sugar seesaw (Gibney, 1980). A unique aspect of this study is the ability to compare and contrast young people's experiences and beliefs of fat and sugar change. From a behavioural perspective there appears to be a great similarity in fat and sugar changes, indicating that beliefs and behaviours about reducing fats and sugars are connected. The proportions of individuals in each stage of change was very similar for fat and sugar, suggesting that similar processes may be involved. When the motivations for change were assessed certain similarities were apparent. Concerns about appearance was the most important reason for change for both fat and sugar. However, compared to fat, young people may place greater importance on the health concerns of eating sugar than concerns about body shape. This may be due to the greater relevance to young people of the immediate detrimental
effects of eating sugar on their oral health, compared to the longer term harmful
general health effects of eating too much fat.

5.3. Methodological Considerations
Although very little research has been conducted into assessing dietary
behaviour change amongst young people, this study was based on a well
developed theoretical understanding of behaviour change. The Transtheoretical
Model of Change (Prochaska and DiClemente, 1991) and the Conceptual
Model of Change (Hunt and Macleod, 1987; Hunt and Martin, 1988) have
highlighted the influences, processes and stages involved in behaviour change
and have usefully facilitated this investigation of diet change undertaken by
young people.

By adopting a combination of research methods, based upon a sound
theoretical base it has been possible to collect interesting data. (Results from
the triangulation exercise are presented in Appendix 11). One of the major
strengths of this study was the innovative research design adopted which
utilised a combination of complementary methods. The quantitative phase
effectively assessed the extent and features of the samples dietary behaviour
change, whereas the qualitative elements enabled a far more detailed
understanding of the topic to be uncovered. By using a combination of methods
a more complete picture was therefore created. Pelto (1981) and Brown (1986)
strongly advocate the use of such a combined approach as being the best
research design in social nutrition investigations.

Although this study has clearly identified strengths inevitably there are also
certain weaknesses. To fully investigate and understand the processes and
outcomes involved in dietary behaviour change a longitudinal research design
should have ideally been adopted. By studying the changes as they naturally
occur, the dynamics of change would then be more clearly uncovered. The research design has provided an initial insight into the change process based upon data collected twice over a 1-2 month period. Originally the intention was to re-interview the Phase 3 sample over a 18 month period. However access to schools proved very difficult due to curriculum and exam pressures. Future studies may need to consider more acceptable methods of accessing young people.

As well as extending the period of investigation a more comprehensive insight would be gained into the outcomes of reported dietary change if some form of quantitative assessment of modifications to nutrient intakes was included in the research design. This study did not include any detailed measure of the effect of reported changes on individuals nutrient intakes which therefore limits the direct health and nutritional changes that can be ascertained.

In addition to these shortcomings certain measures used in Phase 2 could be improved. In particular a more detailed and accurate measure of height and weight, as well as a more valid assessment of dietary intakes, rather than the somewhat crude food frequency variables. Lastly, additional information could have been collected which would aid the final analysis and understanding of the topic. More information from the Phase 2 sample on their smoking habits, their experiences of dieting and the availability and cost of food items sold at school and in the immediate vicinity would all have been useful additional data.

Although the study sample was very co-operative; very few individuals either refused to participate or dropped out of the study, a larger sample size in Phase 2 would have enabled more extensive analysis and enabled separate logistic regression analysis to be carried out for males and females. That would have
identified any major differences between the sexes in key indicators of diet change.

5.4. Proposed Conceptual Model For Adolescent Dietary Behaviour Change

A modified Transtheoretical Model of Change is proposed which better reflects young people's experience of dietary behaviour change (Figure 12). This model essentially simplifies the existing model and places far greater emphasis on the socio-structural influences that affect young people's dietary patterns.

The stage of preparation has been removed from the original model as for most young people this does not appear to be a critical part of the process of change. Instead young people who engage in a period of discussion and debate over the merits and drawbacks of changing would be included in the contemplation stage. The contemplation stage would therefore include individuals who are thinking about making changes, as well as those who have decided to change in the near future. This revised model would stress the cyclical nature of change and the fact that lapses could occur at any point in the process.

This new model emphasizes the importance of the socio-structural context on change. Motivational factors which are highly influenced by social factors within society have been identified as being very relevant to young people. The support provided by social networks are very influential in young people's attempts at change and their ability to maintain changes. In addition, progress through all the stages of change is greatly affected by structural influences, such as costs, availability, and appeal of alternative food options. Young people may have very little control over these influences. The social, motivational and structural factors can influence any of the stages of change. Research is needed to assess which stage is most vulnerable to each influence.
Socio-structural Context

Social Influences
- family support & conflict
- peer approval
- significant others

Motivational Factors
- weight concerns
- body image
- appearance
- peer-group norms
- health concerns

Process of Change
- precontemplation
- contemplation
- action
- maintenance
- stable change

Structural Factors Affecting Food Choice
- costs, appeal & availability of foods

Figure 12 - Conceptual Model of Adolescent Dietary Behaviour Change
5.5. Conclusions

(1) A significant proportion of the young people had dietary patterns that may have potentially harmful short and long term health effects. This is especially so for males and those from manual households.

(2) A considerable proportion of young people, especially females were engaging in changing their dietary behaviours, mostly in an attempt to reduce their fat and/or sugar intakes.

(3) The main motivation for changing was a concern about weight control and body appearance, with direct health motivations being relatively less important. Many of those dieting were not in fact overweight.

(4) Major differences exist between males and females in the stages and processes involved in dietary behaviour change.

(5) The social and structural context in which young people are placed has a major influence over the process of dietary behaviour change.

(6) The findings of this study therefore support and endorse the original hypothesis that a significant proportion of young people are attempting to modify their dietary patterns, which involves a prolonged process influenced by social factors, where direct health motivations play a relatively minor role.

