

Addressing childhood obesity in ethnic minority populations

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Abstract

Childhood obesity in the UK is a serious public health concern. In some ethnic minority groups obesity prevalence is significantly higher than the national average (The NHS Information Centre, 2010). This is a concern given that obesity puts children at increased risk for morbidities such as cardiovascular disease, type II diabetes mellitus, hypertension, and some cancers (Patrick and Nicklas, 2005).

Socio-ecological models recognise multiple levels of influence on behaviour (Sallis and Owen, 1999). Levels of influences on health behaviours range from intrapersonal factors, the social environment, the physical environment to the policy context (Sallis and Owen, 1999). To address childhood obesity in ethnic minority groups it is important to understand barriers and facilitators to healthy weight from an intrapersonal and broader socio-ecological perspective, and tailor interventions to the needs of ethnic minority groups (NICE, 2006). To date, very limited evidence exists surrounding the effectiveness of public health interventions for ethnic minority groups in the UK (National Obesity Observatory, 2010b).

Delivered in Liverpool, GOALS (Getting Our Active Lifestyles Started!) is a community based, childhood obesity management programme that focuses upon physical activity, nutrition and behaviour change in families (Watson et al., 2011). However, monitoring data has suggested an unrepresentatively low proportion of ethnic minority families who are referred to GOALS choose to access the service. Whilst the proportion of ethnic minorities residing in Liverpool is below the national average (Office for National Statistics, 2011), within the local authority there are a number of diverse communities with different cultural needs (Abba, 2001) that experience health (Liverpool PCT, 2009) and social (Department for Communities and Local Government, 2011) inequalities.

Therefore the aim of this research was to improve the cultural relevance of the GOALS programme, whilst also contributing to the evidence-base for local and national strategic planning surrounding obesity and ethnicity. Studies set out to explore perceptions surrounding childhood weight, diet and physical activity in different ethnic groups; identify cultural preferences, and barriers to participation in healthy lifestyle interventions; to implement and pilot a culturally accessible intervention, using the GOALS framework for development; and to assess the acceptability and effectiveness of the pilot intervention.

A multi-method, pluralistic, research design was employed that recognised the complexity of the research aims. In total three empirical studies were conducted, and parents (of children aged 4 to 16 years) and school-aged children participated. A combination of process and outcome data was obtained. Quantitative methods were used for descriptive and explanatory purposes and included questionnaire (Study 1, 2 and 3b) and BMI measures (Study 3b). Qualitative data was collected through focus groups (Study 2 and 3a), face-to-face interviews (Study 3b) and evaluation questionnaires (open questions, Study 3b). Exploratory data gave context and depth to the research. Descriptive and bivariate statistics were generated for quantitative data, whereas qualitative findings were analysed thematically, using both inductive and deductive techniques. Findings from Studies 1 and 2 were mapped onto the socio-ecological model and barriers and facilitators to healthy weight in childhood addressed in Study 3.

In Study 1, parents ($n=808$) identified their ethnic background as Asian British, Black African, Black Somali, Chinese, South Asian, White British and Yemeni. Ethnic background was significantly associated with parental perceptions of weight

in childhood. Results showed Black Somali parents exhibited the lowest level of concern for overweight in childhood in comparison to other ethnic groups. It was asserted parental readiness to make lifestyle changes for an overweight child may differ by ethnic background. In Study 2, parents ($n=36$) and children ($n=31$) from six ethnic groups (Asian Bangladeshi, Black African, Black Somali, Chinese, White British and Yemeni) identified intrapersonal, interpersonal and environmental barriers to healthy weight. Findings demonstrated that influences to health behaviours were sometimes specific to particular ethnic groups. For example, dominant cultural norms valuing overweight in childhood were apparent among Yemeni, Black African, Black Somali and Asian Bangladeshi parents and Asian Bangladeshi children. Recognising that influences to health behaviours can be common across ethnic groups, or specific to particular ethnicities, but may also work in opposing directions between groups, highlights the importance of exploring intra- and inter- ethnic group differences in order to develop effective health promotion strategies.

Results from Study 3a, with parents ($n=33$) from ethnically diverse backgrounds, identified that barriers and preferences to attending an intervention were often related to cultural and religious values of ethnic groups. Parents considered the ethnic composition of the group important and suggested an intervention should be relevant to the ethnic background of all families attending. Based on these findings, 'surface' and 'deep' (Renisow et al., 1999) structural modifications were made to the GOALS programme. Nine families from Asian British, Asian Bangladeshi, Yemeni and Black Somali backgrounds attended the pilot intervention to examine its appropriateness. Process and outcome data from Study 3b illustrated families benefited from a healthy lifestyles intervention that was designed to be culturally acceptable to multiple ethnic groups.

This thesis has added to the limited evidence base surrounding the cultural relevance of family-based childhood obesity management programmes for ethnic minority groups. Findings highlight the importance of addressing influences to healthy weight in childhood at all levels of the socio-ecological model. Differences in cultural norms between ethnic populations, and variations in assimilation to Western norms and health messages within groups, highlight the complex task in addressing childhood obesity in multiple ethnic groups.

Knowledge gained from the successful engagement of ethnic minority families in a culturally sensitive healthy lifestyle intervention, has led to the development of key recommendations for policy and practice that extend beyond childhood obesity management to health promotion more widely. It is asserted a bottom-up approach to the development of healthy lifestyles interventions is necessary to achieve cultural appropriateness. Moreover, a cross-government strategy is required to effectively address childhood obesity in ethnic minority groups. Resources available must target key ethnic groups; focus on the development of sustainable culturally sensitive interventions; create social and physical environments that are supportive of healthy lifestyle behaviours among ethnic minority groups; and develop effective strategies to improve health literacy surrounding healthy eating and physical activity amongst those facing the greatest health inequalities.

Thesis outputs

The work in this thesis was funded by Liverpool Health Inequalities Research Institute (formerly known as MerseyBEAT) for a project entitled *Addressing Childhood Obesity in Black and Racial Minority Populations*. This work has given rise to the following publications, reports and presentations.

Published abstracts

Trigwell, J., Watson, P. M., Murphy, R., Cable, N. T. and Stratton, G. (2011) A quantitative exploration of parents' perceptions of weight and obesity in childhood within an ethnically diverse sample. *Annals of Human Biology*. 38 (4):469-469.

Reports

Trigwell, J., Watson, P. M., Murphy, R., Cable, N. T. and Stratton, G. (2011) *Addressing Childhood Obesity in Black and Racial Minority (BRM) groups in Liverpool: Project Report*. Liverpool: Liverpool John Moores University.

Oral presentations

Trigwell, J., Watson, P. M., Murphy, R., Cable, N. T. and Stratton, G. (2011) *When culture counts: promoting healthy lifestyles to ethnic minority families*. Giving children in Liverpool an active start: 'We're all in this together', Liverpool 2nd March 2011.

Trigwell, J., Watson, P. M., Murphy, R., Cable, N. T. and Stratton, G. (2009) *Perceptions of childhood obesity among Liverpool parents: Preliminary data*. Tackling childhood obesity in Liverpool: From research to practice, Liverpool 8th October 2009.

Poster presentations

Trigwell, J., Watson, P. M., Murphy, R., Cable, N. T. and Stratton, G. (2011) *Ethnic differences in parental attitudes and beliefs about childhood obesity*. 16th Annual Congress of the European College of Sport Science: New horizons from a world heritage city, Liverpool 6-9th July 2011.

Trigwell, J., Watson, P. M., Murphy, R., Cable, N. T. and Stratton, G. (2011) *Ethnic differences in parental attitudes and beliefs about childhood obesity*. ECSS Pre-Conference Symposium, Physical activity and sedentary behaviour interventions for children and young people: from robust research to reality in practice, Liverpool 5th July 2011.

Trigwell, J., Watson, P. M., Murphy, R., Cable, N. T. and Stratton, G. (2011) *Ethnic differences in parental attitudes and beliefs about childhood obesity*. Institute for Health Research, Annual Conference, Liverpool 21st June 2011.

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Glossary of terms

AB	Asian British
ABG	Asian Bangladeshi
BA	Black African
BMI	Body Mass Index
BMI SDS	Body Mass Index Standard Deviation Score
BS	Black Somali
BSA	British Sociological Association
GOALS	Getting Our Active Lifestyles Started!
IMD	Index of Multiple Deprivation
MRC	Medical Research Council
MVPA	Moderate to Vigorous Physical Activity
NCB	National Children's Bureau
NICE	National Institute for Clinical Excellence
NOO	National Obesity Observatory
OC	Other-Chinese
OY	Other-Yemeni
PA	Physical Activity
PCT	Primary Care Trust
SA	South Asian
SES	Socio Economic Status
SOA	Super Output Area
SOC	Standard Occupation Classifications
WB	White British
WHO	World Health Organization

Chapter 1

Chapter 1

Introduction

1.1 Background information

Childhood obesity in the UK is a serious public health concern. Figures report 29.7% of children aged 2 to 15 years in England to be overweight or obese (The Information Centre, 2008). Data has shown obesity prevalence in some ethnic minority groups ('Asian or Asian British'; 'Any Other Ethnic Group'; 'Black or Black British'; 'Mixed') to be significantly higher than the national average (The NHS Information Centre, 2010). Obesity puts children at increased risk for morbidities such as cardiovascular disease, type II diabetes mellitus, hypertension, and some cancers (Patrick and Nicklas, 2005). These risks are disproportionately high in some ethnic groups including Black African (Hajat et al., 2004; Barnett et al., 2006), South Asian (Barnett et al., 2006; Sproston and Mindell, 2006), and Chinese populations (Hajat et al., 2004; Razak et al., 2007).

The causes of obesity are multifaceted, and can be attributed to both genetic and environmental factors (Wardle, 2005). It is suggested that environmental rather than genetic factors have been the major drivers for ethnic differences in obesity in developed countries (Maynard et al., 2009). Considerable differences between ethnic groups in terms of diet (Rogers et al., 1997; Harding et al., 2008; Donin et al., 2010), physical activity and sedentary behaviour (Owen et al., 2009; Woodfield et al., 2002; Brodersen et al., 2007) have been illustrated.

Social-ecological models recognise multiple levels of influence on behaviour and emphasise the effects of social systems, public policies, and physical environments

(Sallis and Owen, 1999). Levels of influences on health behaviours range from intrapersonal factors (e.g. demographics and cognitive functioning), the social environment (e.g. supportive behaviours and culture), the physical environment (e.g. geography and transportation) to the policy context (e.g. policy governing resources and infrastructure) (Sallis and Owen, 1999). To influence health behaviours in childhood among ethnic minority groups it is important to understand factors from an intrapersonal and broader socio-ecological perspective, and from the view of both the child and parent.

Previous research into perceptions of weight, healthy eating and physical activity in childhood reinforces an emerging need to recognise the complex determinants to healthy weight among ethnic minority populations. However, the majority of the research has taken place outside of the UK. In addition such research has focused predominately on broad 'Asian' and 'Black African' groups and failed to report differences between ethnicities. These limitations raise important questions regarding the relevance of obesity management interventions for ethnic minorities in the UK.

It has been recommended that interventions to manage childhood obesity are tailored to the needs of ethnic minority groups (NICE, 2006) and address 'surface' and 'deep' rooted influences on health behaviour (Resnicow et al., 1999). To date, very limited evidence exists surrounding the effectiveness of public health interventions among ethnic minority groups in the UK (National Obesity Observatory, 2010b).

1.2 The local context

The research in this thesis was conducted in Liverpool, a deprived, urban local authority in the North West of England. In Liverpool, data from the National Child Measurement Programme 2009/10 shows the proportion of children in Reception (aged 4 to 5 years) and Year 6 (aged 10 to 11 years) who are obese is significantly greater than the regional and national averages for these age groups (The Health and Social Care Information Centre, 2010). A potential explanation for area differences in obesity rates is deprivation. Childhood obesity is strongly correlated with socioeconomic status (SES), with obesity prevalence rising with increased levels of deprivation (The NHS Information Centre, 2010).

The Index of Multiple Deprivation 2010 (IMD 2010) is a Lower layer Super Output Area (LSOA) measure of multiple deprivation. This measure takes into account seven domains of deprivation, relating to income deprivation, employment deprivation, health deprivation and disability, education skills and training deprivation, barriers to housing and services, living environment deprivation, and crime (Department for Communities and Local Government, 2011). According to the IMD 2010, the North West region has the highest concentration (52%) of LSOA's in the most deprived 1% of the IMD, with Liverpool the most deprived local authority in England (Department for Communities and Local Government, 2011).

The relationship between ethnicity and area deprivation is well-established; with ethnic density (distribution of a group relative to the White group) generally higher in the most deprived areas (Molaodi et al., 2010). Whilst the proportion of ethnic minorities residing in Liverpool is below the national average (Office for National Statistics, 2011), all ethnically diverse wards in Liverpool (as classified by 2001 Census data (Office for National Statistics, 2001)) are ranked in the most deprived

quintile nationally (Department for Communities and Local Government, 2011). Due to relatively small sample sizes across ethnic minority groups, exploring the relationship between ethnicity and childhood obesity rates in Liverpool is problematic. Aggregated data from the National Child Measurement Programme 2007/08 to 2009/10 shows obesity prevalence among Liverpool children to be significantly higher among Black Reception aged children (18.3%) than the Liverpool average (11.7%) (The Health and Social Care Information Centre, 2010); however, confidence intervals are large and it is recognised conclusions drawn must be treated with caution. In relation, all ethnically diverse wards in Liverpool are clustered under the Neighbourhood Management Areas 'City and North' and 'Central'; Sportslinx data from 2009/10 illustrate overweight and obesity prevalence in children aged 9 to 10 years is higher in the 'City and North' in comparison to the Liverpool average (Sportslinx, unpublished).

Health inequalities related to morbidities associated to obesity across Liverpool are evident. Estimated levels of early deaths due to heart disease, strokes and cancer are significantly worse in comparison to the England average (Department of Health, 2011a). Further health inequalities are experienced within Liverpool's ethnic minority community; data estimates suggest Black and Asian groups experience disproportionately high levels of diabetes in comparison to the overall Liverpool population (Liverpool PCT, 2010).

Liverpool Primary Care Trust (2009) is taking action to reduce health inequalities across the local authority. In particular, focus is on localities with the highest levels of deprivation and groups suffering the greatest inequalities, including ethnic minority populations (Liverpool PCT, 2009). This programme of research was funded by Liverpool Health Inequalities Research Institute (a collaboration between Liverpool PCT and the University of Liverpool) to address childhood obesity in

ethnic minority groups, with the overarching aim of reducing health inequalities both in the local and national context.

1.3 GOALS (Getting Our Active Lifestyles Started!)

GOALS, is a family-based community intervention for obese children living in Liverpool, drawing on physical activity, nutrition and behaviour change (Dugdill et al., 2009; Stratton and Watson, 2009). Designed in accordance with the Medical Research Council (MRC, 2008) framework for developing and evaluating complex interventions, the intervention has proven successful at supporting families in making gradual, sustainable changes to their lifestyles (Watson et al., 2011; GOALS, 2009). Monitoring data however has suggested an unrepresentatively low proportion of ethnic minority families who are referred to GOALS choose to access the service. Consequently, there is a need to explore ways in which the cultural relevance of the intervention can be improved.

1.4 Thesis aims and objectives

The overall aim of this thesis was to improve the cultural relevance of family-based childhood obesity treatment and increase the evidence-base for local and national strategic planning surrounding obesity and ethnicity.

The programme of research had four objectives:

- to explore perceptions surrounding childhood weight, diet and physical activity in different ethnic groups
- to explore cultural preferences, and barriers to participation in healthy lifestyles interventions (healthy eating and physical activity) in ethnic minority groups

- to implement and pilot a culturally accessible intervention, using the current provision for obese children (GOALS) as a framework for development
- to assess the acceptability and effectiveness of the pilot intervention, and establish key factors for its sustainability within a culturally diverse population

1.5 Structure of thesis

The following chapter (**Chapter 2: Literature review**) will provide a detailed account of the contextual background information and rationale for the research undertaken in this thesis. Evidence from a number of discipline areas including sociology, psychology, social policy and behavioural sciences will be drawn upon. Key topic areas covered include: ethnic differences surrounding obesity and health behaviours; theories of behaviour change and determinants to healthy weight, healthy eating and physical activity; the design and evaluation of culturally sensitive health promotion; and the aims and objectives of the thesis. The overall research design is also outlined in this chapter with more specific details of the research methods employed, described in relevant chapters. In **Chapter 3**, Study 1 is presented. This explanatory study aimed to examine the relationship between ethnic background and parental perceptions of weight in childhood, among an ethnically diverse sample of parents with school-aged children (4 to 16 years) living within Liverpool. Study 2, reported in **Chapter 4**, set out to explore attitudes towards healthy weight and views surrounding influences on healthy eating and physical activity in childhood, with parents and school-aged children from ethnic groups identified in Study 1. In **Chapter 5**, Study 3 presents a process and outcome evaluation of a culturally sensitive healthy lifestyles intervention for ethnic minority groups using a multi-method approach. **Chapter 6** provides a synthesis of the results from the three studies, gives recommendations for future practice and

research, offers a reflexive account of the research process, and presents a concluding set of statements.

1.5.1 Thesis study map

Each study will begin with a thesis study map outlining the objectives and key findings of the studies. The purpose of this mapping process is to demonstrate where each study fits in to the overall thesis.

Chapter 2

Chapter 2

Literature review

2.1 Race and ethnicity

Race and ethnicity are terms used to categorise populations on the basis of shared characteristics. Much debate has taken place on how to define these constructs, yet no universally accepted definitions exist. Traditionally 'race' has been used to categorise populations on the basis of shared biological characteristics, including physical attributes such as skin colour and hair texture, which reflect ancestry and geographical origins (Caprio et al., 2008). Bhopal (2003) has proposed that 'ethnicity' can be defined as, *"the social group a person belongs to, and either identifies with or is identified with by others, as a result of a mix of cultural and other factors including language, diet, religion, ancestry, and physical features traditionally associated with race"* (2003: 443).

For the purposes of this study the term 'ethnicity' has been used; ethnic classifications are markers of many complex, interrelated factors, which may be underlying determinants of health (Chauhan, 2008) and thus an important variable to explore in relation to childhood obesity.

2.2 Prevalence of obesity among ethnic minority children

The most common measure of weight status is Body Mass Index (BMI), defined as weight (kg)/height (m²) (National Obesity Observatory, 2009). Since definitions of overweight and obesity must take into account variations in BMI with age and sex,

children's BMI measures are usually compared to a growth reference in order to determine a child's weight status (National Obesity Observatory, 2010a).

Childhood obesity in the UK is a serious public health concern. Figures report 29.7% of children aged 2 to 15 years in England to be overweight or obese (The Information Centre, 2008). Data from national studies, including the National Child Measurement Programme (The NHS Information Centre, 2010), Millennium Cohort Study (Griffiths et al., 2010), Health Survey for England (Sproston and Mindell, 2006), and National Diet and Nutrition Survey (Jebb et al., 2003) have consistently shown obesity rates to vary substantially by ethnic background. This trend has also been reported among area-based studies, including the Determinants of Adolescent Well-Being and Health Study (Harding et al., 2008), Health and Behaviour in Teenagers Study (Wardle et al., 2006a), and Research with East London Adolescents Community Health Survey (Taylor et al., 2005). Direct comparisons between studies cannot be reported due to age differences within samples.

Most recent national data on childhood obesity in the UK comes from the National Child Measurement Programme 2009/10 cohort. BMI measurements are recorded from children in Reception (aged 4 to 5 years) and Year 6 (aged 10 to 11 years) attending state-maintained schools. Data has shown obesity prevalence in some ethnic minority groups ('Asian or Asian British'; 'Any Other Ethnic Group'; 'Black or Black British'; 'Mixed') to be significantly higher than the national average, whilst prevalence in White and Chinese children is significantly lower than the national average (The NHS Information Centre, 2010).

Ethnic differences in obesity rates are also evident in the US. Results from the 2007/2008 National Heart, Lung and Blood Institute Growth and Health Study showed obesity prevalence to be significantly higher among Hispanic boys (aged 2

to 19 years) than non-Hispanic White boys. Among girls, non-Hispanic Black children were significantly more likely to be obese compared with non-Hispanic White girls (Ogden and Carroll, 2010).

Variations in obesity trends among ethnic groups in the UK and US are also found in adulthood. Findings from the Health Survey for England (2004) illustrate that in comparison to the overall population, obesity prevalence (measured using BMI) in men is lower among Indian, Pakistani, Bangladeshi and Chinese groups. For women, obesity prevalence appears to be higher among Black African and Black Caribbean groups in relation to the overall population of women, and lower for the Chinese group (The Information Centre, 2006).

Whilst it has been reported BMI measures provide a more robust measurement on which to define overweight and obesity in comparison to weight or height and weight measures alone (Saxena et al., 2004), it does not reflect body composition (National Obesity Observatory, 2010). Research suggests that there may be ethnic group differences in body fat composition in individuals with the same BMI (Misra et al., 2003). Secondary analysis of unpublished data from the Child Heart and Health Study in England (Whincup et al., 2002) and the Research with East London Adolescents Community Health Survey (Taylor et al., 2005) showed, South Asian children and adolescents had higher fat mass index or percentage body fat for a given BMI in comparison to White Europeans (Viner et al., 2010). Due to differences in body fat distribution, body build and frame size between ethnic groups, Deurenberg (2001) claims universal cut-off points for BMI should not be applied to all ethnicities. However, current national growth references for children do not have ethnic specific cut-off points; the most commonly used growth reference charts in the UK, the British 1990 Growth Reference (Cole et al., 1995) and the International

Obesity Task Force (IOTF) growth reference (Cole et al., 2000), continue to be applied to ethnically diverse populations.

2.3 Health inequalities

Obesity puts children at increased risk for a wide range of morbidities such as cardiovascular and respiratory disease, type II diabetes mellitus, hypertension and some cancers (Patrick and Nicklas, 2005). These risks are disproportionately high in some racial and ethnic groups including Black African (Hajat et al., 2004; Barnett et al., 2006), South Asian (Barnett et al., 2006; Sproston and Mindell, 2006), and Chinese adult populations (Hajat et al., 2004; Razak et al., 2007).

Health inequalities associated to obesity among children are also evident. Research shows obesity in childhood increases the risk of subsequent asthma (Story, 2007). Using data from the Determinants of Adolescent Social Well-Being and Health study, Whitrow and Harding (2010b) reported ethnic variations in the prevalence of asthma in children. Data showed lower prevalence of asthma in Black African boys and girls, and Indian and Bangladeshi girls compared to White British children. The overall prevalence of asthma was higher in Mixed Black Caribbean/ White boys. This data set has also shown age-related increases in blood pressure in children from Black African backgrounds (Harding et al., 2010b). A further example of health inequalities among ethnic minority groups was illustrated in The Child Heart and Health Study. Whincup et al. (2010) reported children of South Asian, Black African and Black Caribbean origin to be at particular risk of type II diabetes compared to children from White ethnic groups. Raised blood pressure and type II diabetes are morbidities associated to obesity (Patrick and Nicklas, 2005).

2.4 Social inequalities associated to health

The Marmot review (2010) highlighted the link between health and social inequality. In 2003 the World Health Organisation published the report, *The Solid Facts* (Wilkinson and Marmot, 2003), which summarised the importance of social determinants of health, including social exclusion, unemployment and the social gradient. It is well documented that ethnic minority groups tend to have higher levels of unemployment, experience greater income poverty (Palmer and Kenway, 2007), are more likely to live in areas of high deprivation and face social exclusion (Social Exclusion Unit, 2001); all of which have the potential to result in health inequalities.

Childhood obesity is strongly related to SES, with obesity prevalence rising with increased levels of deprivation (The NHS Information Centre, 2010). Income poverty is defined as when a household's income is less than 60% of the contemporary median household income for Great Britain (Parekh et al., 2010). Data from the Rowntree Foundation shows the income poverty rate to vary substantially between ethnic groups; levels are highest in Bangladeshi (65%), Pakistani (55%) and Black African (45%) communities, and lowest in Black Caribbean (30%), Indian (25%), White Other (25%) and White British (20%) groups (Palmer and Kenway, 2007).

In relation, an increase in childhood obesity prevalence is associated with decreasing levels of educational attainment within the family (Brophy et al., 2009; Caird et al., 2011). Levels of educational attainment have been found to vary by ethnic background (Andrulis, 2005; Brophy et al., 2009; Tackey et al., 2011). Data from the Millennium Cohort Study showed Black African children in the UK are twice as likely to live in a low-income family where the mother has no qualifications in comparison to White/ European children (Brophy et al., 2009). Moreover, data shows Gypsy/Roma, Irish Travellers, Black, Pakistani and Bangladeshi children

(aged 4 to 16 years) consistently have lower levels of attainment in comparison to other ethnic groups across all Key Stages (Department of Education and Skills, 2006).

2.5 The Liverpool context

Most recent population estimates for ethnic groups by local authority are from 2009 (Office for National Statistics, 2011). Data shows that 86.8% of Liverpool residents are White British; with the ethnic minority community primarily comprising of 'White Other' (3.6%), 'Asian or Asian British' (2.7%), 'Mixed' (2%) and 'Black or Black British' (1.8%) groups. Approximately 1% of the Liverpool population are 'Chinese' (1.1%), 'White Irish' (1.1%) and 'Other' (1%) (Office for National Statistics, 2011). It is acknowledged these statistics are estimates and may not represent true values.

The proportion of ethnic minorities residing in Liverpool is below the national average (16.8%). However, within Liverpool there are a number of diverse communities with different cultural and health care needs (Abba, 2001). These groups are recognised as the Somali, Yemeni, Chinese, South Asian, Black and Irish community (Abba, 2001).

Census data from 2001 is the latest dataset available to describe the ethnic composition of Liverpool city wards. Based on this data, nine of the 30 wards in the city are classified as ethnically diverse (i.e. the proportion of ethnic minority residents in the ward is above the citywide average) and include: Central, Church, Greenbank, Kensington, Picton, Princes Park, Riverside, St. Michaels and Wavertree. Based on the IMD 2010, all ethnically diverse wards in Liverpool are ranked in the most deprived quintile nationally (Department for Communities and Local Government, 2011).

Data from the National Child Measurement Programme (2009/10) can be analysed by PCT (The Health and Social Care Information Centre, 2010). In Liverpool, the combined overweight and obesity prevalence in Reception (23.2%) and Year 6 (36%) children is significantly higher than averages for the North West region (23.6% and 34%, respectively) and England (23.1% and 33.4%). These findings are not surprising given the relationship between area deprivation and obesity; according to the IMD 2010, the North West region has the highest concentration (52%) of LSOA's in the most deprived 1% of the IMD, with Liverpool the most deprived local authority in England (Department for Communities and Local Government, 2011).

Exploring the relationship between ethnicity and childhood obesity rates in Liverpool is problematic due to relatively small sample sizes across ethnic minority groups. Aggregated data from the National Child Measurement Programme 2007/08 to 2009/10 shows obesity prevalence among Liverpool children to be significantly higher among Black Reception aged children (18.3%) than the Liverpool average (11.7%) (The Health and Social Care Information Centre, 2010); however, confidence intervals are large and it is recognised conclusions drawn must be treated with caution. In relation, all ethnically diverse wards in Liverpool are clustered under the Neighbourhood Management Areas 'City and North' and 'Central'; Sportslinx data from 2009/10 illustrate overweight and obesity prevalence in children aged 9 to 10 years is higher in the 'City and North' in comparison to the Liverpool average (Sportslinx, unpublished).

From a regional perspective, further ethnic differences in childhood obesity rates are evident. Data from the National Child Measurement Programme 2009/10 cohort has shown obesity prevalence in some ethnic groups in the North West to be

significantly higher than the averages nationally for Reception ('Black or Black British' and 'Any other ethnic group') and Year 6 children ('Black or Black British', 'Any other ethnic group' and 'Asian or Asian British'). Conversely, obesity prevalence is significantly lower than averages nationally in Reception children classified as 'Chinese' and Year 6 children categorised as 'White' (The Health and Social Care Information Centre, 2010).

2.6 Determinants of obesity

The causes of obesity are multifaceted, and can be attributed to both genetic and environmental factors (Wardle, 2005). It is suggested that environmental rather than genetic factors have been the major drivers for ethnic differences in obesity in developed countries (Maynard et al., 2009). Ethnic differences in dietary, physical activity and sedentary behaviour have been illustrated.

2.6.1 Diet

Nutritional composition is important in the aetiology of coronary heart disease, type II diabetes and obesity (WHO, 2003). The UK standard for healthy eating in childhood is *The Balance of Good Health* as advocated by the Food Standards Agency (2001). Dietary reference values and derived amounts of nutrients for children differ for boys and girls as well as across age groups (Department of Health, 1991). Reference values are based on average weights of children across the age range doing moderate amounts of activity (The Caroline Walker Trust, 2010).

Considerable variations in dietary patterns across and within ethnic groups have been reported. Using 24-hour recalls of dietary intake, data from the Child Heart Health Study in England indicated that compared with White Europeans, children from South Asian ethnic groups, and most notably Bangladeshi children, reported

higher mean total energy intake. Black African-Caribbean children had lower fat intake, and this was particularly marked among Black African children (Donin et al., 2010). The Determinants of Adolescent Social Well-Being and Health study found adolescents from ethnic minority groups (other than Indian) were more likely to engage in poor dietary behaviours than White adolescents. Whilst Black African adolescents were the most likely of all groups to skip breakfast, Black Caribbean girls and Pakistani/ Bangladeshi boys were significantly more likely than White UK adolescents to consume fizzy drinks most days (Harding et al., 2008). Similarly, Rogers et al. (1997) found among a sample of Bangladeshi, Black African, Black Caribbean and White 12-year-olds, Black African and Black Caribbean girls were the least likely to report eating breakfast (among boys, White children were the least likely). The observed differences did not however reach statistical significance.

2.6.2 Physical activity and sedentary behaviour

A lack of regular physical activity is associated with an increased risk of developing obesity, as well as other metabolic and cardiovascular disease (WHO, 2010). At the outset of this study, national physical activity guidelines asserted children (aged 5 to 18 years) should accumulate at least 60 minutes of moderate to vigorous physical activity (MVPA) each day (Department of Health, 2004a). In July 2011 new UK physical activity guidelines were launched. For children and young people aged 5 to 18 years, guidelines stated individuals should “*engage in moderate to vigorous intensity activity for at least 60 minutes and up to several hours every day*” (Chief Medical Officers, 2011: 26) and vigorous intensity activities should be undertaken at least three days a week (Chief Medical Officers, 2011).

A number of studies have shown levels of physical activity among ethnic minority groups in the UK to vary. Using objective measures (Actigraph-GT1M activity monitors), the Child Heart and Health Study in England reported lower physical

activity levels in British South Asian children (aged 9 to 10 years) compared to White European, Black African or Black Caribbean children, with girls less active than boys in all ethnic groups (Owen et al., 2009). Other data available corresponds to subjective reports from children. The Health and Behaviours in Teenagers Study conducted in the UK, measured physical activity levels by asking adolescents on how many of the past seven days they had carried out vigorous exercise that had made them sweat and breathe hard. Data showed Asian students were significantly less physically active than White students. Moreover, Black girls participated in significantly less physical activity than White girls. White and Black boys did not differ in physical activity levels (Brodersen et al., 2007). Woodfield et al. (2002) also found Black children aged 11 to 14 years reported lower average daily energy expenditure than White children.

Taking part in physical activity outside of school hours is not considered the norm for all ethnic minority communities. In a UK study Rogers et al. (1997) found ethnic background was significantly associated with 12-year-old children's likelihood to exercise outside of school. Bangladeshi children were less likely to report participation in activity outside of school in comparison to Black African, Black Caribbean and White children. A further study with children aged eight to nine years, showed White European children were significantly more likely to be active on weekdays and after school than children from ethnic minority groups (Eyre et al., 2011).

Sedentary behaviours are associated with increased risks of obesity independent of MVPA levels (Healy et al., 2008; Owen et al., 2010). Current guidance suggests that whilst there is insufficient evidence to quantify a precise time limit for sedentary behaviour, based on available research, reducing total sedentary time and breaking up extended periods of sitting is strongly advised (Chief Medical Officers, 2011).

Research has found Black adolescents are more sedentary than their White counterparts. Moreover, Asian girls show a faster increase in sedentary behaviour between ages 12 to 13 and 15 to 16 years than White girls (Brodersen et al., 2007).

2.7 Policy and guidance surrounding childhood obesity

Childhood obesity is well established on the political agenda in the UK. The Green Paper, *Every Child Matters*, outlines a set of reforms that aims for every child to have the support they need to: be healthy, safe, enjoy and achieve, make a positive contribution, and achieve economic well-being (Department for Education and Skills, 2003). In 2004, the government White Paper, *Choosing Health*, set out the key targets: reduce obesity levels, improve diet and nutrition and increase exercise levels (Department of Health, 2004b). National guidance on prevention, identification, management and treatment of obesity for health and other services was provided in 2006 by the National Institute for Health and Clinical Excellence (NICE, 2006). Further guidance was published by NICE in 2007 on, *Behaviour change at population, community and individual levels*, which was aimed at those responsible for helping people to change their behaviour to improve their health.

In 2007 the Foresight Report, *Tackling Obesity: Future Choices*, was published which identified the relationships between key factors influencing levels of obesity and their relative importance; identified effective interventions; and analysed how future levels of obesity might change and the most effective future responses (Foresight, 2007b). In response, the government published, *Healthy Weight, Healthy Lives: A Cross Government Strategy for England* (Department of Health, 2008a). In this paper the Government set itself the target, "of being the first major country to reverse the rising tide of obesity and overweight in the population by ensuring that all individuals are able to maintain a healthy weight" (2008: XI). To

help fulfil this ambition, the paper acknowledged action must focus on five main policy areas: to promote children's health; to promote healthy food; to build physical activity into individuals' lives; to support health at work and provide incentives more widely to promote health; and to provide effective treatment and support when people become overweight or obese. The Foresight Annual Review (2007) stated the Foresight team would work with the government's cross department Obesity Unit to assist in delivering the goals outlined in the obesity strategy (Foresight, 2007a).

In relation, the *Healthy Weight, Healthy Lives: The Consumer Insight Summary* was published in 2008, providing a summary of the results from research carried out for the Department of Health into families' attitudes and behaviours relating to diet and activity (Department of Health, 2008b). The research was conducted to provide an evidence base for interventions to promote healthy weight in children and families. *Healthy Weight, Healthy Lives: One Year On*, published in 2009 outlined continuous efforts will be made to reduce childhood overweight (Department of Health, 2009).

Most recently, the policy document *Healthy Lives, Healthy People: A call to action on obesity in England* (Department of Health, 2011b) was released, and outlines a new focus and ambition set by the Coalition Government to address childhood obesity. The document states new and distinctive efforts will be made to achieve "a sustained downward trend in the level of excess weight in children by 2020" (Department of Health, 2011b: 6). This focus will include: empowering people and communities to take action, building local capacity (local and national working together), and national leadership (Department of Health, 2011b).

Local authorities have been identified as key players in the prevention of obesity. At a local level, *Healthy Weight: Healthy Liverpool*, the healthy weight strategy for the local area, was implemented in 2008 (Liverpool Primary Care Trust, 2008).

2.8 Theories of behaviour change

In order to understand barriers to behaviour change and effectively intervene, theory must be drawn on extending from the individual to the environment (Sallis and Owen, 1997). Some theories of behaviour change are primarily psychological and focus almost entirely on the individual. These theories include the health belief model (Becker and Maiman, 1975), the theory of planned behaviour (Ajzen, 1985) and the transtheoretical model (Prochaska and Marcus, 1994). In contrast some models consider behaviour change of individuals within the context of their physical, social and cultural environment (Sallis and Owen, 1999). These models include the social cognitive theory (Bandura, 1986) and ecological models (Stokols, 1992; Sallis and Owen, 1997).

Social cognitive theory highlights the interaction between the intrapersonal, social and physical environmental influences (Bandura, 1986). Taylor et al. (1994) drew on Bandura's theory to propose a socialisation model of child behaviour that emphasises the importance of the family. The theory states that children's behaviour (e.g. physical activity and eating habits) is determined by continuous reciprocal interactions between the home environment, parental cognitions and behaviours, and child cognitions and behaviours.

Social-ecological models recognise multiple levels of influence on behaviour and emphasise the effects of social systems, public policies, and physical environments (Sallis and Owen, 1999). Levels of influences, proposed by Sallis and Owen (1999),

range from intrapersonal factors (e.g. demographics and cognitive functioning), the social environment (e.g. supportive behaviours and culture), the physical environment (e.g. geography and transportation) to the policy context (e.g. policy governing resources and infrastructure).

A socio-ecological approach to childhood weight management asserts that continuous interactions take place between the child and their environment (Davison and Birch, 2001). Choices made for or by the child are influenced by a complex web of psychological and social structures. Environmental and policy factors can dynamically act as both facilitators and barriers to behaviour change. Moreover, these broad ranges of influences can act independently and synergistically to impact on a child's behaviour (Katzmarzk et al., 2008). Due to such a diverse range of factors combining to influence behaviour, it has been suggested multi-level interventions may have the greatest likelihood of resulting in, and sustaining, behaviour change (Davison and Birch, 2001; Katzmarzk et al., 2008).

To influence behaviour change in childhood, barriers and facilitators to health behaviour must be addressed at all levels of the socio-ecological model. The use of such a multi-layered model has previously been used when exploring influences on body size in childhood among ethnically diverse groups in the US (Styles et al., 2007), and is considered a useful theoretical framework for preventing and reducing childhood obesity (Caprio et al., 2008).

2.9 Determinants of healthy weight, healthy eating and physical activity

2.9.1 Intrapersonal determinants to health behaviours (knowledge and understanding of health behaviours)

Research has shown the causes of obesity to be multifaceted (Wardle, 2005). Psychological models to behaviour change have highlighted whether a person intends to change their behaviour may depend on numerous factors, including: the belief that a change in behaviour will reduce health risks and/ or the extent to which a person perceives their own behaviour as 'unhealthy' (e.g. Ajzen, 1985; Weinstein, 1988). Therefore knowledge and beliefs concerning the causes of overweight, personal eating practices and physical activity levels may have implications for behaviours undertaken to prevent or treat childhood overweight.

Qualitative research conducted by Goodell et al. (2008) in the US with Hispanic, West Indian and African American parents of children aged two to five years of low SES, found parents attributed overweight to a combination of lifestyle factors and/ or genetics and 'destiny'. However, parents often disassociated lifestyle behaviours as causes of overweight in their own children. Despite sampling from various ethnicities, no comparisons between ethnic groups were reported.

Other research has also shown poor parental awareness of the relationship between overweight and unhealthy eating and physical inactivity among various ethnic populations. Genovesi et al. (2005) observed that within a sample of parents of 4 to 10-year-olds, nearly half of parents with an overweight child reported that their child did not eat enough or consume the right amount of food. Moreover, studies conducted in Australia (Campbell et al., 2006) and Turkey (Esenay et al., 2010), showed that the majority of parents with an overweight child believed their child's diet was healthier than their peers. With regards to physical activity, Esenay

et al. (2010) found 95% of Turkish parents with an overweight child aged four to six years considered the level of activity their child participated in to be the same or more than their peers. Health behaviour change intentions have been examined by Myers and Vagus (2000) within a largely Hispanic sample of parents with overweight children aged two to five years. Data showed 48% of parents had reduced the amount of high fat and sugary snacks their child consumed, whilst only 5% considered increasing their child's physical activity levels.

UK research with predominately Caucasian or unidentified ethnic samples of children has shown that they recognised eating habits (Edmunds, 2000; Robinson, 2000; Stewart et al., 2006) and physical activity levels (Burrows et al., 1999; Grogan and Richards, 2002) to impact on body size. In addition children also thought that genetics and illness could influence body weight (Edmunds, 2000; Dixey et al., 2001; Ludvigsen and Sharma, 2004). A US study (Harris and Smith, 1982) found no ethnic differences in knowledge of causes of overweight in a multi-ethnic sample of children aged six to seven and 10 to 11 years (Anglo, Black, Hispanic, or Native American).

Research suggests knowledge of healthy eating and physical activity behaviours varies according to ethnic background and SES. Styles et al. (2007) reported confusion about nutrition (e.g. nutritional quality of foods and dietary recommendations) among Black and Hispanic participants, whilst White parents were more informed about healthy eating. It must be highlighted that all White participants had completed education to at least high school level, compared to only 19% of Hispanic parents. However, 69% of African American parents had also completed education to at least this level but still reported to be confused about nutrition, indicating inter-group differences extend beyond educational attainment. Ethnic differences in understandings of healthy eating may be associated to cultural

values placed on food types. For example, research has documented that Zimbabwean adolescents and young adults place greater value on fresh foods that are commonly consumed in their native country, regarding frozen foods in particular as less healthy (Lawrence et al., 2007).

Differing levels of parental knowledge of healthy eating in childhood by SES have been reported in a UK study. Hart et al. (2003) found all parents believed that nutritional knowledge was largely based on common sense. Higher SES parents were however more confident in the accuracy of their assumptions. In contrast parents from low SES groups were more likely to report gaps in their knowledge regarding healthy eating and to request more basic nutritional information. This is of concern given that ethnic minority populations in the UK are often from lower SES groups. Findings that illustrate less parental knowledge of healthy eating in childhood among ethnic minority (Styles et al., 2007) and low SES populations (Hart et al., 2003), are in line with research that has reported lower health literacy skills among these groups in comparison to the overall population (Kalichman and Rompa, 2000; Arnold et al., 2001; Paasche-Orlow et al., 2005). In relation poor English fluency may also act as a barrier among some to nutritional knowledge (Bush et al., 1998b; Grace, 2011).