5.6. Recommendations

(1) Further research is required to provide a more detailed understanding of dietary behaviour change amongst young people. Future research should adopt a longitudinal research design which follows young people as they attempt to modify their dietary patterns and is therefore able to assess the dynamic nature and processes of change. Future research also needs to assess in a quantitative manner the nutritional consequences of reported changes.

More detailed insights are required into the factors that influence the ability and willingness to move through the different stages of change. In particular, what
causes moves from the stage of precontemplation to that of contemplation and what factors support those in the maintenance stage to prevent lapses occurring.

Future research should be based on the existing theoretical understanding of behaviour change and recognise the wide variety of factors that influence dietary behaviour change. This requires a multi-disciplinary research team with a range of skills.

(2) Future health promotion interventions aiming at promoting healthier eating patterns amongst young people need to be designed to cater for individuals at different points in the process of change. It cannot be assumed that all young people are willing or able to change their dietary patterns. Interventions need to recognise the key influence exerted by the social and structural contexts on young peoples food choices. For example, the availability, appeal and price of alternative food options need to be assessed. Young people's conceptualisation of foods needs to be recognised, especially the very negative concepts many hold towards healthier foods. Particular care should be placed on the concerns that many young people have about their weight and appearance. Interventions need to develop ways of improving particularly young women's levels of self esteem to enable them to assess their dieting needs more appropriately.
Dear Parent/Guardian,

The purpose of this letter is to seek your permission to interview your child in a research project I am conducting within Islington and Camden secondary schools.

The project is looking into teenagers dietary habits and behaviours. Anything discussed by your child in relation to their diet will only be used for research purposes and your child's name will not be associated in any way with the final results of the study.

The interview will last approximately 1 hour and if possible will be tape recorded to allow all the information given to be collected accurately.

If you do not wish for such an interview to take place or require more information please contact me at the above address.

Many thanks.

Yours faithfully,

Richard G Watt
Lecturer/Researcher in Epidemiology and Public Health
May 1994

Dear Parent/Guardian,

The purpose of this letter is to seek your permission to involve your child in a research project I am conducting within Camden secondary schools.

The project is looking into teenagers dietary habits and the results of this survey should prove very helpful in developing school health promotion policies within Camden. Little is known about what teenagers eat and it's effects on their health.

Any information given by your child in relation to their diet will only be used for research purposes. Your child's name will not be associated in any way with the final results of the study. The information for this project will be collected using a questionnaire in schools and a small number of young people may also be interviewed.

If you do not wish your child to be involved with this survey or require more information please contact me at the above address.

Many thanks.

Yours faithfully,

Richard G Watt
Lecturer/Researcher in Epidemiology and Public Health
TOPIC GUIDE 1

(1) INTRODUCTION
(warm up and introductory exercise) - get respondent talking freely and feeling relaxed as possible

brief details given of:-
  purpose of study
  length of interview
  confidential nature
  permission for tape recording

Can we start this interview by you telling me a little about yourself
eg How old are you
    Who lives with you
    Any brothers/sisters & how old are they
    How long have you lived around here for
    What school do you go to
    What do you think of it
    What subjects are you doing - favourites
    What are your plans for the future, leaving school etc
    What are your hobbies/interests/sports

(2) PRESENT EATING/DIETARY HABITS
I would now like to discuss with you some details about your current diet

(a) Types of foods eaten
- Describe what you eat on a typical sort of day?
  eg yesterday
* meals eaten - breakfast why
  - lunch why
  - dinner/evening meal why
* snacks eaten
  - school breaktime why
  - travelling to/back school why
  - home from school why
- evening  why
- before bed  why

- What other types of foods do you normally/often/regularly eat?
  meals  - during week  why
  - weekends  why
  snacks  - week  why
  - weekends  why

- What are your favourite types of foods at mealtimes & snacks?
  Why do you like them?
  How often do you have these?
  Why not more often?

- What are the foods that you dislike?
  Why do you dislike them?

(b) Pattern of eating
Please describe the scene for - mealtimes
  snacks
- Who do you normally have your meals/snacks with?
  * friends
  * family
  * alone
  (NOT TO BE PROMPTED)
- Where do you normally eat meals/snacks?
- Doing anything else at the time?
- At what time do you have your meals at?

Visitors
- Do you ever have visitors round for meals at your home?
- How often?
- What happens - different foods/drinks etc?

Eating out
- Do you ever eat out?
- How often?
- With whom?
- Where?
- Why?

(c) Shopping, preparation and cooking

Shopping
- Who normally buys your food?
- Why does this happen?
- Where does most of your food shopping take place?
- Why there?
- Any special day for shopping?
- How do they/you select the foods while shopping?
  - labels
  - price
  - special offers
  - adverts

Preparing/Cooking
- Who normally does this? - Why
- Anyone helps?
- Do you enjoy cooking?
  favourite dishes

Washing up
- Who does this and why?

(d) Control over present diet

Meals at home
- Who decides what meals you have at home?
- Are you consulted?
- Do you all normally agree?
- Do you normally eat what you are given?

Snacks/Lunches at school
- Who decides what you have?
- How much pocket money do you get?
- Is it enough for your snacks?
(e) Healthy diet?
Healthy foods
- Describe what types of foods do you feel make up a healthy diet?
- Why do you feel this to be the case?
- Where did you get this information from?

Unhealthy Foods
- What foods do you feel are unhealthy
- Why is this the case?
- Where information from?

Assessment of diet
- Do you feel your diet is a healthy one?
- What parts are healthy?
- Which parts are unhealthy?

(3) CHANGES TO DIET
Can we now move on and consider any changes that you may have made in your diet?