Research in the UK and US with children from various ethnic backgrounds has found children have a good basic understanding of healthy eating (Croll et al., 2001; McKinley et al., 2005). However, UK studies (McKinley et al., 2005; Stevenson et al., 2007) have shown children have a tendency to describe healthy eating in terms of dichotomous 'healthy' and 'unhealthy' foods, rather than viewing those foods in the context of a healthy balanced diet as advocated by the Food Standards Agency (2001). Research from a multi-ethnic sample of White European, Afro-Caribbean and Asian children aged 11 to 12 years, suggested children's tendency to

categorise foods as 'healthy' and 'unhealthy' meant that in real terms, healthy eating equated to feelings of deprivation (McKinley et al., 2005). Whilst no ethnic comparisons were reported within this study it is important to highlight children's understandings of healthy eating are barriers to healthier eating behaviours (McKinley et al., 2005; Stevenson et al., 2007).

A UK study with Pakistani, Bangladeshi and Black African families found that parents lacked knowledge of appropriate activity levels for their children (Department of Health, 2008b). Similar findings have been reported in US studies with White, Black and Hispanic parents of five to eight-year-olds (Styles et al., 2007). Data from the Health Survey for England (2007) showed that only 1 in 10 children aged 11 to 15 years from a nationally representative study knew children should be active for 60 minutes every day (Roth, 2007). Limited knowledge of the energy balance model has been found among children living in Australia (ethnic background unknown); where even small amounts of physical activity has been reported by children to counteract the consumption of unhealthy foods (Hesketh et al., 2005).

Moreover, research has shown both parents and children have high optimistic bias of physical activity levels in childhood. As illustrated in research conducted by the Department of Health (2008b), Pakistani, Bangladeshi and Black African parents tended to believe their children participated in sufficient activity, stating they got enough exercise at school and ran around at home more than they actually did. Similarly, Borra et al. (2003) documented children aged 8 to 12 years from various ethnic backgrounds in the US over estimated activity levels. Overestimation may lead to individuals not increasing activity levels since they are not aware their current amount is insufficient (Ronda et al., 2001).

2.9.2 Socio-cultural determinants of health behaviours

Culture is “*learned, shared and transmitted from one generation to the next*” (Kreuter et al., 2002: 133) and can be defined as, “*a system of shared understandings that shapes, and in turn, is shaped by experience*” (Caprio et al., 2008: 2214). Culture gives meaning to a set of rules for particular behaviours that are normative and pragmatic (Caprio et al., 2008). Cultural influences upon an individual are dynamic, and interact with the surrounding social and environmental contexts (Kumanyika, 2008). How cultural factors associated to ethnic background affect childhood obesity in ethnic populations residing in the UK differentially must be understood.

2.9.2.1 Cultural influences on perceptions of overweight in childhood

Body image develops in the cultural context and differences in attitudes and behaviours related to body size and shape have been illustrated (Ritenbaugh, 1982; Brown and Konner, 1987; Kumanyika et al., 1993). In Western countries, a slim body size is the cultural ideal (Lake et al., 2000; Arshad, 2007). Parental attitudes towards body image that value childhood overweight have been documented among Pakistani, Bangladeshi, Black African and Black Caribbean populations in the UK (Department of Health, 2008b) and African American (Young-Hyman et al., 2000; Valdes et al., 2009), and Latina/ Hispanic (Myers and Vagus, 2000; Contento et al., 2003; Rich et al., 2005) groups in the US. Being heavy has been reported as synonymous with attractiveness (Hodes et al., 1995), health and wealth (Department of Health, 2008b), whereas thinness may be equated with ill health and unattractiveness (Netto et al., 2007; Renzaho, 2003). Moreover, whilst maternal obesity is relatively common and acceptable among certain ethnic minority groups, this may also predispose children to obesity (Rosenberg et al., 2005). Such attitudes may not be relevant to all ethnic minority populations.

Evidence of cross-cultural differences in maternal evaluations of children's body shapes was illustrated in a UK study conducted by Hodes et al. (1995). Results showed that White British mothers rated slimmer girls more attractive compared to mothers from South Asia, the Mediterranean, Caribbean and Africa. Asian British mothers also expressed more positive attitudes about the need for children to gain weight rather than lose weight.

Parents play a substantial role in the transmission of cultural values surrounding weight, body shape and appearance to their children (Hill et al., 1990; Mukai et al., 1994) and ethnic differences in children's attitudes towards weight have been reported. Data from the East London Adolescent Community Health Survey showed significant variations among ethnic groups (White British, Bangladeshi, Black African, Black Caribbean and British) in dieting history and the associations of obesity with self-esteem and psychological distress. In particular, obesity was associated with higher self-esteem among Black African girls, and the lowest prevalence of psychological distress was found in the overweight and obese Bangladeshi adolescents, in comparison to other ethnic groups (Viner et al., 2006). Similarly, Wardle et al. (1993) found Asian girls aged 14 to 15 years were less likely than their White counterparts to view themselves as too fat, were less dissatisfied with their body size and less likely to want to lose weight.

Whilst these studies have shown Asian adolescents to exhibit higher levels of satisfaction with their body size in comparison to other ethnic groups, contrasting findings have been reported elsewhere. Duncan et al. (2006) found a stronger association between body fat and body dissatisfaction in UK South Asian adolescents compared to Black African Caribbean and Whites, possibly a result of assimilation to Western health norms surrounding slimness in this Asian group. In support of this assertion data from the Birmingham Healthy Eating and Active

Lifestyles for Children Study showed body dissatisfaction among South Asian children (aged 5 to 7 years) was associated with overweight (Pallan et al., 2011). Further research has shown body dissatisfaction between Asian British and Caucasian children to be comparable (Hill and Bhatti, 1995; Arshad, 2007). Inconsistent measures, differing ethnic classifications, geographical and cultural settings, and demographical characteristics (e.g. acculturation levels and age) may contribute to variations found across studies.

Acculturation can be defined as *“changes of original cultural patterns of one or more groups when they come into continuous contact with one another”* (Caprio et al., 2008: 2215). Acculturation can lead to both positive and negative influences on childhood obesity; the abandonment of traditional cultural beliefs can both encourage and hinder participation in health behaviours (Caprio et al., 2008). Therefore the attitudes and beliefs of ethnic minority groups living in Western cultures may be a reflection of their ethnic culture, the majority culture or a combination of the two (Arshad, 2007). With regards to adult body size there is evidence to suggest South Asian (Grace, 2011), Black African (Gardner et al., 2010) and Black Caribbean (Lawrence et al., 2007) women living in the UK are being influenced by Western ideals of slimness. These studies have shown cultural attitudes that value overweight to be ‘out of date’. Closer examination of acculturation and ethnic group specific cultural values is needed to fully understand cultural influences on attitudes to body size (Arshad, 2007).

2.9.2.2 Concern for overweight in childhood

Research has shown parents of overweight children are often not concerned about their child’s overweight status (Lampard et al., 2008; Brophy et al., 2009; Esenay et al., 2010) or aware of its health implications (Jossefides-Tomkins and Lujan, 2003; Adams et al., 2005; Rhee et al., 2005). For example, data from the Millennium

Cohort Study showed 54% of Black African and 40% of South Asian parents with an obese five-year-old were unconcerned about their child's weight (Brophy et al., 2009). It has also been documented that American Indian (Jossefides-Tomkins and Lujan, 2003; Adams et al., 2005), African American (Young-Hyman et al., 2000) and Latino (Rhee et al., 2005) ethnic minority groups often do not associate children's overweight status with health problems. For example, Katz et al. (2004) in a US study found African American female caregivers of overweight children (aged 6 to 9 years) indicated that the current body size of their child was significantly smaller than what they considered to be unhealthy. Thus, it was asserted African American female caregivers were unaware of the potential health consequences associated with their child's current body size (Katz et al., 2004).

Other research has shown that parents and caregivers from ethnic minority groups, including Hispanic (Rich et al., 2005; Reifsnider et al., 2006; Hackie and Bowles, 2007) and African American populations (Jossefides-Tomkins and Lujan, 2003), are aware of health problems associated to overweight. However, overweight may only be a concern in childhood when it is clearly linked to health problems (Goodell et al., 2008; Kumanyika, 2008). For example, Rich et al. (2005) reported 65% of parents from a predominately Hispanic sample were aware of health consequences associated to overweight; however, 50% of parents were not concerned about their child's overweight status.

Low levels of concern may be partly attributable to a lack of parental ability to recognise overweight in their child. Research has found parental ethnic background to be significantly associated to misclassification of their children's weight status (He and Evans, 2007; Huang et al., 2007; West et al., 2008). For example, in the US, West et al. (2008) found African American parents with children aged 3 to 18 years were more likely to underestimate the weight status classification of their child than

White parents. However, results are not consistent, and some studies have reported no association with parental ethnic background (Eckstein et al., 2006; Valdes et al., 2009; Júlíusson et al., 2011). These inconsistencies may be in part due to the diversity of measures, ethnic categories and differing criteria for overweight and obesity used.

In a recent review of children's perceptions of body size in childhood in the UK, Rees et al. (2009) showed children (aged 7 to 12 years) were relatively able to estimate their actual body shape. However, due to the use of predominately Caucasian samples or a lack of reporting on ethnicity, it was unclear as to whether findings were applicable to children from ethnic minority groups. Conversely, Viner et al. (2006) found high levels of inaccurate perceptions of body weight across multiple ethnic groups in a UK study with 11 to 14-year-olds. Ethnic differences in children's accuracy in perceiving their own weight status have been found in international studies. Martin et al. (2009) reported that data from the National Longitudinal Study of Adolescent Health showed African Americans were more likely to underestimate their weight than White children, particularly overweight girls and obese boys. A study conducted in Trinidad and Tobago found among adolescents (aged 14 to 17 years), South Asian males were more likely to overestimate their body size than African and Mixed ethnic groups (Simeon et al., 2003).

2.9.2.3 Eating practices

Food is associated with cultural identity (Bush et al., 1998a; Kumanyika, 2008; Lawton et al., 2008). Research with ethnic minority groups has highlighted the seemingly obligatory role that the consumption of cultural food plays within the family and community (Lawton et al. 2008). Parents' cultural identification is also considered a key influence on children's dietary habits (Sealy, 2010), and

international research with Turkish, Greek, Indian and Chinese children (aged 5 to 14 years) has shown their fondness and loyalty to food from their parents' culture of origin (Green et al., 2003). Whilst consumption of traditional foods within the family may lower the risk of obesity in some ethnic minority children, it may increase the risk of obesity in others. Cultural differences in eating practices have also been documented, and may impact on childhood obesity rates. For example, research conducted by the Department of Health (2008b) showed among Bangladeshi, Pakistani and Black African families, portion sizes tended to be large and families often ate two traditional meals in the course of the same evening. These practices were less evident however in Gujarati Hindu, Punjabi Sikh and some Black Caribbean households.

Several UK studies have explored the social role of food in Pakistani and Bangladeshi populations (Darr et al., 2007; Lawton et al., 2008; Grace, 2011), where eating foods high in fat is perceived as inevitable. Grace (2011) reported cooking foods for guests with reduced oil or spice was considered inhospitable and shameful to the host. Among some ethnic minority households in the UK, gatherings of family and friends may be regular occurrences (Bush et al., 1998a).

There is substantial evidence that child-feeding strategies influence children's eating habits and weight (Ventura and Birch, 2008). Rhee et al. (2006) has reported the risk of overweight among children (aged 4.5 years) to be significantly greater among parents classified as permissive (indulgent, lacking discipline), neglectful (emotionally uninvolved, lacking rules) and authoritarian (strict disciplinarians), in comparison to authoritative parents (respectful of child's opinions but maintaining clear boundaries). It has been asserted there may be important ethnic differences in feeding styles during preschool and school-age years (Kumanyika, 2008). For example, Cullen et al. (2002) illustrated Hispanic parents were more likely to

practice permissive parenting strategies compared with Euro-American parents. Children from a multi-ethnic (White European, Afro-Caribbean and Asian) sample in the UK, claimed parents 'nagging' them to eat healthily was a barrier to healthy eating and encouraged rebellion (McKinley et al., 2005). Research has shown culture may also influence child-feeding practices in regards to beliefs and values relating to food (Bruss et al., 2005). For example, Bruss et al. (2005) reported caregivers from Chamorro, Carolinian, and Filipino ethnic groups associated eating vegetables with thinness and therefore discouraged children's 'excessive' consumption.

Among ethnic minority communities in the UK, food shopping and preparation has been reported as almost exclusively the preserve of women (Lawton et al., 2008). A US study with various ethnic groups (African-American, Hispanic and Caucasian mothers and fathers) has shown health conscious actions of mothers are often in conflict with the norms of the nuclear and extended family, and larger socio-cultural practices (Kahlor et al., 2011). Notably, the influence of extended family members will have a greater impact in ethnic groups where they regularly play a substantial role in child care practices (Department of Health, 2008b; Maynard et al., 2009).

It has been reported acculturation often leads to the inclusion of unhealthy Western foods (e.g. fast foods) into children's diets (Lawrence et al., 2007). Whilst the home may represent children's traditional values and food orientations, the school embodies the values and norms of British society (Sheikh and Thomas, 1994). UK research with Zimbabwean and Somali girls found the consumption of (unhealthy) Western foods took place on the way home from school and when socialising with friends (Lawrence et al., 2007). Notably, the use of Western foods by ethnic minority parents has been attributed to a lack of time to prepare traditional meals (Sealy, 2010).

2.9.2.4 Physical activity behaviours

Positive reinforcements of physical pursuits have been shown to increase physical activity levels and decrease sedentary behaviour in children (Epstein et al 1997; Trost et al., 2003). Physical activity levels of adults from ethnic minority backgrounds are however generally lower than that of Whites (Fischbacher et al., 2004; Stamatakis, 2006), suggesting that family engagement in sports and active recreation may be limited. A lack of family support has been cited as a barrier to physical activity by Bangladeshi and Somali adolescents; where adolescents were not considered overweight, physical activity was not deemed necessary by parents (Brophy et al., 2011). A lack of parental encouragement for physical activity has also been associated to parents' over protectiveness in Chinese (Dwyer et al., 2008), Bangladeshi and Somali populations (Brophy et al., 2011).

Time is considered a barrier to physical activity by both parents (Pagnini et al., 2007; Dwyer et al., 2008) and children (Mulvihill et al., 2000). Previous UK studies with ethnic minority adults found South Asian mothers take on caring responsibilities for the family that impact on their own physical activity levels (Netto et al., 2007; Department of Health, 2008b), and in turn the time they have to be active with children. Moreover, due to busy lifestyles, parents from multiple ethnic backgrounds often draw on sedentary activities to keep children occupied (Jordan et al., 2006). This finding is consistent with reports of higher rates of screen watching among ethnic minority populations (Kumanyika and Grier, 2006). In some ethnic groups participation in scholastic activities (e.g. Chinese populations (Tudor-Locke et al., 2003)) or attendance to faith school (e.g. Indian populations (Khunti et al., 2007)) out of mainstream school hours is encouraged, decreasing children's free time to be active.

Religious and cultural values related to gender may place further restrictions on activity levels. Family disapproval has been reported to restrict Muslim girls' participation in physical activity outside of the home (Rogers et al., 1997; Department of Health, 2008b). The immodesty of sports clothing (Rogers et al., 1997; Rothe et al., 2010), the communal nature of sporting activities (Rogers et al., 1997) as well as expectations of girls to help with household tasks (Department of Health, 2008b) are reported as cultural barriers to physical activity in Western countries.

In relation, acculturation to the US culture has been found to be significantly associated with lower frequency of physical activity participation among Hispanic and Asian American adolescents (Unger et al., 2004). It is suggested this may be due to the cultural reinforcement of sedentary activities (Small et al., 2009) as well as environmental influences. For example, Small et al. (2009) has reported Mexican parents want children to 'fit in' with US culture, so seek to provide them with items including video games and computers that will increase time spent in sedentary behaviour.

2.9.3 Physical environmental determinants to health behaviours

Ethnic minority groups often live in spatially concentrated, deprived, urbanised areas which experience high crime rates and may be less favourable to weight control (Harding et al., 2010a). Research in the UK (Molaodi et al., 2010) showed families living in ethnically dense areas (as measured using the index of dissimilarity) might be exposed to more fast food outlets and less exposed to outdoor physical activity structures than those in low ethnically dense areas (predominantly White). This has the potential to contribute to ethnic differences in food choices and engagement in physical activity. Children and adults from ethnic minority groups in the UK have recognised the convenience of unhealthy eating options (Lawrence et

al., 2007; Pearce et al., 2009; Gardner et al., 2010) and restricted access to space and appropriate facilities to be physically active (McEwen et al., 2007; Pearce et al., 2009; Rothe et al., 2010) to impact negatively on health behaviours. Poor English has been considered a further barrier to accessing facilities among ethnic minority communities (Rothe et al., 2010). The exclusion and deprivation ethnic minority populations often face has also been linked to unequal access to healthcare services (Parliamentary Office of Science and Technology, 2007); reducing the potential for these groups to seek help for obesity (Caprio et al., 2008).

Safety concerns are considered a barrier to physical activity among children (Mulvihill et al., 2000; Pearce et al., 2009) and parents (Department of Health, 2008b; Dwyer et al., 2008). Issues surrounding safety may be heightened among ethnic minority communities due to high crime rates within the deprived area in which they live and experiences of racism (Kumanyika and Grier, 2006; Kumanyika, 2008).

Findings reinforce an emerging need to recognise the complex determinants of healthy weight among ethnic minority populations. However, the majority of the research documented has taken place outside of the UK, focused predominately on broad 'Asian' and 'Black African' groups and failed to report commonalities and differences between ethnicities. These limitations raise important questions regarding the relevance of obesity management interventions for ethnic minorities in the UK.

2.10 The design of culturally sensitive health promotion

Reducing health inequalities is a matter of fairness and social justice (The Marmot Review, 2010) and the need for culturally appropriate interventions for ethnic

minority populations has been identified (Wang and Tussing, 2004; Department of Health, 2008b). NICE has criticised a 'one size fits all' approach to health promotion (Wise, 2009), and it has been recommended that interventions to manage childhood obesity are tailored to the needs of ethnic minority groups (NICE, 2006). To date, very limited evidence exists surrounding the effectiveness of public health interventions for ethnic minority groups in the UK (National Obesity Observatory, 2010b).

Awaiting the development of this evidence base, it is important to adapt existing interventions for ethnic minority populations (Bhopal, 2006). Resnicow et al. (1999) assert 'surface' and 'deep' structural factors must be addressed when adapting interventions to be culturally sensitive. 'Surface structure' modifications involve matching the intervention to superficial characteristics of the target populations. Matches may include, people, language, food, locations, and clothing (Resnicow et al., 1999). Whereas, 'deep' structural adaptations, "*involves incorporating the cultural, social, historical, environmental and psychological forces that influence the target health behaviour in the proposed target population*" (Resnicow et al., 1999).

In practice strategies used to achieve cultural appropriateness vary widely (Kreuter et al., 2002). Strategies used to make health promotion programmes and materials more culturally appropriate include: peripheral (giving programmes the appearance of cultural appropriateness by packaging them in ways to appeal to a given group); evidential (enhancing the perceived relevance of a health issue for a particular group by presenting evidence of its impact on that group); linguistic (making programmes and materials more accessible by providing them in the dominant or native language of the target group); constituent-involving (drawing directly on the experiences of members of the target groups e.g. employing staff members

indigenous of the population); and socio-cultural (discussing health-related issues in the context of broader social and/ or cultural issues) (Kreuter et al., 2002).

Kreuter et al. (2002) identified that achieving cultural appropriateness within an intervention is no easy task. It is recognised that no ethnic groups share a single monolithic culture; rather cultural sub-groups may exist and individuals may belong to one, none or several (Kreuter et al., 2002). Since multiple cultures may be relevant to an individual, Kreuter et al. (2002) questioned whether cultural information can be effectively applied in population-based health education practices. They recommended health professionals may need to settle for an understanding of culture that is practical enough to be addressed, yet still able to enhance health education practice.

A systematic review of health promotion interventions in the UK involving Pakistani, Chinese and Indian communities, has shown culturally sensitive interventions can bring about positive changes in knowledge, health related attitudes and behaviours and health status (Netto et al., 2008). Building on this evidence base, five principles for adapting behavioural interventions for ethnic minority communities have been developed, which include: the use of community resources to increase intervention accessibility; to identify and address barriers to access and participation in interventions; to develop communication strategies which address language use and differential information requirements; to identify and work with cultural or religious values that either motivate or inhibit behavioural change; and to accommodate degrees of cultural affiliation in the planning and evaluation of targeted interventions (Netto et al., 2010).

2.11 Culturally sensitive interventions to prevent or treat childhood obesity

Despite increased exposure to obesogenic environments (Department of Health, 2008b) and disproportionately high rates of obesity among some ethnic groups (The NHS Information Centre, 2010), few obesity prevention and treatment interventions in the UK targeting ethnic minority children exist (Maynard et al., 2009). Four known obesity prevention interventions designed for ethnic minority children have been delivered in the UK.

In 2009 the programme, *Cooking Communities*, was piloted. The 10-week programme offered multi-cultural after-school cooking sessions (lasting 1.5 hours) for children aged 12 to 13 years. The programme aimed to promote cooking skills, healthy eating and enhance understandings of different cultures. In total 55 children participated. Whilst the sample population was described as multi-ethnic the exact composition was not reported. An evaluation of the project showed significant improvements in skills such as meal preparation and children's ability to cook healthy foods/ meals. Cultural awareness also increased significantly after participation in the cooking clubs (Gatenby et al., 2011).

Three further interventions have been developed that have had both physical activity and nutritional components. The Schools Acting in Leicester Against Diabetes (SALAD) and Heart Disease project, designed and delivered healthy lifestyles interventions in five secondary schools which served ethnically diverse populations, within which South Asians of Indian origin were the dominant group. The overarching aim of the programme was to reduce risk factors associated with type II diabetes and heart disease. Using an action research methodology, interventions introduced in the schools included the removal of vending machines and launch of 'no chip days', restricted salt intake, and the availability of

'combination meals' or 'grab and go' bags, which included at least one healthier item. Physical activity interventions included an increase in the choice of activities available, such as dance. Other interventions involved poster displays and increased efforts to incorporate healthy lifestyle messages into teaching. A comparison of baseline and follow-up results suggested that pupils' lifestyle habits remained poor after the intervention. Focus group data also showed pupils generally perceived little change over the intervention period (Khunti et al., 2007). Perceptions regarding the cultural acceptability of the programme were not reported.

Two out of three of these multi-component studies also included the wider family. The Birmingham Healthy Eating and Active Lifestyles for Children Study targeted five-to-six-year-old South Asian children between 2006 and 2009 (The University of Birmingham, 2009). This pilot programme involved testing a set of interventions developed with key stakeholders in an exploratory trial. The main aim of the pilot was to find out whether the set of interventions were feasible, appropriate and acceptable to the population under study. The pilot intervention was school-based and eight schools participated; four schools were used to test a package of activities, whereas the other four were controls. The intervention package included: increasing children's physical activity levels through school, and increasing skills of parents and families through active learning. An evaluation showed the majority of parents whose children received the intervention package felt that the amount of physical activity their children were undertaking in school had increased over a one-year period. On completion of a parent and child cooking course, parents also reported higher levels of confidence than at baseline in shopping for healthy food and cooking healthy meals (The University of Birmingham, 2009). Process measures determining cultural acceptability were not discussed.

The UK DiEt and Active Living study is the second known family-based intervention to prevent obesity in childhood among ethnic minority groups. Prior to the design of the intervention focus groups with children, parents and grandparents from Black African, Black Caribbean, Indian, Pakistani, Bangladeshi and White British populations were undertaken. The aims of the focus groups were to assess the feasibility, efficacy, and cultural acceptability of child and family-based interventions to reduce risk factors for childhood and adolescent obesity. Findings highlighted, a complex approach to accommodating diverse cultural factors was needed. It was concluded schools might provide better opportunities than places of worship for the delivery of childhood obesity interventions; however, it was recognised places of worship can offer culturally specific support for the implementation of an intervention. Findings have informed the development of a pilot randomised controlled trial comprising of a multi-component (physical activity and nutrition) intervention delivered via schools and supported by places of worship and community partnerships (Maynard et al., 2009). Data on the feasibility, effectiveness and acceptability of the programme has not yet been published.

A recent review of obesity prevention interventions in middle-school-aged children from ethnic minority backgrounds, highlighted the evidence base of preventative interventions for this demographic is limited (Stevens, 2010), with most interventions based in the US. In the US, interventions to treat or prevent obesity in ethnic minority children have included child-only school (Gortmaker et al., 1999; McMurray et al., 2002) and family-based (Dreimane et al., 2007; Khloe-Lehman et al., 2007; Berry et al., 2009) interventions aimed at multi-ethnic populations. Additional interventions have also been designed for a singular ethnic group (Kumanyika et al., 2003; Johnston et al., 2007; Chen et al., 2010). Notably, research suggests culturally-adapted interventions in the US appear to be more efficacious in reducing

childhood obesity in ethnic minority groups than those where culture is not incorporated (Seo and Sa, 2010).

2.12 Evaluating health promotion interventions

The Medical Research Council provides guidance on the development, evaluation and implementation of complex interventions to improve health (MRC, 2000; MRC, 2008). The guidance advocates initial development, feasibility and pilot phases to refine interventions to a point they can reasonably be expected to have a worthwhile effect prior to experimental trial. These preliminary phases are integral in determining the acceptability, compliance, recruitment and retention, and effectiveness of an intervention. Therefore, a full-scale childhood obesity intervention for ethnic minority populations may be preceded by an exploratory investigation that aims to determine factors that influence behaviours but also acceptability of such a programme.

It is important to identify whether or not interventions are effective, and this cannot be assumed (Bonnell et al., 2003). Evaluation modes can be categorised as: process, impact and outcome. Process evaluation serves to aid understanding of why a programme was successful or not, and in what context (Pawson and Tilley, 1997; Bartholomew et al., 2001), and can also assist in attributing causality of an outcome to the intervention (Nutbeam et al., 1990). Programme reach, acceptability and integrity are common interrelated process evaluation aims (Nutbeam, 1998). In contrast impact/ outcome evaluation, aims to determine the effectiveness of an intervention in achieving changes in behaviours, attitudes or knowledge, or in health status, morbidity and mortality (Israel et al., 1995). The Ottawa Charter (WHO, 1986) values both outcome and process information in health promotion evaluation.

Therefore, a combination of quantitative and qualitative methodologies is considered important in health promotion evaluation (WHO, 2001; Parry-Langdon et al., 2003).

2.13 Chapter summary

To summarise, childhood obesity is a serious public concern. Data has shown obesity prevalence in some ethnic minority groups ('Asian or Asian British'; 'Any Other Ethnic Group'; 'Black or Black British'; 'Mixed') to be significantly higher than the national average (The NHS Information Centre, 2010). It is suggested that environmental rather than genetic factors have been the major drivers for ethnic differences in obesity in developed countries (Maynard et al., 2009). Considerable differences between ethnic groups in terms of diet (Rogers et al., 1997; Harding et al., 2008; Donin et al., 2010), physical activity and sedentary behaviour (Owen et al., 2009; Woodfield et al., 2002; Brodersen et al., 2007) in childhood have been illustrated. Nevertheless, few obesity prevention and treatment interventions in the UK targeting ethnic minority children exist.

Social-ecological models recognise multiple levels of influence on behaviour and emphasise the effects of social systems, public policies, and physical environments (Sallis and Owen, 1999). Levels of influences on health behaviours range from intrapersonal factors, the social environment, the physical environment to the policy context (Sallis and Owen, 1999). In order to address childhood obesity in ethnic minority populations it is important to understand factors that influence lifestyle behaviours from an intrapersonal and broader socio-ecological perspective, and tailor programmes to the needs of ethnic minority groups (NICE, 2006).

Research that has explored the association between ethnic background and familial attitudes surrounding childhood weight, healthy eating and physical activity has predominately taken place outside of the UK. This research has highlighted both commonalities and differences in perceptions towards healthy weight, healthy eating and physical activity in childhood between various ethnic groups (see Styles et al., 2007; Dwyer et al., 2008; Goodell et al., 2008). The transferability of these findings to ethnic groups outside of the US is problematic due to differences in the ethnic composition and socio-cultural practices between countries.

In recent years, research into the lifestyle choices of adults from ethnic minority groups in the UK, particularly those at a heightened risk of morbidities such as diabetes and cardiovascular disease, has increased (see Darr et al., 2007; Lawton et al., 2008; Grace, 2011). These studies offer an insight into perceptions surrounding body size, healthy eating and/ or physical activity in adulthood. Research has identified how structural constraints, cultural and religious norms, and health literacy and English fluency impact on lifestyle choices made by ethnic minority adults (Grace, 2011). For example, Grace (2011) conducted focus groups with Bangladeshi men and women to explore factors which influenced lifestyle choices in the Bangladeshi community, and their attitudes towards preventing type II diabetes through changing lifestyle behaviours. Data showed participants desire to conform to traditional cultural norms often conflicted with the practice of healthy behaviours. The important social role of food in the Bangladeshi culture was a barrier to healthy eating, where cooking food with a reduced salt or oil content was considered inhospitable or shameful. Expectations for women to remain at home, dress modestly and prioritise the family and community also inhibited participation in physical activity. Interestingly, the perception of obesity being valued was considered an 'out of date' belief within the community. Findings therefore clearly demonstrated disparities as well as similarities in the attitudes of adults from ethnic

minority groups in relation to traditional Western cultural views. How these findings related to parental perceptions surrounding healthy body size, healthy eating and physical activity in childhood must be addressed.

Research conducted by the Department of Health (2008b), *Healthy Weight, Healthy Lives: the consumer insight summary*, is original in its aims, and explores the relationship between ethnicity and attitudes within the family to healthy weight, healthy eating and physical activity. Research methods included focus groups, ethnographic and paired interview techniques with Bangladeshi, Black African, Black Caribbean, Gujarati Hindu, Pakistani and Punjabi Sikh families. Data was collected in ethnically diverse cities in comparison to the England average (Office for National Statistics, 2011), including London (Bangladeshi, Pakistani, Black African, Black Caribbean, Gujarati Hindu, Punjabi Sikh), Birmingham (Bangladeshi, Pakistani, Black Caribbean, Gujarati Hindu, Punjabi Sikh), Oldham (Bangladeshi), Bradford (Pakistani) and Leicester (Gujarati Hindu, Punjabi Sikh). Research showed differences and similarities between ethnic groups in their attitudes and experiences of lifestyle behaviours. For example, Pakistani, Bangladeshi, Black African and older Black Caribbean parents often cited family pressures to have 'chubby' children. These attitudes were less evident among Gujarati Hindu, Punjabi Sikh and younger Black Caribbean parents. Whilst this study was original in its aims within the UK context, a number of limitations regarding the transferability of findings remain. The research focused on 'Black' and 'Asian' populations; therefore, further research is required to explore how these findings relate to other ethnic groups. Moreover, questions arise regarding the transferability of these findings to less ethnically diverse areas of England, where barriers and facilitators to healthy lifestyle behaviours may vary as a result of differences within the social and physical environment in which families reside.

In order to address childhood obesity in ethnic minority groups it is crucial to consider the views of children. Research most abundant in the area of obesity and ethnicity from the perspective of the child surrounds body satisfaction. However, across studies, variations in the relationship between ethnicity and body satisfaction in childhood have been found (see Wardle et al., 1993; Viner et al., 2006; Pallan et al., 2011). Such differences across studies have been attributable to inconsistent measures, differing ethnic classifications, geographical and cultural settings, and demographical characteristics (e.g. acculturation levels and age). In-depth examination of cultural influences associated to ethnic background on attitudes to body size in childhood remains sparse.

From the perspectives of the child, research exploring facilitators and barriers to healthy eating and physical activity has predominately taken place with Caucasian or unidentified ethnic samples. Few studies have explored commonalities and differences in the perceptions of children by ethnic background. Moreover, such studies have often included adolescent rather than child samples. For example, Lawrence et al. (2007) investigated factors affecting the food choices made by Zimbabwean, Pakistani/ Bangladeshi and Somali women and/or female adolescents; whereas, Brophy et al. (2011) explored barrier and facilitators to participating in physical activity among adolescents (aged 16 to 18 years) of Welsh, Somali and Bangladeshi decent. How findings from these studies represent the views of younger children (up to the age of 12 years), who are often still influenced heavily by the family, remains unknown.

Building on existing research, this thesis will address childhood obesity in ethnic minority groups by: expanding the diversity of ethnic groups researched; including the perspectives of parents (of school-aged children) and children (aged 8 to 12 years); and conducting the research in a local authority with a comparatively small

ethnic minority population. Moreover, the relevance of existing principles for adapting health promotion interventions for ethnic minority communities (e.g Kreuter et al., 2002; Department of Health, 2008b; Netto et al., 2010), will be addressed within the context of a family-based healthy lifestyles intervention.

2.14 Research aims and objectives

The overall aim of this research was to improve the cultural relevance of family-based childhood obesity treatment, and increase the evidence-base for local and national strategic planning surrounding obesity and ethnicity.

The study had four objectives:

- to explore perceptions surrounding childhood weight, diet and physical activity in different ethnic groups
- to explore cultural preferences, and barriers to participation in lifestyle change interventions (healthy eating and physical activity) in ethnic minority groups
- to implement and pilot a culturally accessible intervention, using the current provision for obese children (Getting Our Active Lifestyles Started! (GOALS)) as a framework for development
- to assess the acceptability and effectiveness of the pilot intervention, and establish key factors for its sustainability within a culturally diverse population

2.15 Research Design

The research design adopted a mixed-methodological approach that recognised the complexity of the research aims, which required outcome and process measures.

'Multi method' and 'mixed-method' are research terms often used to describe the process of combining qualitative and quantitative approaches in the design, measurement and/ or analysis to either answer a single question or a set of integrated questions (Patton, 2002; Tashakkori and Teddlie, 2003). A mixed-methodological approach is therefore particularly useful for this thesis where multiple questions were posed that required descriptive, explanatory and/ or exploratory data.

It is important to highlight that the appropriateness of combining methodologies across two separate paradigms is contested in some academic circles. Quantitative and qualitative approaches have been distinguished based on fundamental differences in terms of ontology (objectivism v constructionism), epistemology (positivism v interpretivism) and principle orientation to the role of theory (inductive v deductive logic) (Bryman, 2008). Therefore, Guba and Lincoln (1994) argue quantitative and qualitative research strategies refer to distinct and opposing paradigms and as such are viewed as being incompatible.

Despite such concerns a pragmatic perspective has emerged (Bryman, 2006; Tashakkori and Teddlie, 2003; Creswell and Plano Clark, 2011), claiming the connection between research strategy and epistemological and ontological assumptions is not deterministic. Greene et al. (1989) provides a typology for mixing methods, including: 'triangulation', 'complementarity', 'development', 'initiation' and 'expansion'. Benefits to mixed-method research are considered diverse, and range

from seeking convergence and corroboration of results from different methods, to expanding the breadth and depth of inquiry (Creswell and Plano Clark, 2011).

Creswell and Plano Clark (2011) outline three possible weighting options for a mixed methods design, “*equal priority*”, “*quantitative priority*” and “*qualitative priority*”. Different strategies will be necessary when research aims require the prioritisation of different types of data. A “*qualitative priority*” approach was utilised within the thesis design, providing the context and depth required to address the research questions and objectives. The less dominant methods in the research design came from the quantitative research paradigm. Quantitative methods were primarily used in descriptive and explanatory phases of the thesis.

This research involved the completion of three empirical studies with diverse methodologies in ‘natural’ settings. In the preliminary phases to piloting a healthy lifestyles intervention for ethnic minority populations, Studies 1, 2 and 3a were employed to ensure its acceptability and aid its effectiveness. Study 3b sought to assess the effectiveness and acceptability of the pilot programme delivered. Table 1.1 summarises which studies address which objectives of this thesis.

Table 1.1. Studies addressing thesis objectives

Thesis objective	Study addressing thesis objectives
Objective 1: <ul style="list-style-type: none">to explore perceptions surrounding childhood weight, diet and physical activity in different ethnic groups	Study 1 and 2
Objective 2: <ul style="list-style-type: none">to explore cultural preferences, and barriers to participation in lifestyle change interventions (healthy eating and physical activity) in ethnic minority groups	Study 3a
Objective 3: <ul style="list-style-type: none">to implement and pilot a culturally accessible intervention, using the current provision for obese children (Getting Our Active Lifestyles Started! (GOALS)) as a framework for development	Study 3b
Objective 4: <ul style="list-style-type: none">to assess the acceptability and effectiveness of the pilot intervention, and establish key factors for its sustainability within a culturally diverse population	Study 3b

Studies 1 and 2 aimed to address the first objective of this thesis (*to explore perceptions surrounding childhood weight, diet and physical activity in different ethnic groups*). Specifically, the purpose of Study 1 was to examine the relationship between ethnic background and parental perceptions of weight in childhood, among an ethnically diverse sample of parents with school age children (4 to 16 years) living within Liverpool. The research objectives of this study were to explore associations between parental ethnic background and:

- views of healthy body size in childhood
- concerns surrounding overweight in childhood
- attitudes to perceived causes of overweight in childhood

In order to meet these aims and objectives a quantitative methodology, in terms of design, method and analysis, was utilised. The self-report questionnaire method employed allowed for the incidence and character of the concepts measured to be explained, the relationships between variables to be analysed (Buckingham and

Saunders, 2004), and causal inferences to be drawn (De Vaus, 2002). Moreover, this research design allowed for a large sampling frame to be defined. This research strategy was required to reach the target population (parents with a school aged child (4 to 16 years) from diverse ethnic backgrounds).

A validated questionnaire was not available for the purpose of this study; therefore, a systematic approach to the development of a self-completion questionnaire was followed. The questionnaire consisted of several items adapted from previous surveys, plus novel questions relevant to the current study. The final questionnaire comprised four sections, *About You*, *Weight in Childhood*, *About Your Children*, and *Further Research*. To aid response rates the questionnaire was available in nine languages and verbally administered as required.

In order to fully address the first research objective of this thesis, it was essential that findings from Study 1 were supplemented with exploratory data (Study 2). Exploring the findings through qualitative means, gathering contextual data, also provided an opportunity to corroborate or reject inferences from Study 1 through the process of triangulation.

The data obtained from Study 1 helped inform the content of Study 2. This study set out to explore attitudes towards healthy weight and views surrounding influences on healthy eating and physical activity in childhood, with parents (of children aged 4 to 16 years) and children (aged 8 to 12 years) from ethnic groups identified in Study 1. The research design employed in Study 1 offered a means of recruitment for Study 2.

Study 2, an exploratory study and interpretivist in nature, used the focus group method as the primary approach to data collection in order to grasp the subjective

meaning (Bryman, 2008) of findings from Study 1. Focus groups are group discussions that set out to explore specific issues in a collective context (Barbour and Kizinger, 1999). The distinguishing characteristic of a focus group, from the broader category of group interviews, is the attention given to the group interaction that is explicitly used address the research questions (Barbour and Kizinger, 1999). This method provides a comfortable environment that enables participants to question one another, pursue issues important to them, and encourage varied and in-depth dialogue (Hilton, 2005). The emphasis placed on group interaction suited the current research project, allowing cultural norms and individual attitudes to be explored within the social environment in which they were constructed.

Focus groups were conducted using semi-structured topic guides, informed by Study 1 and a review of the established literature (covering perceptions of healthy body size/ overweight in childhood, body satisfaction in childhood, attitudes to healthy eating and physical activity). The semi-structured guides were designed to permit participants the latitude to respond freely but also ensured significant topics were covered in detail and allowed for a degree of comparability across the resultant transcripts (Flick, 2002). Key areas for discussion in both parent and child groups included: attitudes towards childhood overweight, knowledge and understanding of health behaviours, and influences on physical activity and healthy eating in childhood.

In Study 2, descriptive data was also collected through questionnaire measures and used to supplement focus group findings. In order to assess the relationship between ethnic background and perception of children's body size and level of body satisfaction, a questionnaire was developed for self-completion by parents and children. To assess the accuracy of parents' and children's weight perceptions, children were weighed and measured. An obesity perceptions worksheet was also

designed for children to complete during their second research contact session.

Quantitative methods supplemented qualitative findings and helped determine the credibility and confirmability of the data, through the process of triangulation.

Study 3a, an exploratory study, addressed the second objective of this thesis (*to explore cultural preferences, and barriers to participation in lifestyle change interventions (healthy eating and physical activity) in ethnic minority groups*).

Process data exploring factors that would encourage or prevent attendance to a family-based healthy lifestyle intervention was gathered through focus group methodology with parents from ethnic groups who participated in Study 2.