(a) Past
- When you were younger what types of foods did you eat then?
  earliest memories of foods eaten - under 5
  5 - 15
- What are the differences from now?
- Why do you think you changed?
- What and who influenced you to change?

(b) Present
- Are you satisfied/happy with your present diet?
- Have you changed it in any way recently?
  *experimented with new types of food?
  *cut down on something
  *increased something
  *changed cooking, preparing or shopping habits
(DO NOT PROMPT)
- What happened?
- Why did you change it?
- Has anything/one helped you with this change?
  - How did they/it help?
- Has anything hindered you from changing?
  - How did they/it hinder you?

(c) **Future**
- Can you see any changes happening in future to your diet?
  - What sort of change?
  - Why do you think this may happen?

- Ideally if you decided to change what you ate, what would help you to change?
  - Why would this help?

(4) **FINISH**

- Any other issues you want to discuss?
- Repeat some details:- confidentiality
  - thanks
  - general chat
Thank you for helping us with this survey. By answering these questions you will help us to find out more about the things young people eat and drink.

Your answers will only be looked at by the survey team. They will not be seen by your parents or teachers. Take your time to read each question carefully in turn and answer it as best you can. Please write down your own answers and remember that we are only interested in your opinions.

In most questions, you will be asked to place a tick in the box that best fits your answer. In some other questions, a dotted line will be a place where you can write your answer.

In the coming weeks I intend to talk to a small number of young people from this school about their eating habits. Those people volunteering to be interviewed will have the chance of winning a £25 book/record token as a reward for their cooperation.

Please write your full name and class number below

__________________________________________________________

__________________________________________________________

__________________________________________________________
**SECTION A - GENERAL DETAILS ABOUT YOURSELF AND YOUR HEALTH**

1. Are you male or female? (Please tick one box only)
   - Male
   - Female

2. In what year were you born? (Please tick one box only)
   - 1979
   - 1980
   - 1981
   - 1982
   - 1983

3. Who lives at home with you? (Here you can tick more than one box)
   - Mother/guardian
   - Father/guardian
   - 1 or more sisters
   - 1 or more brothers
   - Grandparents
   - Other relatives
   - Someone else
   - Live alone

4. From the list of ethnic groups below please select the one which best describes you? (Please tick one box only)
   - White UK
   - Irish
   - Black - Caribbean
   - Black - African
   - Indian
   - Pakistani
   - Bangladeshi
   - Chinese
   - Greek/Greek Cypriot
   - Turkish/Turkish Cypriot
   - Other
   (If other please describe below)

5. What is your father's/guardian's job? Please write down exactly what he does, for example shopkeeper, teacher or unemployed. If you don't know please leave blank.

-----------------------------------------------------------------------
(6) What is your mother's/guardian's job? Please write down exactly what she does, for example shopkeeper, teacher or unemployed. If you don't know please leave blank.

(7) How much money do you spend each week on food, including meals, sweets and snacks? (Include money you get as pocket money and anything you may earn from doing a paper round etc) (Please tick one box only)

- Nothing
- Less than £1
- Between £1 and £2.99
- Between £3 and £4.99
- £5 or more

(8) How do you rate your health at present? (Please tick one box only)

- I am very healthy
- I am quite healthy
- I am not healthy
- I don't know

(9) For someone of your age and size how do you rate your weight at present? (Please tick one box only)

- I am very overweight
- I am a little overweight
- I am about the right weight
- I am a little underweight
- I am very underweight
- I don't know

(10) How tall are you? (Please write your answer in one of the boxes below)

<table>
<thead>
<tr>
<th>feet</th>
<th>inches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>metres</th>
<th>centimetres</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(11) How much do you weigh? (Please write your answer in one of the boxes below)

<table>
<thead>
<tr>
<th>stones</th>
<th>pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>kilograms</th>
</tr>
</thead>
</table>
### SECTION B - DETAILS OF THE FOODS & DRINKS YOU EAT

(12) How often do you usually eat or drink any of the following? (Please tick one box for each line)

<table>
<thead>
<tr>
<th>FOOD</th>
<th>Never or very rarely</th>
<th>1-3 per month</th>
<th>Once a week</th>
<th>2-4 per week</th>
<th>5-6 per week</th>
<th>Once a day</th>
<th>2-3 per day</th>
<th>4-5 per day</th>
<th>6 or more per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>* MEATS, POULTRY &amp; FISH</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>meat (eg beef, pork, lamb chops or roast)</td>
<td></td>
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<tr>
<td>meat products (eg hamburgers, sausages/kebabs/meat pies etc)</td>
<td></td>
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<tr>
<td>poultry (eg chicken, turkey)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>fish (eg fried fish, tuna, sardines etc)</td>
<td></td>
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</tr>
<tr>
<td>* DAIRY PRODUCTS</td>
<td></td>
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<tr>
<td>ordinary milk (ie full fat)</td>
<td></td>
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<tr>
<td>semi-skimmed or skimmed milk (ie reduced fat)</td>
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<tr>
<td>cheese (eg cheddar etc)</td>
<td></td>
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<td></td>
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<tr>
<td>eggs</td>
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<tr>
<td>* FRESH FRUITS</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>fruit (eg apples, oranges, bananas melon etc)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOOD</td>
<td>Never or very rarely</td>
<td>1-3 per month</td>
<td>Once a week</td>
<td>2-4 per week</td>
<td>5-6 per week</td>
<td>Once a day</td>
<td>2-3 per day</td>
<td>4-5 per day</td>
<td>6 or more per day</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>*FRESH/FROZEN VEGETABLES</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>potatoes - jacket, boiled, mash or sweet potatoes</td>
<td></td>
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<tr>
<td>potatoes - chips</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>yam, green bananas, plantain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>other vegetables (eg carrots, leeks, brocoli, okra)</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>beans &amp; pulses (eg beans, baked beans, lentils, dhal)</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>* DRINKS</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>tea or coffee</td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>real fruit juice (eg orange, apple etc)</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>milkshakes</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>low calorie or diet fizzy drinks (eg diet pepsi)</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>ordinary fizzy soft drinks (eg tango, pepsi etc)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>FOOD</td>
<td>Never or very rarely</td>
<td>1-3 per month</td>
<td>Once a week</td>
<td>2-4 per week</td>
<td>5-6 per week</td>
<td>Once a day</td>
<td>2-3 per day</td>
<td>4-5 per day</td>
<td>6 or more per day</td>
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</tr>
<tr>
<td>* BREADS, RICE &amp; PASTA</td>
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<tr>
<td>white - bread/rolls, nan, chapatis, pitta</td>
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<td></td>
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<tr>
<td>wholemeal/brown - bread/rolls, nan, chapatis, pitta</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>rice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pasta</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* SWEETS &amp; SNACKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>biscuits, cakes, buns &amp; pastries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>sweets, chocolates &amp; toffees</td>
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<td></td>
<td></td>
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<tr>
<td>savory snacks (eg potato crisps, corn snacks, peanuts etc)</td>
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<td></td>
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</tr>
</tbody>
</table>

SECTION C - DETAILS OF YOUR PATTERN OF EATING

(13) How often do you usually eat breakfast? (Please tick one box only)

<table>
<thead>
<tr>
<th>Frequency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>everyday</td>
<td></td>
</tr>
<tr>
<td>5-6 days a week</td>
<td></td>
</tr>
<tr>
<td>2-4 days a week</td>
<td></td>
</tr>
<tr>
<td>once a week</td>
<td></td>
</tr>
<tr>
<td>weekends only</td>
<td></td>
</tr>
<tr>
<td>less often than once a week</td>
<td></td>
</tr>
<tr>
<td>never</td>
<td>(IF NEVER PLEASE STATE REASON BELOW &amp; THEN GO TO QUESTION 16)</td>
</tr>
</tbody>
</table>
(14) What do you usually have for breakfast? (Here you can tick more than one box)

- a cooked breakfast
- cereal
- toast
- hot drink (eg tea, coffee)
- glass of fruit juice
- glass of milk
- drink of water
- something else

(If something else please state below what this is)

(15) How often do you usually sit down and eat breakfast with someone else? (Please tick only one box)

- every day
- 5-6 days a week
- 2-4 days a week
- once a week
- less often than once a week
- never

(16) At lunchtime, during your school week what do you usually have to eat? (Please tick only one box)

- school dinners
- packed lunch brought from home
- fast food or bakery takeaway
- I go home for lunch
- nothing
- something else (please state)

(If something else please state what this is below)

(17) How often do you usually have a meal in the evening? (Please tick only one box)

- every day
- 5-6 days a week
- 2-4 days a week
- once a week
- less often than once a week
- never

(IF NEVER PLEASE GO TO QUESTION 19)
(18) How often do you usually sit down and eat your meal in the evening with someone else? (Please tick only one box)

- every day
- 5-6 days a week
- 2-4 days a week
- once a week
- weekends only
- less often than once a week
- never

(19) How much choice do you have over the meal time foods you eat at home? (Please tick one box only)

- I choose most of the things I eat
- I choose some of the things I eat
- I choose a few of the things I eat
- I never choose the things I eat

(20) Now, thinking just of yesterday what snacks did you eat or drink between meal times (here you can tick more than one box in each line)

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>No Snacks</th>
<th>Fruit</th>
<th>Sweets or Chocolate</th>
<th>Crisps or Peanuts</th>
<th>Cakes or Biscuits</th>
<th>Fizzy Drinks</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the morning</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the afternoon</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the evening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* If something else, please write down what this was

(1) __________________________
(2) __________________________
(3) __________________________

(21) Altogether how many times did you have a snack yesterday? (Please tick one box only)

- none
- once
- twice
- three times
- more than three times
(22) Do you add sugar to either tea or coffee? (Please tick one box only)

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
</tr>
</thead>
</table>
I use artificial sweeteners
I don't drink tea or coffee

(If yes, how many teaspoons do you usually add - please state number here ————)

SECTION D - CHANGES TO YOUR DIET

(23) Are you a vegetarian at present, or have you ever been a vegetarian in the past? (A vegetarian is someone who does not eat any meat, poultry or fish) (Please tick one box only)

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
</tr>
</thead>
</table>
No, I have never been a vegetarian
Yes, I am a vegetarian now
Yes, I was a vegetarian in the past but not now

(24) Do you belong to a religion that influences either the types of foods/drinks you may eat or drink or the pattern of your eating in anyway?

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
</tr>
</thead>
</table>
I don't know

(If yes, please state your religion below and give details of how your religion influences your diet)

(25) In the last 6 months have you changed the amount of fatty foods (eg fried foods, chips, burgers) you eat? (Please tick one box only)

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
</tr>
</thead>
</table>
I have not changed the amount of fatty foods I eat
I already eat a low fat diet
I now eat less fatty food
I now eat more fatty food

(IF YOU HAVE TICKED BOX (A) OR (B) GO TO QUESTION 26

(IF YOU HAVE TICKED BOX (C) OR (D) GO TO QUESTION 28

(26) In the last 6 months have you seriously thought about changing the amount of fatty foods you eat but as yet have not actually tried to change your diet?