The third objective of this thesis was *to implement and pilot a culturally accessible intervention, using the current provision for obese children (GOALS) as a framework for development*. Taking into account findings from the Studies 1, 2 and 3a, researchers and the GOALS team developed and implemented a seven-week pilot intervention based on the GOALS programme (Study 3b). Modified components of the GOALS intervention were delivered via practical and interactive sessions that aimed to improve healthy eating behaviours (e.g. reduce intake of high fat, salt and sugary foods and increase consumption of fruit and vegetables), increase physical activity levels and reduce sedentary behaviours. Behaviour change techniques used to promote health included consciousness-raising, goal-setting and positive reinforcement (Watson et al., 2011). All families received materials to take home that aimed to reinforce health messages given during the sessions. A follow-up review was delivered for all families 14 weeks from baseline. Nine families from ethnic minority backgrounds attended the intervention.

In order to assess *the acceptability and effectiveness of the pilot intervention, and establish key factors for its sustainability within a culturally diverse population* (the

fourth objective of this thesis), Study 3b comprised of both descriptive and exploratory phases. The outcome-orientated phase of this study used objective BMI measures and self-report questionnaire (closed question) data to quantify health effects. Process data was gathered through qualitative methods, including focus groups, interviews and open-ended questionnaire data, to explore subjective perceptions of acceptability and add depth and context to the outcome measures (Bryman, 2008).

2.16 Ethics

Ethical decisions in research are those which *“arise when we try to decide between one course of action and another not in terms of expediency or efficiency but by reference to standards of what is morally right or wrong”* (Barnes, 1979: 16). Within this thesis it was important ethical issues relating to conducting research with children and individuals with limited English were given due consideration. Ethical issues addressed, surrounded informed consent, confidentiality and anonymity, and protection from harm.

2.16.1 Informed consent

The principle of informed consent refers to the *“freely given agreement on the part of the researched to become a subject of the research process”* (May, 2001: 60). However, this not only needs to be based on a complete understanding of the aims and processes of the research itself but also any potential risks that may occur by taking part (May, 2001). Information about the research must therefore be explained in appropriate detail, and in terms meaningful to participants (BSA, 2002).

The research process is dynamic and the extent to which research participants can ever be fully informed of the demands and uses of the research is questionable. Sin

(2005) therefore proposes a reflexive approach to informed consent is necessary. Accounting for this, verbal and written consent was re-negotiated at different stages of the research process and participants were informed they could withdraw at anytime.

Research relationships are commonly characterised by disparities of power and status (BSA, 2002). Mahon et al. (1996) suggests children are particularly open to exploitation due to their lack of power in the adult-child relationship. To ensure participants did not feel coerced into participating by the researcher, in all studies participants were given time to decide away from the research team whether they wished to participate. In relation, research incentives were set at an appropriate level; incentives were considered not so attractive as to coerce participation but rather compensate participants for their time and efforts. Research incentives offered in each study are described in the relevant chapters (see sections 3.3.3 and 4.3.5)

Ethical guidelines for research with children and young people produced by the National Children's Bureau state, in most research studies consent for children to participate is required from the parent/ carer and child (NCB, 2011). Notably, even where parental consent is required, a parent cannot give consent on behalf of the child (NCB, 2011). In studies with child participants (Study 2 and 3b), verbal and written consent was sought from the parent and assent from the child.

To account for participants' understanding of the English language as well as literacy skills in general, different approaches were taken to ensure they were fully informed as to what participation would entail. In Study 1, participant information sheets were available in nine languages and where respondents were unable to read or write, the participant information sheet and questionnaire was administered

verbally by researchers and bi-lingual community workers. In Studies 2 and 3, information sheets were translated as required (Mandarin and Somali). Participants were given information sheets prior to attending focus groups to read at home as well as at the start of each group. Information sheets were also read to all child and adult participants to ensure those with low literacy skills fully understood the nature of the research.

Further details of how informed consent was obtained in each study can be found in the corresponding chapters (Chapters 3 (Study 1), 4 (Study 2) and 5 (Study 3)).

2.16.2 Confidentiality and anonymity

Confidentiality and anonymity are important ethical considerations. In line with the British Sociological Association Statement of Ethical Practice (BSA, 2002) participants were informed of how far they would be afforded anonymity and confidentiality at the outset of each study. The degree to which confidentiality and anonymity were ensured differed based on the data collection methods employed and age of sample participating.

The use of the self-report questionnaire method in Study 1 guaranteed anonymity of parents. No identifiable data was used in the reporting of data. Conversely, in Study 2 and 3, anonymity and confidentiality had to be negotiated carefully. Whilst all identifiable data was removed to aid anonymity of participants, because of the group setting, confidentiality could not be afforded on the behalf of others. This issue was discussed with participants at the outset of Study 2 and 3.

Further issues regarding confidentiality and anonymity had to be negotiated with child participants. Since parents knew whether their child was participating, it was possible they would be able to attribute views or comments to their child in any

publications (NCB, 2011). Therefore, a cautious approach to reporting examples and quotes was taken. Confidentiality offered also had to be balanced with safeguarding obligations. Referral protocols were established in case of disclosure of psychological, emotional or physical abuse from children or observation of behaviour associated with eating disorders. Limits of confidentiality were discussed with child participants.

2.16.3 Protection from harm

Merton (1968) claims the prime objective of science is the creation of new knowledge. Ethically, however, there is a need to balance the potential to harm and the severity of this harm, with the advancement of knowledge and the benefits that can be gained through the application of new knowledge. In line with the BSA (2002) ethical guidelines, protecting the physical, social and psychological well-being of the respondents was given the highest of priorities when both planning and conducting the research.

Recognising the sensitivity of the topics under study, strategies were in place to minimise the potential to distress and upset participants. For example, in Study 1 the use of a self-report questionnaire and closed questions helped address this concern. In Studies 2 and 3 where qualitative techniques were employed, experienced researchers facilitated discussions, and invasive questioning and unnecessary intrusion into participants' lives was avoided, helping to protect participants' privacy. Moreover, careful de-briefing sessions took place after focus groups and interviews (NCB, 2011). Debriefing sessions enabled researchers to monitor for any unforeseen effects and allowed participants to discuss their experiences of the research process. Researchers recognised limitations to their own expertise and did not give advice or support beyond own area of competence, instead signposting participants to appropriate sources of help where necessary.

Researchers' contact information and details of support organisations were given to all parents and children participating.

Attempts were also made to reduce the burden associated to participating.

Participants were informed of their right to withdraw and consent was re-sought throughout the research process, distance travelled to fieldwork sites was minimised, and parents and children were compensated for their time and effort.

2.16.4 Ethical approval

Ethical approval for this research was obtained from Cheshire NHS Research Ethics Committee [09/H1017/86] and the Research and Graduate School Ethics Committee of Liverpool John Moores University. All procedures were in accordance with regulations and guidelines approved by the ethics committee.

Chapter 3

Thesis study map: study 1

Study	Objectives and Key Findings
Study 1: Parental perceptions of weight in childhood within an ethnically diverse sample	Objectives: To explore associations between ethnic background and: <ul style="list-style-type: none">• views of healthy body size in childhood• concern surrounding overweight in childhood• attitudes to perceived causes of overweight in childhood
Study 2: Barriers and preferences to healthy lifestyles in childhood	Objectives: With key ethnic groups identified from Study 1, explore: <ul style="list-style-type: none">• perceptions surrounding healthy weight in childhood• factors influencing healthy eating and physical activity in childhood
Study 3: The development and evaluation of a culturally sensitive healthy lifestyle intervention for ethnic minority families	Objectives: <ul style="list-style-type: none">• to explore cultural preferences, and barriers to participation in lifestyle change interventions (healthy eating and physical activity) in ethnic minority groups• to implement and pilot a culturally accessible intervention, using the current provision for obese children (GOALS) as a framework for development• to assess the acceptability and effectiveness of the pilot intervention and establish key factors for its sustainability within a culturally diverse population

Chapter 3

Study 1: Parental perceptions of weight in childhood within an ethnically diverse sample

3.1 Chapter introduction

How parents view weight in childhood has implications for childhood obesity management interventions. Therefore, in order to address childhood obesity in ethnic minority groups, commonalities and differences in parental attitudes among ethnic minority populations must be understood.

Research has shown parental ability to recognise overweight in their child according to objective BMI is low among various ethnic populations (Hirschler et al., 2006; Styles et al., 2007; Júlíusson et al., 2011). Studies have used either singular or multi-ethnic samples as well as quantitative and qualitative methodologies to investigate this trend. Moreover, research has found parental ethnic background to be significantly associated to misclassification of children's weight status (He and Evans, 2007; Huang et al., 2007; West et al., 2008). For example, in the US, West et al. (2008) found African American parents with children aged 3 to 18 years were more likely to underestimate the weight status classification of their child than White parents. However, results are not consistent, and some studies have reported no association with parental ethnic background (Eckstein et al., 2006; Valdes et al., 2009; Júlíusson et al., 2011). Variations in the rates of misclassification and inconsistencies among the associations found, may partly be explained through comparing different ethnic groups or measuring ethnicity as a dichotomous variable. Inconsistent measures of perceptions, differing criteria for overweight and obesity,

geographical and cultural settings, and demographical characteristics of parents (including educational attainment, income, gender, weight status and age) and their children (including age and gender) may also contribute to the disparities found across studies.

A potential explanation for parents' failure to estimate their child's weight status correctly may be attributable to an inability to identify the weight status of children in general. Few studies have attempted to explore parents' accuracy when judging the weight status classification of (unrelated) children using visual tools that remove personal and familial influences relating to the child. In a German study, data showed that 58% of parents were able to correctly identify overweight silhouettes (Warschburger and Kröller, 2009). However, this issue may be complicated by differences in the body size parents define as overweight in childhood by ethnic background and SES. For example, Sherry et al. (2004) documented that low-income African Americans and middle-income White parents of children aged two to five years chose a larger figure on the pictorial scale to define overweight in comparison to low-income White and Hispanic parents.

A lack of parental recognition of childhood overweight among ethnic groups is compounded by the pervasive finding that parents of overweight children are often not concerned about their child's overweight status (Lampard et al., 2008; Brophy et al., 2009; Esenay et al., 2010) or aware of its health implications (Adams et al., 2005; Jossefides-Tomkins and Lujan, 2003; Rhee et al., 2005). For example, data from the Millennium Cohort Study showed 54% of Black African and 40% of South Asian parents with an obese five-year-old reported to be unconcerned about their child's weight (Brophy et al., 2009). It has also been documented that American Indian (Adams et al., 2005; Jossefides-Tomkins and Lujan, 2003), African American (Young-Hyman et al., 2000), and Latino (Rhee et al., 2005) parents often do not

associate children's overweight status with health problems. For example, Katz et al. (2004) in a US study found caregivers of African American overweight children (aged 6 to 9 years) indicated that they thought their child's current body size was significantly smaller than what they considered to be unhealthy; it was therefore asserted African American caregivers were unaware of the potential health consequences associated with their child's current body size. These are important findings given that parental concern about the overweight status of a child is significantly associated with readiness to make lifestyle changes for that child (Rhee et al., 2005).

Research has shown the causes of obesity to be multifaceted (Wardle, 2005). Psychological models to behaviour change have highlighted whether a person intends to change their behaviour may depend on numerous factors, including: the belief that a change in behaviour will reduce health risks and/ or the extent to which a person perceives their own behaviour as 'unhealthy' (e.g. Ajzen, 1985; Weinstein, 1988). Therefore, knowledge and beliefs concerning the causes of overweight may have implications for behaviours undertaken to prevent or treat childhood overweight.

Qualitative research conducted by Goodell et al. (2008) in the US with Hispanic, West Indian and African American parents of children aged two to five years of low SES, found parents attributed overweight to a combination of lifestyle factors and/ or genetics and 'destiny'. However, parents often disassociated lifestyle behaviours as causes of overweight in their own children. Despite sampling from various ethnicities, no comparisons between ethnic groups were reported.

Other research has also shown poor parental awareness of the relationship between overweight and unhealthy eating and physical inactivity among various

ethnic populations. Genovesi et al. (2005) observed that within a sample of parents of 4 to 10 year olds, nearly half with an overweight child reported their child did not eat enough or consume the right amount of food. Moreover, studies conducted in Australia (Campbell et al., 2006) and Turkey (Esenay et al., 2010), showed the majority of parents with an overweight child believed their child's diet was healthier than their peers. With regards to physical activity, Esenay et al. (2010) found 95% of Turkish parents with an overweight child aged four to six years considered the level of activity their child participated in to be the same or more than their peers. Health behaviour change intentions have been examined by Myers and Vagus (2000) within a largely Hispanic sample of parents with overweight children aged two to five years. Data showed 48% of parents had reduced the amount of high fat and sugary snacks their child consumed, whilst only 5% considered increasing their child's physical activity levels.

The majority of research that has explored parental perceptions surrounding weight in childhood has taken place outside of the UK, and the association between ethnic background and parental views has often been neglected. Therefore, the generalisability of these findings within the local context is limited, and raises important questions regarding the relevance of childhood obesity management interventions for ethnic minorities in the UK.

3.2 Aims and objectives

This study aimed to examine the relationship between ethnic background and parental perceptions of weight in childhood, among an ethnically diverse sample of parents with school age children (4 to 16 years) living within Liverpool. The research objectives were to explore associations between ethnic background and:

- views of healthy body size in childhood
- concerns surrounding overweight in childhood
- attitudes to perceived causes of overweight in childhood

3.2.1 Hypotheses

These objectives were elaborated into three alternative hypotheses for testing:

- ethnic background influences what parents consider as a healthy body size in childhood
- ethnic background influences parental concern surrounding overweight in childhood
- ethnic background influences what parents believe causes overweight in childhood

3.3 Methodology

3.3.1 Research design

This study had a cross-sectional design which entailed the collection of data from participants at a single point in time in order to gather a body of quantitative data in connection with two or more variables (Bryman, 2008). This design allowed for the incidence and character of the concepts measured to be explained, the relationships between variables to be analysed (Buckingham and Saunders, 2004), and causal inferences to be drawn (De Vaus, 2002).

3.3.2 Methods

The instrument used to collect data was the questionnaire. A questionnaire can be defined as:

“a technique for gathering statistical information about the attributes, attitudes, or actions of a population by administering standardised questions to some or all of its members”. (Buckingham and Saunders, 2004: 13)

Since this study aimed to explore the association between ethnic background (*attributes*) and parental perceptions of weight in childhood (*attitudes*), a questionnaire was considered the most suitable method.

The questionnaire was designed to be self-administered; an efficient and cost effective means to reach a large and ethnically diverse sample in order to test the hypotheses, and address potentially sensitive topics (Bourque and Fielder, 1995).

3.3.3 Questionnaire design

A validated questionnaire was not available for the purpose of this study; therefore, a systematic approach to the development of a self-completion questionnaire was followed. The questionnaire consisted of several items adapted from previous surveys, plus novel questions relevant to the current study. A detailed account of the theoretical assumptions underpinning the design of the questionnaire can be found in Appendix 1. In line with good practice recommendations in survey design (Aldridge and Levine, 2001; De Vaus, 2002; Pole and Lampard, 2002), questions were pre-tested with 13 parents of school-age children, and five bi-lingual community workers and postgraduate students. Respondents were asked to complete the questionnaire and provide feedback via a semi-structured interview on their understanding and readability of each question, as well as the layout of the questionnaire. Amendments were made to the questionnaire according to the feedback received. This process aided the face, content and construct validity of the questionnaire, confirming questions were understood as intended, making certain

the range of dimensions entailed in each concept were covered, and ensuring responses on closely related items were consistent.

The final questionnaire comprised four sections, *About You*, *Weight in Childhood*, *About Your Children*, and *Further Research* and took respondents ~5 to 10 minutes to complete (see Appendix 2 for a copy of the questionnaire).

The first section, *About you*, gathered information on demographic characteristics (respondent's age, postcode and ethnic and religious background).

The six questions in section two, *Weight in childhood*, evaluated parents' general views on weight in childhood. To identify parental perceptions of healthy weight in childhood, parents were asked to choose from a series of seven drawings, designed by Collins (1991), which represented the healthiest weight for a 10-year-old girl and boy. Figures were pre-coded one to seven, representing most underweight to most overweight. Based on the practices of previous research (Collins, 1991; Sherry et al., 2004), figures were measured as a scale variable.

Section two was designed to assess the importance parents placed on weight in childhood by asking, '*how important is it to you that your child/ children are a healthy weight?*' (response options: *very important, fairly important, neither important nor unimportant, not important, not important at all*). The next question comprised of a series of six statements intended to ascertain levels of parental agreement with issues concerning childhood overweight. Multiple statements were used to measure parental attitudes to overweight in childhood, in order to operationalise the concept comprehensively and minimise measurement error. Five-point Likert scales were used, affording flexibility in the answers provided, and offered the opportunity to

measure intensity, extremity and direction of responses (De Vaus, 2002). To control for acquiescence, 'pro' and 'anti' statements were designed (De Vaus, 2002).

Parents' views on what causes overweight in childhood were explored via a multiple choice question (*What do you think causes children to become overweight?*

Response options: Not enough physical activity, eating too much, eating the wrong kinds of food, illness/ injury, genes, too much television and computer, other).

Finally, in order to check consistency of responses across measures and fully operationalise the concept of 'parental concern', parents were asked who they would seek support from if they had an overweight child.

Section three, *About Your Children*, was designed to assess parents' perceptions and concern regarding the weight of each of their children (aged between 4 and 16 years), as well as to collect further demographic information, including age, gender, height and weight of child, and relationship to child.

Section four of the questionnaire, *Further Research*, offered parents the opportunity to provide their contact details if they wished to participate in further research and/ or be entered into a prize draw to win a £50 supermarket voucher as an incentive to complete the questionnaire.

To help respondents engage with the questionnaire, a variety of question formats were employed (De Vaus, 2002). Where possible, closed questions were used, enhancing the reliability of questions by ensuring uniformity of measures, and for their ease of completion (Buckingham and Saunders, 2004). The wording of questions was considered, the use of jargon and double-barrelled questions was avoided, and questions were written in plain English (Plain English Campaign,

2010). As recommended by Bourque and Fielder (1995), response categories were designed to be exhaustive, categories were mutually exclusive with clear boundaries, where relevant multiple responses were allowed and a residual 'other' category was inserted.

As well as the design of each question, the layout and order of the questionnaire was given careful consideration. Attempts were made to balance the number of pages the questionnaire was spread over without clustering questions too closely. Overall, the questionnaire comprised of six pages, with additional pages supplied for parents with more than four children aged 4 to 16 years. The flow of the questionnaire was designed to be logical, although it was acknowledged the context of responses may differ among respondents since researchers were unable to control the sequence in which questions were read or completed. The questionnaire progressed from easy to more complex and sensitive questions. Demographics were asked in the initial section since this information would be readily available to participants and therefore deemed easy to complete. In a logical order, general questions surrounding overweight in childhood were then posed, followed by specific measures relating to the respondents own children's weight status. Finally, the questionnaire approached parents regarding further research contact and being entered into a prize draw. This section was strategically placed at the end of the questionnaire, to help ensure respondents completed all sections.

For each question, instructions were provided on how it should be completed. A participant information sheet was also designed stating the purpose of the study and its usefulness, interests of funders, eligibility of respondents, assurances of confidentiality, and provided guidance on how to return the questionnaire and who to contact for further advice and results (see Appendix 3 for a copy of the

information sheet). To aid response rates, the questionnaire was supplied with a stamped addressed envelope (Bourque and Fielder, 1995).

3.3.4 Translation

Discussions took place with gatekeepers at each fieldwork venue to ascertain the main languages and dialects spoken by parents who accessed their facilities. As a result, the participant information sheet and questionnaire were made available in nine languages: English, Arabic, Somali, French, Polish, Czech, Mandarin, Urdu and Bengali.

One-way translation of research materials is the most frequently used method in public health cross-cultural research (Weeks et al., 2007) and was utilised in this study. For each target language, this process involved one bi-lingual person translating from the source (Weeks et al., 2007). However, some researchers (Sperber et al., 1994; Erkut et al., 1999) claim this technique often leads to low levels of validity and reliability and recommend the use of back translation, which requires at least two independent translators in order to identify any discrepancies between the source and the target language (Weeks et al., 2007). Whilst the benefits of this preferred approach are recognised, the costing for this type of translation exceeded the budget of the project. In order to aid the validity of measures and comparability across languages, considerations were given to the semantic, conceptual and normative equivalence of questions when translated into target languages, as suggested by Behling (2000). In-depth discussions with bi-lingual researchers and community workers, as well as professional translators, took place. Discussions surrounded equivalence in meaning of words and phrases, whether the concepts were valid and meaningful in the target populations, and social conventions regarding the acceptability of procedures through which the questionnaire would be administered. Therefore, where possible translators were

used who were familiar with the research area, and as proposed by Weeks et al. (2007) the translated versions were pre-tested with respondents as a means to aid quality assurance.

3.3.5 Participants and sampling method

Between July and December 2009 questionnaires were distributed to parents of children aged 4 to 16 years across ethnically diverse wards in Liverpool, as identified by 2001 census data (Office for National Statistics, 2001). Wards were classified as ethnically diverse if the proportion of ethnic minorities residing in the area was higher than the Liverpool average. In total, 9 out of the 30 wards in Liverpool were defined as ethnically diverse for the purpose of this study.