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
</tr>
</thead>
</table>
I don't know

(IF YOU HAVE TICKED BOX (A) GO TO QUESTION 27

(IF YOU HAVE TICKED BOX (B) OR (C) GO TO QUESTION 30
(27) During the next month how confident are you that you will actually change the amount of fat you eat? (Please tick one box only)

- I am very confident of making some change
- I am confident of making some change
- I am mildly confident of making some change
- I am not at all confident of making some change

(AFTER ANSWERING QUESTION 27 PLEASE NOW GO TO QUESTION 30)

(28) Which one of the following best describes the reasons why you tried to change the amount of fat in your diet? (Here you can tick more than one box)

- To improve my appearance (eg improve figure, lose weight, stop spots developing)
- For health reasons (eg to eat healthy foods or on advice from a doctor)
- For cost reasons (eg to save money)
- Feeling stressed at school or home (eg now don't feel like eating certain foods)
- Wanting a change in daily routine (eg bored with certain foods now)
- Change in circumstances at home (eg family member now on diet)
- Other Reasons

(If other reasons please give some details below)

(29) Which one of the following best describes what has happened since you tried to change the amount of fat in your diet? (Please tick one box only)

- I feel that I have succeeded in the change and am happy with what I have changed
- I am still trying to change my diet and this will take some more time and effort
- I have given up trying to change my diet for now but may well try again fairly soon
- I have given up trying to change my diet and have no plans to do so again
(30) In the last 6 months have you changed the amount of sugary foods and drinks (eg biscuits, sweets, chocolates, fizzy drinks) you eat and drink? (Please tick one box only)

(A) I have not changed the amount of sugar in my diet
(B) I already have a low sugar diet
(C) I now eat less sugary food/drink
(D) I now eat more sugary food/drink

IF YOU HAVE TICKED BOX (A) OR (B) GO TO QUESTION 31
IF YOU HAVE TICKED BOX (C) OR (D) GO TO QUESTION 33

(31) In the last 6 months have you seriously thought about changing the amount of sugary food/drinks you eat/drink but as yet have not actually tried to change your diet?

(A) yes
(B) no
(C) don’t know

IF YOU HAVE TICKED BOX (A) GO TO QUESTION 32
IF YOU HAVE TICKED BOX (B) OR (C) GO TO QUESTION 35

(32) During the next month how confident are you that you will actually change the amount of sugar you eat/drink? (Please tick one box only)

I am very confident of making some change
I am confident of making some change
I am mildly confident of making some change
I am not at all confident of making some change

(AFTER ANSWERING QUESTION 32 PLEASE NOW GO TO QUESTION 35)

(33) Which one of the following best describes the reasons why you tried to change the amount of sugar in your diet? (Here you can tick more than one box)

To improve my appearance (eg improve figure, lose weight, stop spots developing)
For health reasons (eg to eat healthy foods or on advice from a doctor)
For cost reasons (eg to save money)
Feeling stressed at school or home (eg now don’t feel like eating certain foods)
Wanting a change in daily routine (eg bored with certain foods now)
Change in circumstances at home (eg family member now on diet)
Other Reasons

(If other reasons please give some details below)
(34) Which one of the following best describes what has happened since you tried to change the amount of sugar in your diet? (Please tick one box only)

- I feel that I have succeeded in the change and am happy with what I have changed
- I am still trying to change my diet and this will take some more time and effort
- I have given up trying to change my diet for now but may well try again fairly soon
- I have given up trying to change my diet and have no plans to do so again

(35) If you wanted help in changing your eating habits in the future, do you think each of the following would be helpful or not to you? (Please tick one box only for each line)

| a. encouragement & support from close family | Helpful | Not Helpful | Not Sure |
| b. encouragement & support from friends at school | | | |
| c. an organised support group | | | |
| d. advice from your doctor | | | |
| e. a booklet offering advice & practical tips | | | |
| f. better food labelling with details of nutrition | | | |
| g. wider availability of healthy foods | | | |
| h. cheaper healthy foods | | | |
| i. drugs prescribed by your doctor | | | |
| j. your own will power | | | |
| k. school classes on cooking | | | |
| l. other (please specify) | | | |

(If other please give details below)

SECTION E - SHOPPING, PREPARING AND COOKING FOODS

(36) How often do you help in shopping for the food used at home? (Please tick only one box)

- every day
- 5-6 days a week
- 2-4 days a week
- once a week
- less often than once a week
- never

(IF NEVER PLEASE GO TO QUESTION 38)
(37) What types of places do you go to for food shopping? (Here you can tick more than one box)

<table>
<thead>
<tr>
<th>Place</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>local &quot;corner&quot; shop</td>
<td></td>
</tr>
<tr>
<td>fresh food markets</td>
<td></td>
</tr>
<tr>
<td>specialised food shops</td>
<td></td>
</tr>
<tr>
<td>supermarkets</td>
<td></td>
</tr>
<tr>
<td>other places</td>
<td></td>
</tr>
</tbody>
</table>

(If other places please give details below)

(38) How often do you help in cooking the food for a meal at home? (Please tick only one box)

<table>
<thead>
<tr>
<th>Frequency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>every day</td>
<td></td>
</tr>
<tr>
<td>5-6 days a week</td>
<td></td>
</tr>
<tr>
<td>2-4 days a week</td>
<td></td>
</tr>
<tr>
<td>once a week</td>
<td></td>
</tr>
<tr>
<td>less often than once a week</td>
<td></td>
</tr>
<tr>
<td>never</td>
<td>(IF NEVER PLEASE GO TO QUESTION 41)</td>
</tr>
</tbody>
</table>

(39) How do you cook foods at home? (Here you can tick more than one box)

<table>
<thead>
<tr>
<th>Method</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>heat foods up on a cooker</td>
<td></td>
</tr>
<tr>
<td>fry foods on a cooker</td>
<td></td>
</tr>
<tr>
<td>grill foods in a cooker</td>
<td></td>
</tr>
<tr>
<td>bake foods in an oven</td>
<td></td>
</tr>
<tr>
<td>use microwave cooker</td>
<td></td>
</tr>
<tr>
<td>other ways of cooking</td>
<td></td>
</tr>
</tbody>
</table>

(If other ways of cooking please give details below)

(40) How did you learn to cook? (Here you can tick more than one box)

<table>
<thead>
<tr>
<th>Method</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>taught by someone in my family</td>
<td></td>
</tr>
<tr>
<td>taught at school</td>
<td></td>
</tr>
<tr>
<td>read magazine articles and/or cookbooks</td>
<td></td>
</tr>
<tr>
<td>taught myself by experimenting</td>
<td></td>
</tr>
<tr>
<td>taught by friends</td>
<td></td>
</tr>
<tr>
<td>other ways</td>
<td></td>
</tr>
</tbody>
</table>

(If other ways please give details below)
(41) Have you ever cooked a complete meal for other members of your family?  
[ ] yes  [ ] no  [ ] don't know

SECTION F - EXPLORING YOUR ATTITUDES AND KNOWLEDGE ABOUT FOOD

(42) Below is listed a number of sentences about food. Please read each of these sentences and decide whether you agree or disagree with EACH statement (Please tick one box for each line)

<table>
<thead>
<tr>
<th>I agree</th>
<th>I neither agree nor disagree</th>
<th>I disagree</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. People of my age don't need to worry about the foods they eat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Experts never agree which foods are good for you</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. I find healthy foods too boring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. As long as you are reasonably active you can eat what you like</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. I don't know enough about which foods are good for you</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Learning to cook interests me a lot</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(43) Below is listed a number of sentences about food and health. Please read each of these sentences and decide whether you agree or disagree with each statement (Please tick one box for each line)

<table>
<thead>
<tr>
<th>I agree</th>
<th>I neither agree nor disagree</th>
<th>I disagree</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Eating fruit and vegetables is good for people</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. A poor diet increases most peoples' chances of a heart attack</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Sweets and soft drinks can damage teeth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. It's important to eat plenty of red meat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Low fat milk is generally better for people than full cream milk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Eating fried food is good for people</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(48) When you buy foods that come in some form of packaging, how frequently do you look at the following information on food labels? (Please tick one box for each line)

<table>
<thead>
<tr>
<th>most times</th>
<th>some times</th>
<th>Rarely or never</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. sell by date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. list of ingredients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. nutrition information</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(49) If you wanted to find out more about the food you eat, where would you be most likely to get the information from?
(Please tick either yes or no for every line)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>your family</td>
<td></td>
<td></td>
</tr>
<tr>
<td>your friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>your teacher/school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>health professional eg doctor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>books</td>
<td></td>
<td></td>
</tr>
<tr>
<td>labels on food packages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>advertising</td>
<td></td>
<td></td>
</tr>
<tr>
<td>newspapers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV or radio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>supermarket leaflets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(If other things please give details below)

---

WELL DONE!! - YOU HAVE FINISHED
THANK YOU FOR YOUR TIME AND HELP
Appendix 5.

TOPIC GUIDE PHASE 3

(1) INTRODUCTION
(warm up and introductory element) - get respondent talking freely and feeling relaxed as possible

brief details given of:-

self
purpose of study
length of interview
confidential nature
permission for tape recording

Can we start this interview by you telling me a little about yourself
eg  How old are you
     Who lives at home with you
     What do your parents work at (if employed)
     Any brothers/sisters & how old are they
     How long have you lived around here for
     What do you think of this school
     What subjects are you doing - favourites
     What are your plans for the future, leaving school etc
     What are your hobbies/interests/sports

(2) ADOLESCENT CONCEPTS OF FOOD
Explain procedure for this section - ie use of cards and discussion of them

Randomly present interviewee with approx 18 cards and ask them to divide the cards into separate groups (at least 2) Once this has been done ask what name each group could be given, the reason behind the division and a description of when and how use foods, with whom and any associations linked with the foods Repeat process for at least three times
(NEED TO RECORD FOOD GROUPINGS)

(3) CHANGES TO DIET
Can we now move on and consider any changes that you have made in your diet or eating habits?
(link to questionnaire filled in school a few weeks ago - describe in more detail the change(s) you have made)
Tell me about the changes you made to your diet (sugar/fat)

- What happened?
  sudden change/decision
  think about it for a while

- How did you make the change?
  decrease/increase certain foods
  change amounts of foods
  change types
  times of eating
  company

- Why did you change it?
  context, triggers or predisposing factors

- Expected benefits/problems?

- Actual benefits/problems?

- Influence of other people?
  family, friends, schoolteachers, HCW, media etc

- What were the barriers and facilitators?

- Diet change associated with any other changes?

- Looking ahead in the future - how confident change maintained?

- Predict any future diet changes?
  leave school
  relationships
  getting job/ going to college

(4) FINISH

- Any other issues you want to discuss?
- Repeat some details - confidentiality

thanks & general chat
Appendix 6.

List of Foods and Drinks - Phase 3 Interviews

CRISPS
CHICKEN
CHOCOLATE
BISCUITS
PASTA
BREAD ROLLS
COKE
DIET FANTA
COFFEE
MILKSHAKES
CARROTS
CHIPS
JACKET POTATOES
APPLE
BANANA
SKIMMED MILK
LAMB CHOP
HAMBURGER
RICE
EGGS
CAKES
FRIED FISH
BAKED BEANS
PEANUTS
Appendix 7.