A stratified sampling approach was employed in order to deliberately over-represent ethnic minority parents. All primary and secondary schools within ethnically diverse areas were approached; community centres and places of worship within these areas were contacted and those who reported a high attendance rate from ethnic minority populations based on their subjective projections were asked to help; where access to care services had previously been negotiated within these areas, these services were also contacted. In total, 71; schools ($n=22$); primary and secondary care services ($n=2$); places of worship ($n=5$) and community centres ($n=42$) assisted in distributing questionnaires. Within each fieldwork site, gatekeepers gave questionnaires to all parents of children aged 4 to 16 years accessing their service during the period in which they agreed to help with data collection. It is well documented ethnic minority populations are at a disproportionately high risk of social exclusion in comparison to the overall population (Social Exclusion Unit, 2001); therefore, snowball sampling was encouraged to help reach families who may have been unable to access the research any other way.

In total, 10,000 questionnaires were distributed among fieldwork sites. This number of questionnaires were produced, taking into account the heterogeneous nature of the population under study and accounting for a ~10% response rate for self-completion questionnaires (Bourque and Fielder, 1995; Buckingham and Saunders, 2004). Whilst the self-completion method was employed to aid response rates, where parents were unable to read or write, the questionnaire was administered verbally by researchers and community workers.

Respondents' consent was ascertained by the completion and return of the questionnaire. The information sheet clearly outlined participation was entirely voluntary.

3.3.6 Data preparation and analysis

Questionnaires were excluded from analysis if respondents were not parents, did not have a child aged between 4 and 16 years, provided no details for a child, did not report ethnic background, or belonged to an ethnic group with fewer than 20 respondents. When multiple copies of the questionnaire were returned by a single respondent, the first questionnaire received was used in the analysis and all duplications were removed.

Responses to all questions were coded; closed questions were pre-coded whereas all open responses were coded on return of the questionnaire. Where Likert scales were used, categories were collapsed as necessary to increase statistical power.

Whilst descriptive statistics were generated for all variables in the study, the results from all questions have not been reported due to problems surrounding efficacy of

data (further information can be found in Section 3.6). Chi-Square tests for independence were applied to test for associations between categorical variables and Cramer's V statistics were used to report effect size. As advised by Fielding (2005), effect size was only reported when summarising a focused comparison. Where data measured on a scale variable did not meet parametric assumptions, Mann-Whitney U tests were employed. Data were analysed using SPSS 17.0 for Windows. Statistical significance was defined as $p < 0.05$.

3.4 Findings

Questionnaires were returned from 1,052 parents, 808 of which were eligible for analysis, representing a >10% overall response rate. Within the 808 questionnaires, data was provided for 1,427 children aged 4 to 16 years. Eighty-two percent of respondents were mothers and 18% were fathers. Ten percent of parents were aged 20 to 29 years, 37% aged 30 to 39 years, 36% aged 40 to 49 years, and 6% aged 50 years or older. Age data were missing for 11% of parents. Ethnic background was identified as: White British (WB: $n=603$, 75%), Black Somali (BS: $n=43$, 5%), Chinese (OC: $n=41$, 5%), Black African (BA: $n=40$, 5%), South Asian (SA: $n=28$, 3%), Asian British (AB: $n=27$, 3%) and Yemeni (OY: $n=26$, 3%). Where possible, respondents' self-identification of ethnic background was used in the analyses. However, parents from Asian Bangladeshi, Asian Indian and Asian Pakistani backgrounds were clustered as one 'South Asian' group due to low response rates within each subgroup. Within the South Asian group, nine parents identified their ethnic background as Asian Pakistani, nine as Asian Indian and 10 as Asian Bangladeshi.

Ninety-four percent of questionnaires were completed in English. The remaining questionnaires were returned in Mandarin, Somali, Arabic, French, Bengali and Urdu.

Parents from each ethnic minority group were over-represented in comparison to the overall Liverpool population (Liverpool City Council, 2011). Based on the 2007 Index of Multiple Deprivation (IMD) score (Noble et al., 2008), 84% of respondents resided in areas below the Liverpool Average IMD level (Liverpool City Council, 2010), with 64% living within the 10% most deprived Super Output Area's (SOA) in England.

Respondents' family size ranged from one to five children aged 4 to 16 years (mean=1.8, SD=0.9). Of the 1,427 children details were provided for, 49% were boys and 48% were girls, data on gender was missing for 3% of children. The mean age of respondents' children was 9.9 years (SD=3.5).

See Table 3.1 for a demographic profile of parents for each ethnic group.

Table 3.1 Demographics of sample

		AB (n=27)	BA (n=40)	BS (n=43)	OC (n=41)	SA (n=28)	WB (n=603)	OY (n=26)
		%	%	%	%	%	%	%
Gender	<i>Female</i>	85	73	70	90	75	85	42
	<i>Male</i>	15	28	30	10	25	15	58
Age	<i>20-29</i>	4	15	9	2	4	11	8
	<i>30-39</i>	30	45	30	37	50	37	23
	<i>40-49</i>	33	20	23	39	21	38	35
	<i>50-59</i>	4	3	14	2	0	5	11
	<i>60+</i>	0	0	5	0	4	<1	0
	<i>Missing data</i>	30	18	19	20	21	8	23
Number of children aged 4 to 16 years	<i>1</i>	48	58	44	51	43	47	35
	<i>2</i>	30	15	12	39	32	36	58
	<i>3</i>	11	23	19	7	25	12	4
	<i>4</i>	7	5	21	3	0	3	4
	<i>5</i>	4	0	5	0	0	<1	0
Language of questionnaire completed	<i>Arabic</i>	-	-	9	-	-	-	42
	<i>Bengali</i>	-	-	-	-	4	-	-
	<i>English</i>	93	88	84	49	93	100	58
	<i>French</i>	-	3	-	-	-	-	-
	<i>Mandarin</i>	7	-	-	51	-	-	-
	<i>Somali</i>	-	-	14	-	-	-	-
	<i>Urdu</i>	-	-	-	-	4	-	-
IMD Level	<i>1-4</i>	59	95	88	80	82	77	88
	<i>5-10</i>	22	3	0	10	14	18	0
	<i>Missing data</i>	19	3	12	10	4	5	12

Key: AB, Asian British; BA, Black African; BS, Black Somali; OC, Other-Chinese; SA, South Asian; WB, White British; OY, Other-Yemeni

3.4.1 Parental concern and perceived overweight status of children

Twenty-six percent of parents perceived at least one of their children to be overweight. Ethnic differences were observed, albeit not significant, among the proportion of parents identifying at least one of their children as overweight ($p>0.05$). South Asian and Yemeni parents were more than twice as likely to perceive at least

one of their children as overweight than Black African parents. The proportion of parents who viewed at least one of their children as overweight was similar across all other ethnic groups (see Figure 3.1).

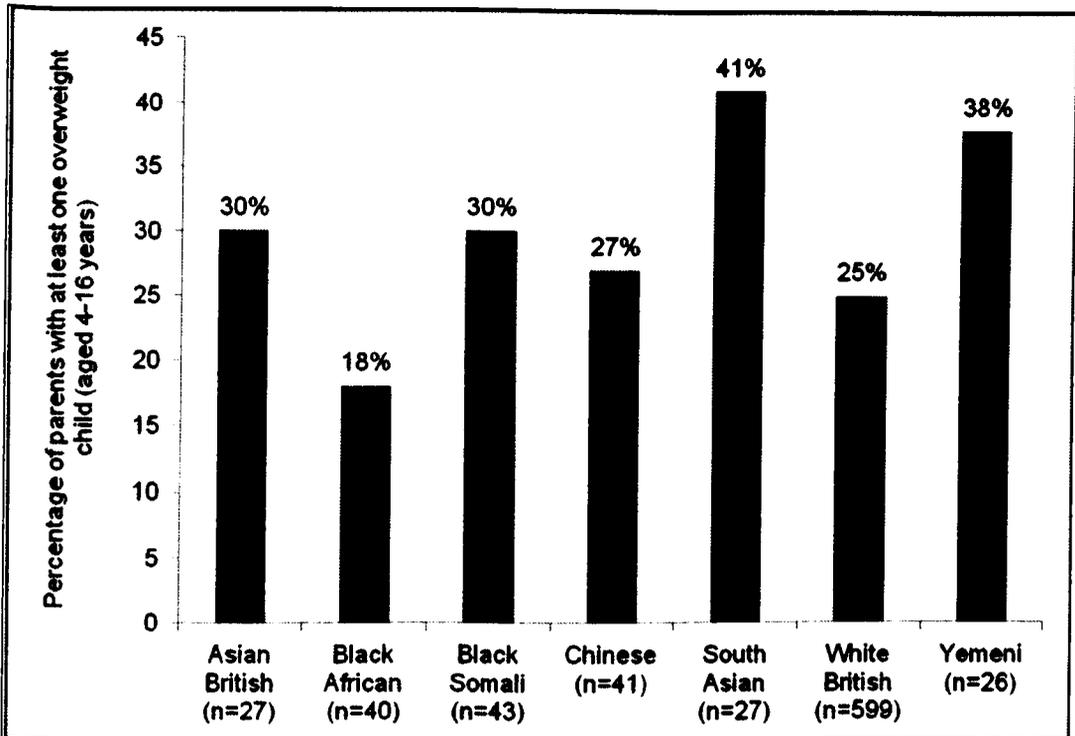


Figure 3.1 The percentage of parents who perceived at least one of their children (aged 4 to 16 years) as overweight

There was a statistically significant association between perceived level of overweight and parental concern ($X^2(3, n=237)=110.1, p<0.001$); the more overweight children were perceived to be, the more parents were concerned. Of the children considered overweight, 30% of parents were moderately worried, and a further 54% were very worried. In comparison, of children who were considered a little overweight, 27% had a parent who was not concerned, and 54% had a parent who was a little worried. Numbers were too small to test for statistical significance by ethnic background.

3.4.2 Healthy body size

Overall, the median perceived healthy body size for a 10-year-old child within each ethnic group was figure four (out of 7) (see Tables 3.2 and 3.3). However, the

distribution of the data showed a tendency for Black Somali parents (36%) to choose a larger figure for a 10-year-old girl as healthy, in comparison to Asian British (13%) and Chinese (10%) groups (see Figure 3.2). A similar pattern was evident regarding parental perceptions of the healthiest weight for a 10-year-old boy; Black Somali parents (39%) were more likely than Chinese parents (15%) to view a larger figure for a 10 year old boy as healthy (see Figure 3.3).

Table 3.2 Parental perceptions of healthy body size for a 10 year old girl

		Figures 1-3		Figure 4		Figures 5-7	
		<i>n</i>	%	<i>N</i>	%	<i>n</i>	%
Ethnic Background	<i>AB</i>	4	17	17	71	3	13
	<i>BA</i>	4	11	23	64	9	25
	<i>BS</i>	2	6	21	58	13	36
	<i>OC</i>	5	13	30	77	4	10
	<i>SA</i>	1	4	20	77	5	19
	<i>WB</i>	33	6	447	76	111	19
	<i>OY</i>	1	4	17	71	6	25
	<i>Overall</i>	50	6	575	74	151	19

Key: AB, Asian British; BA, Black African; BS, Black Somali; OC, Other-Chinese; SA, South Asian; WB, White British; OY, Other-Yemeni

Table 3.3 Parental perceptions of healthy body size for a 10 year old boy

		Figures 1-3		Figure 4		Figures 5-7	
		<i>n</i>	%	<i>N</i>	%	<i>n</i>	%
Ethnic Background	<i>AB</i>	2	8	15	60	8	32
	<i>BA</i>	2	5	28	76	7	19
	<i>BS</i>	4	11	18	50	14	39
	<i>OC</i>	6	15	27	69	6	15
	<i>SA</i>	3	11	19	68	6	21
	<i>WB</i>	29	5	458	77	108	18
	<i>OY</i>	1	4	17	64	8	31
	<i>Overall</i>	47	6	582	74	157	20

Key: AB, Asian British; BA, Black African; BS, Black Somali; OC, Other-Chinese; SA, South Asian; WB, White British; OY, Other-Yemeni

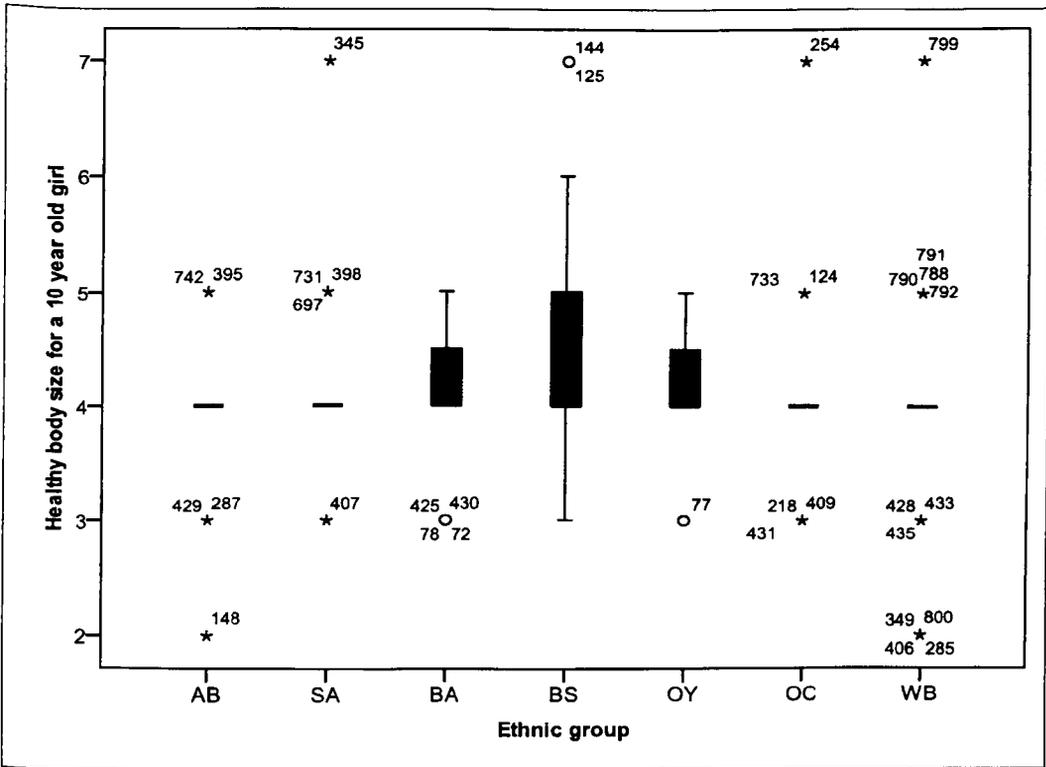


Figure 3.2 Box plots illustrating parental perceptions of the healthiest body size for a 10-year-old girl

Key: AB, Asian British; BA, Black African; BS, Black Somali; OC, Other-Chinese; SA, South Asian; WB, White British; OY, Other-Yemeni

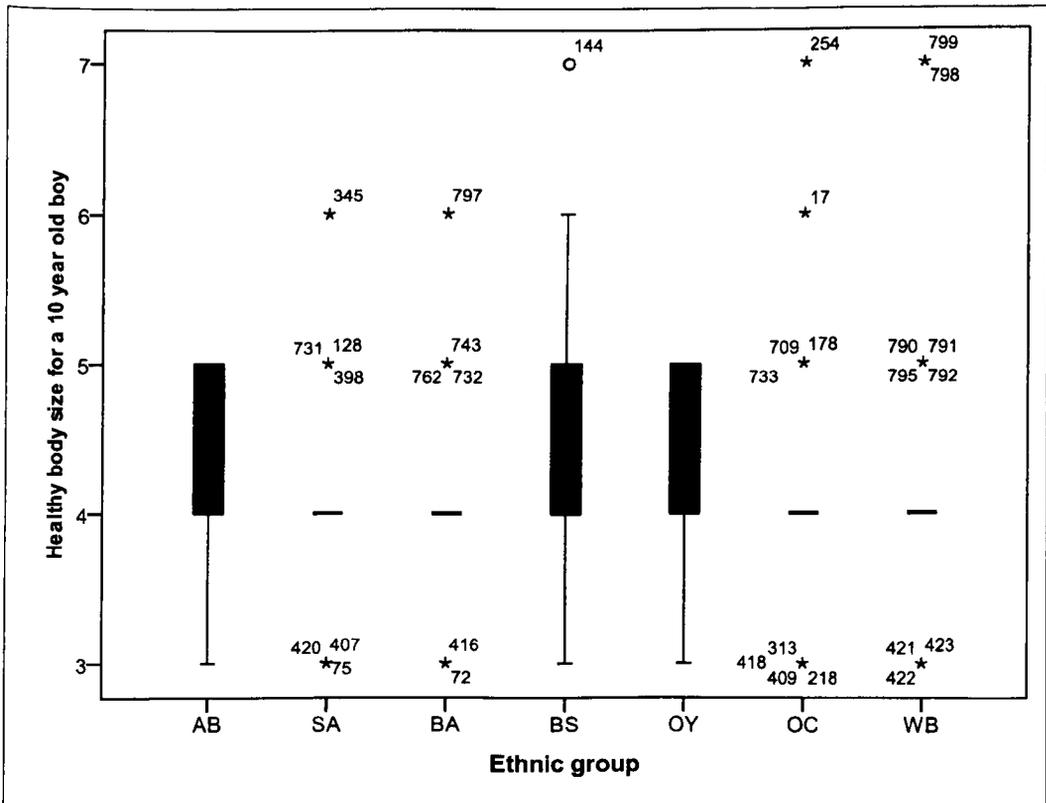


Figure 3.3 Box plots illustrating parental perceptions of the healthy body size for a 10-year-old boy

Key: AB, Asian British; BA, Black African; BS, Black Somali; OC, Other-Chinese; SA, South Asian; WB, White British; OY, Other-Yemeni

Perceptions of the healthiest weight for a 10-year-old child were significantly different between parents who perceived at least one of their children as overweight and those who did not (girl, $U=47947.5$, $p<0.001$, $r=-0.17$; boy, $U=50462$, $p<0.001$, $r=-0.15$). Parents who classified at least one of their children as overweight were twice as likely to select a larger figure (figure 5, 6 or 7) to represent the healthiest weight for a ten-year-old child (girl, 32%; boy, 33%) when compared with parents who did not consider any of their children as overweight (girl, 15%; boy, 15%).

3.4.3 Attitudes to overweight in childhood

Table 3.4 shows levels of agreement and disagreement to statements regarding overweight in childhood. A significant association was observed for the statement, *"I would prefer my children to have too much body fat than not enough"* and parental ethnic background ($p\leq 0.001$). The Black Somali group had the highest level of agreement (31%); although all ethnic groups were more inclined to disagree than agree. A second significant association was found between parental ethnic background and the statement, *"most overweight children will grow out of it"* ($p\leq 0.001$). Black African and Black Somali parents were the only cohorts more likely to agree than disagree. A further significant relationship was observed for the statement *"overweight children can still be healthy children"* ($p<0.05$). Black Somali (64%) parents had the highest level of agreement, whereas the lowest level of agreement was found among the South Asian (19%) and Yemeni (20%) groups. No other relationships between ethnic background and statements measuring parental concern were found.

Perceived overweight in children was associated to parental concern for overweight in general. Parents of children deemed to be overweight were more likely to believe *"being overweight is only a problem if it makes the child unhappy"* than parents with

no children considered as overweight ($X^2(2, n=769)=6.1, p<0.05$, Cramer's $V=0.5$).

Moreover, 42% of parents who classified at least one of their children as overweight agreed that overweight children can still be healthy children, compared to 33% of parents who did not regard any of their children as overweight ($X^2(2, n=776)=12.5, p<0.01$, Cramer's $V=0.1$).

Table 3.4 Parental perceptions of overweight

	AB	BA	BS	OC	SA	WB	OY	Total	Pearson Chi Square Value
	%	%	%	%	%	%	%	%	
<i>I would prefer my children to have too much body fat than not enough</i>									
Agree	22	5	31	13	0	19	4	17	49.3**
Neither	11	16	14	48	15	34	24	31	
Disagree	68	78	56	40	85	47	72	52	
Total (n)	27	37	36	40	26	589	25	780	
<i>Most overweight children will grow out of it</i>									
Agree	24	37	46	23	24	12	32	17	59.3**
Neither	32	29	31	18	24	23	32	24	
Disagree	44	34	23	60	52	64	36	59	
Total (n)	25	35	35	40	25	588	25	773	
<i>Overweight children can still be healthy children</i>									
Agree	26	31	64	38	19	35	20	35	25.2*
Neither	37	19	14	18	35	28	32	27	
Disagree	37	50	22	45	46	36	48	37	
Total (n)	27	36	36	40	26	590	25	780	

Key: AB, Asian British; BA, Black African; BS, Black Somali; OC, Other-Chinese; SA, South Asian; WB, White British; OY, Other-Yemeni

* $p<0.05$ ** $p<0.001$

Of the parents who believed that overweight children were not healthy, 94% thought that if a child was overweight it is important to resolve it as soon as possible ($X^2(4, n=777)=37.6, p<0.001$, Cramer's $V=0.2$). However, more than three quarters (77%) of parents who considered overweight children healthy children, also agreed that if a child is overweight it is important to sort it out as soon as possible.

A further 91% of parents who disagreed that most overweight children will grow out of it, deemed it important to sort out an overweight child's weight status as soon as possible ($X^2(4, n=769)=31.5, p<0.001$, Cramer's $V=0.1$).

3.4.4 Cause of overweight in childhood

Eighty-one percent of parents thought a combination of dietary factors and physical activity levels/ sedentary behaviour was the main cause of overweight in childhood.

A significant relationship was observed between ethnic background and sedentary behaviour, illness/ injury and genetics ($p<0.05$). Yemeni parents were the least likely to attribute sedentary behaviour (19%), illness/ injury (0%) and genetic make-up (0%) to overweight in childhood (see Table 3.5).

Table 3.5 Perceived causes of overweight

	AB n=27	BA n=40	BS n=41	OC n=41	SA n=28	WB n=600	OY n=26	Pearson Chi Square
	%	%	%	%	%	%	%	
Not enough physical activity	85	75	63	85	71	89	50	51.14 [†]
Eating too much	70	55	78	78	54	65	62	9.93
Eating the wrong food	74	73	54	66	89	89	50	75.82 [†]
Illness/ injury	22	13	15	12	25	26	0	18.22 ^{**}
Genes	41	25	37	27	43	31	0	16.37 [*]
Too much screen watching	41	33	37	37	50	54	19	24.24 ^{***}

Key: AB, Asian British; BA, Black African; BS, Black Somali; OC, Other-Chinese; SA, South Asian; WB, White British; OY, Other-Yemeni

* $p<0.05$ ** $p<0.01$ *** $p<0.001$

[†] Chi-Square test not valid. More than 20% of cells have an expected count less than 5.

Eighty-six percent of White British, 83% of Chinese and 81% of Asian British parents were of the view that both dietary and physical activity factors played a role in the development of overweight in childhood, compared to only 38% of Yemeni parents ($X^2(6, n=803)=63, p<0.001$), who were more likely to attribute overweight in childhood to dietary but not physical activity causes (50% of parents).

3.5 Discussion

The aim of this study was to examine the relationship between ethnic background and parental perceptions of weight in childhood, among an ethnically diverse sample of parents living within Liverpool. Findings are indicative of differing healthy ideals of body size, varying levels of concern for overweight, and differences in what parents believe causes overweight in childhood by ethnic background. Therefore, whilst the three alternative hypotheses outlined can be confirmed, it is important to recognise it was the concept 'ethnic background' under study rather than individual ethnic groups; results highlight commonalities as well as diversity between different groups represented here.

Research has shown rates of overweight in childhood to differ according to ethnic background (The NHS information Centre, 2010). In the current study the proportion of parents reporting at least one of their children to be overweight varied among ethnic groups ($p>0.05$). Specifically, South Asian and Yemeni parents were the most likely to perceive at least one of their children to be overweight, whilst Black African parents were the least likely. Previous research has indicated ethnic background to be significantly associated to the misclassification of children's overweight status (Baughcum et al., 2000; Ariza et al., 2004; He and Evans, 2007). This may be explained by findings from the current study whereby perceptions of a

healthy weight for a 10-year-old child differed according to ethnic background. Black Somali parents viewed a larger body size as healthy and therefore may be more likely to underestimate their child's overweight status. This assertion is supported by the work of Killion et al. (2006); where data showed not only did Hispanic and African American mothers with preschool children generally perceive their child to be thinner than their actual size, but over half of parents who had an overweight child were satisfied with their size or wanted their child to be heavier.

Overall, the median perceived healthy body size for a 10-year-old child within each ethnic group was figure four (out of 7). However, the distribution of data showed a tendency for Black Somali parents to choose a larger figure for a 10-year-old child as healthy, in comparisons to Asian British and Chinese parents for a girl, and only Chinese parents for a boy. Whilst the observed differences between groups were small, this variation is considered meaningful in the context of recognising overweight in childhood. Since overweight is defined as $\geq 91^{\text{th}}$ percentile and obesity at the 98^{th} percentile (Cole et al., 1995), differences between categories can be marginal but nevertheless important. Similarities in the perceptions of other ethnic groups are recognised.

Although the unrelated body image scale removed familial influences between parent and child, parents who perceived at least one of their children as overweight were more likely to choose a larger figure as healthy in comparison to parents who did not judge any of their children as overweight ($p < 0.05$). Results suggest a shift in norms, where parents of overweight children become more accepting of a larger body size in general. This finding compliments research conducted by Johnson et al. (2008), who proposed increases in overweight in the population will 'normalise' overweight, and provides further support for the social norm hypothesis (Wardle et al., 2006b).

Findings show parents from ethnic groups who perceived a larger body size to be healthy were less likely to consider overweight in childhood as a problem; 64% of Black Somali parents agreed that overweight children can still be healthy, compared to only 19% and 20% of South Asian and Yemeni parents respectively. Previously, research has indicated that American Indian (Adams et al., 2005; Jossefides-Tomkins and Lujan, 2003) and African American parents and caregivers (Young-Hyman et al., 2000) do not associate overweight in their children with health problems. Data from the current study implies this is also true for Black Somali parents.

Results show relatively low levels of concern for a child considered a little overweight, with the degree to which parents are concerned increasing in line with their child's perceived weight status. Similarly, Lampard et al. (2008) found 82% of parents with a child aged 6 to 13 years reported no or little concern for an overweight child, whilst 82% of parents expressed moderate to high levels of concern for an obese child.

It is well established that overweight children are at heightened risk of becoming overweight adults (Serdula et al., 1993; Hood et al., 2000). Whilst previous research has documented that parents often perceive overweight as a phase children will grow out of in African American (Sherry et al., 2004), American Indian (Jossefides-Tomkins and Lujan, 2003), Hispanic (Rich et al., 2005) and Turkish (Esenay et al., 2010) populations, this trend was also found to be pervasive among the Black Somali group. Conversely, in a UK study, Carnell et al. (2005) did not find ethnic background to be significantly associated with parental concern for future obesity in their overweight children aged three to five years. It is possible the relationship

between variables may have been concealed by categorising ethnicity in a dichotomous manner or attributable to measurement differences.

Ninety-one percent of parents who disagreed that most overweight children will grow out of it, also thought that if a child is overweight it is important to sort it out as soon as possible. In line with this result, 94% of parents who agreed that overweight children were not healthy, believed that if a child is overweight it is important to sort it out as soon as possible. This finding is consistent with research conducted by Rhee et al. (2005), who found parental concern about the overweight status of a child is significantly associated with readiness to make lifestyle changes for that child. Black Somali parents exhibited the lowest level of concern for childhood overweight in comparison to all other groups, suggesting that parental readiness to make lifestyle changes for an overweight child may also differ by ethnic background.

Taken together, these results show parents of Black Somali origin perceive a larger body size to be healthy, view overweight children as healthy, and believe children will grow out of overweight. Therefore, it can be inferred Black Somali parents are not likely to recognise overweight in their own child, will be less concerned about the health problems associated with overweight, and are not likely to address the problem because they perceive their child will grow out of it. Based on these findings, where overweight and/ or its health implications are not recognised, interventions may benefit from adopting a healthy lifestyles rather than weight approach to reach ethnic minority families.

It is of interest to note, all ethnic groups were more inclined to disagree than agree with the statement, *"I would prefer my children to have too much body fat than not enough"*. These results conflict with previous findings from Australian studies with mothers of children aged two to five years (Pagnini et al., 2007) and 11 to 16 years

(Booth et al., 2009), who considered being overweight was more acceptable than being too thin. Why this contradictory finding occurred remains unclear but could be the result of differences in sample demographics or a potential limitation of the questionnaire.

Data showed overweight in childhood was attributed to a combination of lifestyle factors by the majority of parents. This supports previous research from Goodell et al. (2008) who found among a sample of low SES Hispanic, West Indian and African American parents of children aged two to five years, a combination of lifestyle factors, and/ or genetics and 'destiny' was deemed to cause overweight in childhood. However, within the current study Yemeni parents, were more likely to attribute overweight in childhood to dietary but not physical inactive behaviour, suggesting they lacked awareness of the association between physical activity and overweight. Interestingly, Yemeni parents also reported the highest proportion of overweight children. Parents' perceptions of 'causal' factors may impact on the lifestyle changes they deem necessary for an overweight child, or what lifestyle choices should be made to prevent overweight in the future. Therefore, in particular ethnic groups, the importance of lifestyle factors in preventing and treating overweight must be addressed.

3.6 Limitations

The sampling strategy employed successfully reached seven ethnic groups, returning questionnaires in seven languages. Where possible, respondents' self-identification of ethnic background was used in the analyses. However, parents from Asian Bangladeshi, Asian Indian and Asian Pakistani backgrounds were clustered as one 'South Asian' group due to low response rates. The limitation of this is

recognised, since inter-group differences were potentially concealed. Moreover, as a result of the sampling strategy and nature of the research, mothers were disproportionately represented in all ethnic groups excluding the Yemeni cohort. Due to small sub-samples of ethnic minority parents, spurious relationship cannot be tested and this is recognised as a limitation of the study.

Results will be biased towards parents who returned the questionnaire versus those who did not have access to the research or chose not to take part. Although 10,000 questionnaires were distributed to gatekeepers it was not possible to report a response rate since surplus questionnaires were not always returned to the research team as requested.

The sample population was defined as families who accessed facilities in ethnically diverse areas of Liverpool and parents recruited through snowballing techniques. In order to increase the generalisability of findings, a more targeted approach to sampling would have been beneficial.

Since no suitably validated questionnaire was available for the purpose of this study, a questionnaire was developed. Whilst measures were in place to aid the validity of questions, including pre-testing the questionnaire, results should be treated with caution. Furthermore, the height and weight of children was not objectively measured, therefore, conclusions cannot be drawn about the actual levels of childhood obesity in the sample population or about the accuracy of parental perceptions. Large amounts of data on children's height and weight were missing and for this reason analyses have not been documented. Further concerns regarding the efficacy of data arose regarding inconsistent double scoring for the question '*if your child was overweight, would you seek support from: (response options provided)*', hence, results were not reported.

Due to the sensitive nature of the research, it is acknowledged questions may have elicited socially desirable responses, and therefore where possible, inferences have been supported by previous research. In relation, employing a scoring system with a middle category, allowed for non-committal answers. Whilst this is the preferred practice when using self-administered questionnaire (De Vaus, 2002), ensuring a directional opinion is not forced, it is recognised this may have led to the majority of parents selecting body figure four (i.e. regressing to the mean) to represent a healthy weight for a 10-year-old child, potentially concealing further differences between and within ethnic groups. Where parents have a 10-year-old child, their data may better represent parents' perceptions of the healthiest weight for a child of this age, than parents whose children are either younger or older.

3.7 Conclusions

This study aimed to examine the relationship between ethnic background and parental attitudes about weight in childhood, knowledge about the causes of overweight in childhood, and perceptions about their own child's weight. Findings show clear differences as well as commonalities in perceptions and attitudes towards childhood overweight between various ethnic groups. This research illustrates the importance of addressing ethnic differences in parental perceptions of overweight in childhood when designing an obesity management intervention (NICE, 2006). The findings have implications for the manner in which families are targeted for inclusion in childhood obesity management interventions. In some groups improved parental recognition of overweight in childhood may be needed, health benefits associated to healthy weight must be reinforced, and the importance of lifestyle factors in preventing and treating overweight addressed. Where overweight

and/ or its health implications are not recognised, interventions may benefit from adopting a healthy lifestyles rather than weight approach to reach ethnic minority families.

Despite its importance, this data does not provide an insight as to why these associations between ethnic background and perceptions of weight in childhood were observed. Therefore, it is essential that this data is supplemented with exploratory studies that examine the reason for ethnic differences in parental perceptions of childhood overweight and how they impact on children's lifestyles. Exploring the findings in more detail through qualitative means will also provide an opportunity to corroborate or reject inferences from this study. The data obtained from this chapter will therefore help inform the content of Study 2.

Chapter 4

Thesis study map: study 2

Study	Objectives and Key Findings
<p>Study 1: Parental perceptions of weight in childhood within an ethnically diverse sample</p>	<p>Objectives: To explore associations between ethnic background and:</p> <ul style="list-style-type: none"> • views of healthy body size in childhood • concern surrounding overweight in childhood • attitudes to perceived causes of overweight in childhood <p>Key findings:</p> <ul style="list-style-type: none"> • Data showed Black Somali parents tended to choose a larger figure for a 10-year-old child as healthy in comparison to parents from the Chinese group • Black Somali parents exhibited the lowest level of concern for overweight in childhood in contrast to all other ethnic groups, believing that overweight children can still be healthy children and that overweight children will grow out of it • Findings suggest parental readiness to make lifestyle changes for an overweight child may also differ by ethnic background • Overweight in childhood was attributed to a combination of lifestyle factors by the majority of parents. However, Yemeni parents were more likely to attribute overweight in childhood to dietary but not physical inactivity behaviour
<p>Study 2: Barriers and preferences to healthy lifestyles in childhood</p>	<p>Objectives: With key ethnic groups identified from Study 1, explore:</p> <ul style="list-style-type: none"> • perceptions surrounding healthy weight in childhood • factors influencing healthy eating and physical activity in childhood
<p>Study 3: The development and evaluation of a culturally sensitive healthy lifestyle intervention for ethnic minority families</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • to explore cultural preferences, and barriers to participation in lifestyle change interventions (healthy eating and physical activity) in ethnic minority groups • to implement and pilot a culturally accessible intervention, using the current provision for obese children (GOALS) as a framework for development • to assess the acceptability and effectiveness of the pilot intervention and establish key factors for its sustainability within a culturally diverse population

Chapter 4

Study 2: Barriers and preferences to healthy lifestyles in childhood

4.1 Introduction

The findings from Study 1 demonstrated a relationship between ethnic background and parental perceptions of weight in childhood. Study 2 drew on qualitative methodology to further explore this relationship and the underlying mechanisms influencing children's body size, physical activity and eating behaviours among different ethnic groups in the UK.

The prevention and treatment of childhood obesity among ethnically diverse populations requires an in-depth understanding of surface and deep-rooted influences on health behaviours (Resnicow et al., 1999). Sallis and Owen (1999) proposed a social-ecological model of health behaviour, with multi-level influences working both independently and in synergy. Levels of influences ranged from intrapersonal factors (e.g. demographics and cognitive functioning), the social (e.g. supportive behaviours and culture) and physical environment (e.g. geography and transportation) to the policy context (e.g. policy governing resources and infrastructure) (Sallis and Owen, 1999). To influence health behaviours in childhood among ethnic minority groups it is important to understand factors from an intrapersonal and broader socio-ecological perspective, from both the child and parent. The use of such a multi-layered model has previously been used when exploring influences on body size in childhood among ethnically diverse groups in the US (Styles et al., 2007), and will provide the theoretical framework for this study.

There are cultural influences on attitudes and behaviours related to body size and shape (Ritenbaugh, 1982; Brown and Konner, 1987), and differences between ethnic groups have been illustrated. For example, Hodes et al. (1995) showed White British mothers found slimmer girls more attractive compared to mothers from South Asia, the Caribbean and Africa. Parents play a substantial role in the transmission of cultural values surrounding weight, body shape and appearance to their children (Hill et al., 1990; Mukai et al., 1994), and ethnic differences in the valuation of body shape and weight have also been found in adolescents (Wardle et al., 1993; Viner et al., 2006; O'Dea, 2008). When it comes to adult body size, however, there is evidence to suggest women from South Asian, Black African and Black Caribbean backgrounds living in the UK are being influenced by Western ideals of slimness (Lawrence et al., 2007; Gardner et al., 2010; Grace, 2011).

Previous research has acknowledged parents from a range of ethnic backgrounds have a basic understanding of the benefits of healthy eating and physical activity (Thompson et al., 2003; Hesketh et al., 2005). Similar findings have been found among studies with school-aged children on healthy eating (Dixey et al., 2001; Hart et al., 2002; Thompson et al., 2003) and physical activity (Burrows et al., 1999; Thompson et al., 2003). Research has shown individuals do not necessarily act on knowledge of health behaviours (Brown et al., 2000; Stevenson et al. 2007), with a range of factors considered to influence children's dietary habits and physical activity. For example, common influences on eating behaviours in childhood have been identified (by parents and/ or children) as intrapersonal factors relating to preferences (Dixey et al., 2001; McKinley et al., 2005; Croll et al., 2001); to socio-environmental influences associated with family support (Jain et al., 2001; O'Dea, 2003) and cost (Styles et al., 2007; Kahlor et al., 2011). Whilst frequently cited influences on physical activity include intrapersonal factors associated to motivation (Mason, 1995; O'Dea, 2003; Hesketh et al., 2005); socio-environmental effects

relating to parental (Mulvihill et al., 2000; O'Dea., 2003; Brophy et al., 2011) and peer (Tuxworth, 1997; O'Dea, 2003) support; and physical environmental influences linked to safety (Hesketh et al., 2005; McGarvey et al., 2006; Styles et al., 2007). Due to a lack of reporting on ethnic background, the use of predominately Caucasian samples, and the failure to analyse data by ethnic background, it is not clear to what extent findings relate to influences experienced by ethnic minority groups. Further research is needed to explore influences on healthy eating and physical activity in childhood to determine those common to the overall population and specific to particular ethnic minority groups.

A key study conducted by the Department of Health (2008b) has attempted to address this research gap, exploring influences on body size, healthy eating and physical activity in childhood among multiple ethnic groups using focus groups, ethnographic and paired interview techniques. Families participating in the research were from Bangladeshi, Black African, Black Caribbean, Gujarati Hindu, Pakistani and Punjabi Sikh backgrounds living in London, Birmingham, Leicester, Bradford and Oldham. Researchers found Pakistani, Bangladeshi and Black African parents prepared cultural foods cooked in traditional ways which were often not healthy. Moreover, children from these ethnic groups were frequently expected to spend their free time at home on additional studies or receiving extra tuition rather than participating in physical activity, due to the importance their parents placed on academic success. Whilst this study provided an in-depth account of the families' obesogenic lifestyles, their awareness of particular factors as barriers to healthy behaviours was not comprehensively investigated. Moreover, questions arise regarding the transferability of these findings to less ethnically diverse areas of England, where barriers and facilitators to healthy lifestyle behaviours may vary as a result of differences within the social and physical environment in which families reside.

Evidence suggests ethnic minority groups living in Western countries are unique, as their attitudes may be a reflection of their ethnic background, the majority population or a combination of both (Arshad, 2007). Research from UK studies remains limited, and is often restricted to ethnic groups including South Asian, Black African and Caribbean populations. Research is urgently needed to address perceptions of weight in childhood, physical activity and healthy eating in childhood among ethnic minority groups living in the UK.

4.2 Aims and objectives

This study set out to explore attitudes towards healthy weight and views surrounding influences on healthy eating and physical activity in childhood, with parents and school age children from ethnic groups identified in Study 1.

4.2.1 Research Questions

The study sought to address the following questions:

1. How do parents and children (aged 8 to 12 years) view overweight in childhood, and what are the differences and commonalities among ethnic groups?
2. What factors are considered by parents and children to influence healthy eating and physical activity behaviours in childhood, and how do they compare across ethnic groups?

Methodology

4.3.1 Research Design

The exploratory nature of the study led to the development of a multi-method design, where quantitative data was used to supplement qualitative findings. Qualitative research, as described by Holloway (1997) is *“a form of social inquiry that focuses on the way people interpret and make sense of their experiences and the world in which they live”* (1997: 1). Therefore, on the basis that context, depth and understanding were important to address the research questions, a predominately qualitative approach was adopted. Quantitative methods supplemented qualitative findings and helped determine the credibility and confirmability of the data, through the process of triangulation.

4.3.2 Method

To address the research questions, focus groups were employed. Focus groups are group discussions that set out to explore specific issues in a collective context (Barbour and Kizinger, 1999). The distinguishing characteristic of a focus group, from that of the group interview, is the attention given to the group interaction to address the research questions (Barbour and Kitzinger, 1999). An increasing number of studies have demonstrated the usefulness of the focus group method in conducting health-related research, both with adults (e.g. Thompson and Story, 2003; Goldsmith et al., 2007; Croker et al., 2009) and children (e.g. Hill et al., 1996; Dixey et al., 2001; Porcellato et al., 2002). Moreover, the successful use of focus groups in culturally and linguistically diverse populations has been documented (e.g. Halcomb et al., 2007; Whittaker et al., 2005; Huer and Saenz, 2003).