**Phase 3 Interview Data**

Student Name: 

School: 

Date: 

Summary of Questionnaire Data: 

Nature Of Change: 

Motivation for Change: 

Outcome of Change: 

Tape No: 

Length of Interview: 

Comments on Interview Process: 

Additional Information:
## Healthy Eating Index

1. sweets, chocolates and toffees  
   - once per day or less: score 1  
   - more than once a day: score 0  
2. wholemeal bread and rolls  
   - 5-6 week or less: score 0  
   - more 5-6 week: score 1  
3. ordinary fizzy drinks  
   - 2-4 week or less: score 1  
   - more 2-4 week: score 0  
4. other vegetables  
   - 2-4 week or less: score 0  
   - more 2-4 week: score 1  
5. fruit  
   - 5-6 week or less: score 0  
   - more 5-6 week: score 1  
6. chips  
   - 5-6 week or less: score 1  
   - more 5-6 week: score 0  
7. meat products  
   - 2-4 week or less: score 1  
   - more 2-4 week: score 0  
8. skimmed milk  
   - once a day or more: score 1  
   - less once a day: score 0  
9. pasta  
   - once a week or less: score 0  
   - more once a week: score 1

### Scoring System

A total score was calculated by adding together individual scores which were then grouped into three categories, "healthy eaters" (score 7-9), "fairly healthy eaters" (score 4-6) and "less healthy eaters" (score 0-3)
### Appendix 9.

**Food and Health Attitude Index**

<table>
<thead>
<tr>
<th>Statement</th>
<th>I agree</th>
<th>I neither agree nor disagree</th>
<th>I disagree</th>
<th>I don't know/missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. People of my age don't need to worry about the foods they eat</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>b. Experts never agree which foods are good for you</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>c. I find healthy foods too boring</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>d. As long as you are reasonably active you can eat what you like</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>f. Learning to cook interests me alot</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

### Scoring System

Total scores then divided into three groupings (based on 25, 50 and 75 percentiles)

- **scores 0-6**: 'negative'
- **scores 7-10**: 'intermediate'
- **scores 11-15**: 'positive'
Appendix 10.

Transtheoretical Model of Change Algorithm

- Precontemplation Stage
  If response question 25/30 A, and question 26/31 B or C

- Contemplation
  If response question 25/30 A, question 26/31 A and question 27/32 C or D

- Preparation
  If response question 25/30 A, question 26/31 A and question 27/32 A or B

- Action
  If response question 25/30 C and question 29/34 B

- Maintenance
  If response question 25/30 C and question 29/34 A

- Lapse
  If response question 25/30 C and question 29/34 C or D

- Stable Change
  If question 25/30 A.

(The 10 individuals who reported having increased their consumption of either fat and sugar were excluded from consideration).
Appendix 11.

Results of Triangulation Process

The triangulation process involved four separate elements

- **Comparison of Results from Phases 1, 2 and 3.**
  The results from the three phases have been compared to assess how consistent the findings are. The interview data collected from Phases 1 and 3 were found to be very much in broad agreement. When the questionnaire data collected from Phase 2 was compared to the Phase 3 interview data again the findings generally supported each other, although the qualitative interviews uncovered a far more detailed and complex insight into the respondents experiences and beliefs.

- **Use of Multiple Interviewers in Phase 3 Data Collection**
  To avoid individual interviewer bias, two interviewers collected data from all four schools involved in Phase 3 of the study. When the transcripts from both interviewers were compared the results collected were very similar in their findings.

- **Data Comparison with Other Research Data**
  As was apparent from Chapter 5, when the main findings of this study was compared with other published research, there were common findings, particularly in relation to the dietary patterns. In addition the data collected in this study was in accordance with the findings of a local Public Health Department Schools Study.
Independent Analysis of Phase 3 Interviews

A random selection of ten interview transcripts were independently analysed and a brief summary report was produced, as outlined below. The main findings produced from this independent analysis are largely similar to the results produced from the entire Phase 3 sample.

Characteristics of the Sample

Sample Size: 10
Female : 6
Male : 4
Family Structure: 5 Single parents, 3 Tow parents and 2 Unknown.

1. THE WORLD OF YOUNG PEOPLE
A. Healthy Food
    --- starchy food 2/38.
    -- that fills you up, not high in calorie 2/44
    -- low fat, no additives 2/47
    -- rice & pasta because they have proteins 3/33
    -- things grown or made by hands 3/37
    -- vegetables and less fatty 4/38
    -- food that fill you up 5/29
    -- you won't put too much weight if you eat that much 6/28
    -- low in fat but lot's of energy 6/78
    -- low in calorie 6/58
    -- foods with proteins and goodness in them 7/12.
-- not so fatty & more protein 7/16
-- one without additives 9/73
-- that something healthy to eat 10/41.

(- indicates a pattern that low fat, naturally grown and high protein foods are perceived healthy)

B. Dichotomy
--healthy & unhealthy 3/45
--normal & overweight 3/57
--healthy & junk 4/32
--healthy & fatty 5/42
--fatty & not too bad 6/26

(- overweight/fatty people are seen as unhealthy)

C. Key Phrases
-- stomach being fatty 1/73
-- snacking extras rather than meal 2/77
-- fattening == fatty food 3/33
-- couch potato == not health conscious 3/35
-- junk food == chips, Coke, etc.
-- sweet tooth eating too much chocolates 5/70
-- diet stuff healthy food 6/53
-- goodness in it== healthy7/12
-- teeth and body == overall health 7/12
-- bingeing out== same as snacking 7/21
--crusty and nasty== bread rolls served at school dinner 8/49
-- junky== addicted to junk food 8/50
--chocoholic==eating too much chocolate 8/59
-- crappy food== unhealthy food 8/87
D. Personal theories

--- if I eat too much chocolates I might die of heart attack 1/47.
--- sugar is acid and it rots your teeth 1/31.
--- if you take the fats away it is health-- about meat 2/56
--- too much sugar gives you bigger risk of heart attack 3/36.
--- instead of putting on weight they might be getting a weaker heart --
   about junk eating thin friends 5/55.
--- I was depressed that's why I was eating too much chocolates 5/71.
I am 14 I shouldn't be worrying about what I eat yet I can't help it
7/23.
--- just trying not to be too unhealthy -- about doing exercise/26
--- young people drink a lot because they use lot more energy so they get
dehydrated
   about fizzy drinks 9/50.
--- fatty food put real strain on my heart--9/95.
( --- Sugar and fat both associated with heart conditions Only one person, 1/31,
linked sugar consumption with dental decay.
   above theories are useful to understand their structure of relevance
   (Phenomenology)/ or theories of personal constructs (Kelly's Social
   Psychology).

"Fat" is a monster which is created by medics and the "Sugar" monster
is the joint creation of the medics and dentists. Fat consumption is seen as bad
for health (above examples + 2/57, 5/42 and many more)
--- only two respondents linked sugar consumption with bad teeth (1/30 and
7/13, while four respondents linked sugar with "bad heart" or
overweight (2/86, 3/33, 6/77 and 8/61). This finding has a significant message for oral health promotion activists. Or the association of sugar and bad heart might be trickling down from the "adult world" (Distinction, P. Bourdieu)

E. Personal liking and disliking.

Liking

-- I like Pepsi 1/50
-- I drink skimmed milk a lot 2/70
-- I like kebab and pasta 9/66
-- I like crisps 10/45.

Disliking

-- I hate fried fish 1/36
-- Disgusting—school meal 1/42
-- I don't like beef for BSC 2/52
-- I didn't like meet but I don't like vegetables anymore/30
-- I don't like fried fish 5/36
-- I never liked meat 7/14
-- I don't like milk shake 8/40
-- I hate eggs 9/66

(There is no apparent pattern, but foods which are a part of a proper meal are disliked by most and animal protein emerges strongly).

F. Children Vs Adult

-- Chicken, chops, etc. adults 2/51
-- Kebab adult 2/59
-- Coffee and chocolate adult 7/10
-- Cakes & chocolate children 1/29
-- Hamburger children 2/51
-- Fried fish children 2/59
(Junk foods are for children, adult should eat solid and substantial food which requires preparation).

F. Home Vs Outside

Home
--cake 1/39
-- bread, pasta, rice 2/43
-- chicken and health food 3/39
-- rice and bread 4/24
-- health foods 4/32
-- apples and milk 8/48
--healthy food at home 8/68
-- apples and bananas 10/52

Outside
-- chocolate 1/39
-- burgers 1/43
--hamburgers with fries 2/55
--hamburgers, chocolates and chips 3/41
-- junk food 4/32
-- crisps, because they are easily available 8/48
-- out, there is not anything healthy that you can buy 8/68
--chocolates when at school 9/54
( --home is the sacred place where the health is worshipped, the world
outside home is for snacking, a naughty world).

2. INFLUENCES ON FOOD CHOICE

A. Natural Vs Artificial

-- I drink pure orange juice 1/76
-- rice & pasta are good because they are natural 2/44
-- low fat no additive 2/47
-- I don't like the taste of pasteurised milk 2/70
-- good food either grown or made by hand 3/37
-- fresh orange juice and bottle of water 5/70
-- Lo-Bar chocolate 6/70
-- no additives and no preservatives 8/54

(sacred and profane ???)

B. Vegetarianism

__I am not a vegetarian but I don't eat a lot of meat 2/53

-- They do not serve for vegetarians at school 3/43

-- I meant to be vegetarian but I am not actually a strict vegetarian 4/27

-- when you eat chicken you are eating fluffy things and little lambs and I just couldn't do it 7/15.

-- it is horrible for people to eat animal 8/91

-- with the BSC and all that it is a bit scary 9/72

( -- anthropomorphism???)

C. Family influences

-- sister's boyfriend called me a whale 1/58

-- peanut oil is bad, my dad told 2/64

-- my mum and dad helped because both of them are trying to get fitter 2/76

-- it is easy to eat healthy food if your parents are having same meal 2/80
-- my mum made me eat healthy food 3/39
-- my whole family is vegetarian 4/28
-- my mum told me that Coke was bad so I tried Tango 6/74
-- I have coffee after dinner because that is what my parents do 8/48
-- my brother says I am fat 9/78
-- I eat a bag of crisp when my mother is not around 10/47

D. Outside Influences/peer group
-- everyone around you is eating sweets 1/55
-- desired body from TV 1/63
-- overweight does cause problem with teasing 3/48
-- I took packed lunch and I felt left out 4/53
-- I became anorexic and my mates helped me out 5/57
-- the coach tells you what to eat 6/33
-- you have to look like this TV 7/15
-- I have cut down sweets because everyone says I am fat 9/77
-- seeing people buying chips I buy 10/79

E Pocket money, etc
-- I will probably on low budget 2/93
-- it depends how much money I have to splash out on food 3/61
-- mum said I wasn't going to get much money Started to take packed lunch 4/48
-- people who can't afford proper food buy snacks 5/31
-- children eat junks because they are cheap 7/11
--- healthy food are more expensive 8/56

3. STRATEGIES
A. Rationalisation and action
-- I have cakes three times a week 1/47
-- sweets only once a week 1/76
-- I have chocolate but not too much2/64
-- I eat fatty food but I do lot of exercise3/54
-- I eat chocolate once or twice 7/18
-- I don't drink Coke so that I can eat those 8/62
-- I only eat one egg a week 8/65
-- I burn it off immediately afterward 9/59

Overall it can concluded that the results of the triangulation process indicate that the quality of the data collected was good and was adequate for meeting the aims and objectives set for this study.
References


- 240 -


Health Education Authority. (1990a). *Tomorrow's Young Adults: 9-15 Year Olds Look At Alcohol, Drugs, Exercise and Smoking.* London: Health Education Authority.


Health Education Authority (1993). *Health Update: Coronary Heart Disease*