Focus groups were used in this study to explore perceptions of healthy eating, physical activity and weight in childhood. This method can provide a comfortable environment that enables participants to question one another, pursue issues important to them, and encourages varied and in-depth dialogue (Hilton, 2005; Bryman, 2008). The emphasis placed on group interaction suited the current research project, allowing cultural norms and individual attitudes to be explored within the social environment in which they were constructed.

The focus group environment also helps to readdress the power imbalance within the research setting (Hilton, 2005), and therefore is considered a particularly useful tool for researching vulnerable groups (Hildebrandt, 1999; Halcomb et al., 2007). As Wilkinson (1999) notes, the number of research participants simultaneously involved in the research interaction helps shift the balance of power away from the researcher. This shift in the power dynamic between researcher and participant can lead to a sense of empowerment among participants (Gibbs, 1997).

For these reasons, focus groups were considered a particularly useful method for conducting research with children. Furthermore, by removing the emphasis on the adult-child relationship, is thought to help reduce the likelihood children will respond in ways they deem desirable by the researcher (Heary and Hennessy, 2002).

Mauthner (1997) also argues, by replicating the type of small group setting that children are familiar with in the classroom, focus groups help create an environment where they can feel safe.

4.3.3 Recruitment

In total, parents and children from six ethnic groups (ABG: Asian Bangladeshi; BA: Black African; BS: Black Somali; OC: Chinese; WB: White British; OY: Yemeni) participated in the study. However, researchers were unable to recruit parents and

children from Asian British, Asian Indian and Asian Pakistani groups within the project timescale. Separate focus groups were carried out for each ethnic group participating. Parents were invited to participate in two focus groups, whilst children took part in one focus group followed by a second visit to complete an obesity perceptions worksheet. Where parents were unable to attend the first group, they and any eligible children were invited to the second session. Findings from the second parent group will be discussed in Chapter 5, whereas data from both contact sessions with children will be explored in this chapter in order to address the research questions.

A purposive sampling technique was used to reach parents and children from target ethnic groups identified in Study 1. Parents were eligible for inclusion if they belonged to an identified ethnic group (Asian British, Black African, Black Somali, Chinese, South Asian, White British and Yemeni), had a child aged between 4 and 16 years, and had agreed to further research contact (from Study 1). All eligible parents were invited to participate, except in the case of White British parents where large numbers fitted the eligibility criteria; therefore parents were selected based on the proximity of their postcode to the focus group venue (for venue details see section 4.3.5). Both fathers and mothers were invited, except to groups where Muslim women were attending (Black Somali, Yemeni and Asian Bangladeshi groups). Those groups were women-only as advised by community workers and research recommendations (Netto et al., 2007). In ethnic groups where the number of parents who wished to participate in further research was low, community workers used snowballing techniques to recruit parents.

Children were eligible to take part in focus groups if they belonged to an identified ethnic group, were aged between 8 and 12 years and had a parent also participating in the research. In order to control for developmental differences, child

participants were aged within this four-year span of one another. This age group was chosen to participate as they were of an age old enough to interact but still strongly influenced by the family environment (McKinley et al., 2005).

Child focus groups were mixed-sex (with the exception of the Black African group which contained only boys). Whilst homogeneity in regards to gender is frequently recommended when conducting focus groups with children (Hoppe et al., 1995; Vaughn et al., 1996), other health-related research has found a mixed-gendered approach works well with pre-adolescent children (Davis and Jones, 1996; Hill et al., 1996; GOALS, 2009). Therefore, the gender composition of the child focus groups was decided upon based on the research questions under study and sampling methods employed. Since the aim of this research was to explore the influence of ethnicity, it was deemed important to gain the perspectives from a heterogeneous population. Moreover, the sampling methods employed made it difficult to control the sex of child participants.

The number of focus groups conducted with each ethnic group was given consideration in regards to the complexity of research questions and heterogeneity of the population under study, as well as practical issues including time and resources (Gibson, 2007). In the social sciences there is general consensus that at the point of conceptual "*saturation*" (Glaser and Strauss, 1967), data collection should end (Morgan, 1997). Morgan (1997) highlights that the number of groups needed to reach this point will depend on a number of factors including: variability of participants both within and across groups; and the degree of structure within groups.

This study aimed to provide trustworthy and comprehensive answers to the research questions within the time and resources allocated. One parent and one

child focus group were conducted with each ethnic group (in total 5 parent and 5 child groups took place) to address the research questions posed in this Chapter. To aid trustworthiness of comparisons made between groups, focus groups were semi-structured. Moreover, focus group data were triangulated with quantitative data collected during contact sessions (from the body image questionnaire (see section 4.3.6.5) and obesity perceptions worksheet (see section 4.3.6.4) and findings from Study 1.

In line with guidance on focus group methodology (Morgan, 1998), it was proposed that groups would comprise of six to eight participants. However, due to non-attendance and over recruitment, group size ranged from four to nine parents and two to eight children.

4.3.4 Sample

In total, 36 parents of children aged 4 to 16 years and 31 children aged 8 to 12 years participated in the initial set of focus groups. Twenty-two children attended the second research contact session.

Social demographics were collected from parents and children via a short self-report questionnaire. Information requested from parents included age, marital status, educational attainment and employment status. To determine levels of acculturation parents were also asked to report country of birth. If not born in the UK, parents were asked to provide information on years lived in the UK, main language spoken, and perceived ability in speaking English, as demonstrated as acceptable practice in previous studies to assess levels of acculturation (Arcia, 2001; Abraído-Lanza et al., 2006; Minou, 2011). Children's ethnic background was identified by parents.

Demographics of focus group participants are summarised in Table 4.1 and 4.2.

Table 4.1 Demographics of parent groups

	ABG (n=5)	BA (n=4)	BS (n=7)	OC (n=6)	WB (n=8)	OY (n=6)
Relationship to child	Mother n=5	Mother n=2 Father n=2	Mother n=7	Mother n=5 Father n=1	Mother n=8	Mother n=6
Religion	Muslim n=5	Christian n=4	Muslim n=7	Buddhist n=2 No religion n=2 Missing n=2	Christian n=6 No religion n=1 Missing n=1	Muslim n=6
Place of birth	UK n=1 Bangladesh n=4	Africa n=4	Somalia n=7	UK n=1 China n=5	UK n=8	UK n=4 Yemen n=2
Years lived in the UK (if not born in the UK)	0-5 years n=1 16-20 years n=1 21-25 years n=2	0-5 years n=2 11-15 years n=2	6-10 years n=1 11-15 years n=3 16-20 years n=1 21-25 years n=1 Missing n=1	0-5 years n=1 6-10 years n=3 26+ years n=1	n/a	6-10 years n=1 Unknown n=1
Main language spoken (if not born in the UK)	Bengali n=4	English n=4	Somali n=7	Mandarin n=5	n/a	Arabic n=2
How well English is spoken (if English not first language)	Very well n=1 Well n=3	n/a	Well n=2 Not at all well n=5	Not well n=2 Not at all well n=2 Missing n=1	n/a	Well n=2
IMD Level	Level 1 n=2 Level 2 n=2 Level 7 n=1	Level 1 n=4	Level 1 n=7	Level 1 n=3 Level 2 n=1 Missing n=2	Level 1 n=8	Level 1 n=5 Level 2 n=1
Employment	Unemployed n=4 SOC 6 n=1	Unemployed n=3 SOC 5 n=1	Unemployed n=7	Unemployed n=3 SOC 9 n=2 Missing n=1	Unemployed n=6 SOC 6 n=2	Unemployed n=5 SOC 2 n=1

Key: ABG, Asian Bangladeshi; BA, Black African; BS, Black Somali; OC, Other-Chinese; WB, White British; OY, Other-Yemeni

Table 4.2 Demographics of child groups

	ABG	BA	BS	OC	WB	OY
Focus group:	n=5	n=2	n=5	n=6	n=5	n=8
Gender	Boy n=2 Girl n=3	Boy n=2	Boy n=1 Girl n=4	Boy n=3 Girl n=3	Boy n=1 Girl n=4	Boy n=4 Girl n=4
Weight status*	Healthy n=2 Over n=1 Obese n=2	Healthy n=1 Obese n=1	Healthy n=1 Over n=1 obese n=3	Healthy n=3 Over n=2 obese n=1	Healthy n=3 Over n=1 Obese n=1	Healthy n=4 Obese n=4
Follow-up:	n=3	n=1	n=3	n=5	n=3	n=7
Gender	Boy n=2 Girl n=1	Boy n=1	Girl n=3	Boy n=2 Girl n=3	Girl n=3	Boy n=5 Girl n=2
Weight status*	Healthy n=1 Over n=1 Obese n=1	Healthy n=1	Healthy n=1 Over n=2	Healthy n=3 Over n=1 Obese n=1	Healthy n=1 Over n=1 Obese n=1	Healthy n=3 Obese n=4

*BMI UK 1990 refs (Cole et al., 1995): Healthy = >2nd %ile < 91st %ile; Overweight >91st %ile; Obese >98th %ile

Key: ABG, Asian Bangladeshi; BA, Black African; BS, Black Somali; OC, Other-Chinese; WB, White British; OY, Other-Yemeni

4.3.5 Procedure

Focus groups with parents and children took place in local community settings between February and June 2010. Venues used to facilitate focus groups varied, ensuring the setting was well known to, and convenient for, participants. Focus groups were conducted in primary schools (Asian Bangladeshi, Black African and White British groups) and community centres (Black Somali, Chinese and Yemeni groups). All venues were located in deprived and ethnically diverse wards of Liverpool, including Kensington, Picton, Riverside and Princes Park. It is acknowledged the environment in which focus groups took place had the potential to influence discussions, and this was considered during the analysis.

Focus groups were delivered in private rooms away from interruptions and distractions. Parent and child groups took place simultaneously. The primary researcher (White British female) was present at all parent focus groups and facilitated those carried out in English (White British, Yemeni, Black African and Asian Bangladeshi groups). The Black Somali group was facilitated in Somali by a Somali researcher and the Chinese group facilitated in Mandarin by a Chinese researcher. In the Yemeni and Asian Bangladeshi groups, interpreters provided bi-lingual support as required, though this support was minimal. Child groups were all facilitated in English by a second White British researcher. All facilitators and interpreters were female. Table 4.3 summarises the ethnic background of facilitators and interpreters present as well as language spoken in each group.

Table 4.3 Ethnic background of facilitators and interpreters and language spoken

Parent group		Child group		
	<i>Ethnic background of facilitator and interpreter</i>	<i>Language</i>	<i>Ethnic background of facilitator</i>	<i>Language</i>
ABG	White British (facilitator) Asian Bangladeshi (interpreter)	English and Bengali	White British	English
BA	White British	English	White British	English
BS	Black Somali	Somali	White British	English
OC	Chinese	Mandarin	White British	English
WB	White British	English	White British	English
OY	White British (facilitator) Liberian (interpreter)	English and Arabic	White British	English

Key: ABG, Asian Bangladeshi; BA, Black African; BS, Black Somali; OC, Other-Chinese; WB, White British; OY, Other-Yemeni

The procedure undertaken during research contact with parents and children is outlined in Figure 4.1.

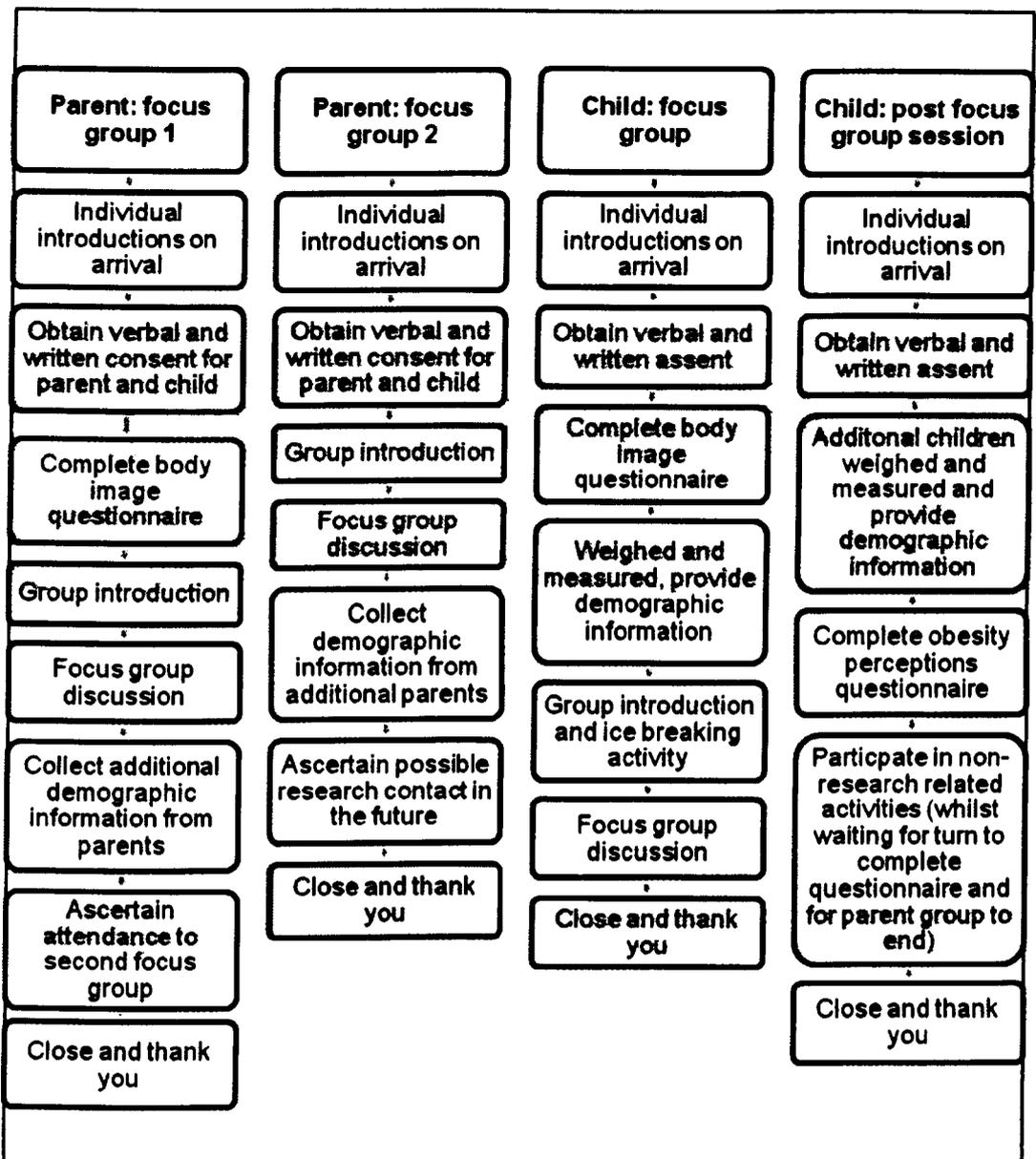


Figure 4.1 Procedure during research contact

Participant information sheets (available in English, Mandarin and Somali) were sent to each parent and child dyad at least one week before the focus groups took place, informing them of the nature of the research and what participating would entail (see Appendix 4 for a copy of the parent and child participant information sheets). Before the start of each focus group, participants were asked to re-read the information sheet and the nature of the study was explained to parents and children.

Verbal and written consent was obtained from parents, and assent from children. During this process confidentiality was negotiated with participants; because of the group setting confidentiality could not be afforded to participants on the behalf of others in the group (Lewis, 1992). Clear referral protocols were established in case of disclosure of psychological, emotional or physical abuse from children. Such limitations to the confidentiality offered by researchers were discussed with all participants at the outset of each focus group. At the end of each focus group, participants were debriefed. Participants were given the opportunity to reflect on their experiences and report any concerns. Each participant was given an information sheet to take with them which gave details of support organisations and researchers' contact information.

Parent focus groups lasted approximately one hour, whilst children's group discussions ranged from 30 to 40 minutes. The body image questionnaire took parents and children ~five minutes to complete.

Crèche facilities were provided for parents with young children. As a thank you for participating, parents were given a £10 supermarket voucher and children a pump bag.

One week after the initial group, a second focus group for parents was facilitated for each ethnic group whilst child participants were invited to complete an obesity perceptions worksheet. Due to the fluid nature of consent (Sin, 2005), agreement to participate was gained at each point of contact with the research. During the second contact session with children, participants completed the obesity perceptions worksheet under one-to-one supervision. Children participated in non-research

healthy lifestyle activities (e.g. drawing a healthy meal) whilst waiting for their turn to complete the worksheet. Due to developmental differences, the time it took for children to fill in the obesity perceptions worksheet ranged from ~10 to 30 minutes.

Adhering to the child protection procedures, all researchers working with children obtained an enhanced Criminal Records Bureau (CRB) check before the fieldwork took place.

4.3.6 Group design

4.3.6.1 Topic guide

Focus groups were conducted using semi-structured topic guides based on a review of established literature. Research relating to psychology, sociology and behavioural sciences was explored, and covered perceptions of healthy body size/ overweight in childhood, body satisfaction in childhood, and attitudes to healthy eating and physical activity. The semi-structured guides were designed to permit participants the latitude to respond freely but also ensured significant topics were covered in detail and allowed for a degree of comparability across the resultant transcripts (Flick, 2002).

The topic guides underwent extensive revisions prior to the data collection phase and input from bi-lingual community workers, parents, and researchers experienced in working with children were instrumental in this. As recommended (Behling, 2000), questions used in the topic guide for parents were discussed for semantic, conceptual and normative equivalence in meaning when translated into the target languages.

Key areas for discussion in both parent and child groups included: attitudes towards childhood overweight, knowledge and understanding of health behaviours, and influences on physical activity and healthy eating in childhood (see Appendix 5 for a copy of focus group topic guides).

4.3.6.2 Role of the facilitator

Facilitators' roles were to moderate the course of the discussion between participants, stimulating and encouraging debate (Wilkinson, 1999). Since the skills of the moderator strongly influence the success of the discussion and the quality of the data obtained (Greenbaum, 2000), all facilitators had extensive experience engaging with community groups and were trained to conduct focus groups with parents and children. Facilitators were encouraged to probe participants to gain in-depth explanations and clarify meaning, and member checking of facilitators' interpretations took place throughout the discussions.

4.3.6.3 Child-centred focus group design

Recognising the importance of researching children's cultures and acknowledging differences between adult and child participants, a child-centred design was employed. Whilst the focus group setting helped to readdress the power imbalance between adult and child (Porcellato et al., 2002; Hennessy and Heary, 2005), acknowledging the children as experts, differences in the social positions of child participants and the adult facilitator were considered. In order to redefine this relationship and adopt a "*least adult role*" (Mandell, 1999), the facilitator introduced them self by first name and had discussions with participants on arrival,

fundamentally changing the dynamics of the interactions within the group discussions.

Research techniques used related to children's common practices and accounted for differences in levels of competence and comprehension (Christensen and James, 2003) as well as their egocentrism and suggestibility (Porcellato et al., 2002). This began with the development of a child-appropriate participant information sheet. In line with previous research with children, the facilitator used a brainstorming task (Hill et al., 1996; Porcellato et al., 2002; McKinley et al., 2005) on healthy lifestyles to engage children on the topic under study and build a rapport with the target group.

Two fictional child characters were used to initiate discussions surrounding weight in childhood. Characters were designed to represent a 10-year-old girl and boy. To match the ethnic identity of the characters to each group, the images were portrayed as silhouettes but given a different (ethnically appropriate) name for each group. The use of fictional scenarios have previously been demonstrated to be of value within group discussions with children (Hill and Triseliotis, 1990; Hill et al., 1996; Arthur and Nazroo, 2003). Hypothesised scenarios provided a common basis for discussion, allowed children to express their perceptions of overweight peers without the concern of offending other group members, and placed children on an equal footing, regardless of weight status.

4.3.6.4 Obesity perceptions worksheet

An obesity perceptions worksheet was designed using the boy and girl characters from the focus group discussions and drawing on previous research with children on obesity stereotypes (Hill and Silver, 1995; Wardle et al., 2005; Hansson and

Rasmussen, 2010). For each character, children were asked four questions. For the first question, *“What do you think [name] is like as a person?”*, children were asked to choose three words from a series of 26 character words (13 positive, 13 negative, see Table 4.4) that best represented their views. The second question asked *“How do you think [name] feels?”* and children chose three feelings words from a separate list of 22 (11 positive and 11 negative, see Table 4.4). Written explanations justifying the choice of words for both questions were requested. Lastly, in order to assess the dependability of focus groups responses, children were asked the open questions *“What do you think [name] likes to do?”* and *“Would you like to be [name’s] friend?”*.

Words were coded independently as positive or negative by two researchers and cross-checked for consistency in categorisations to ensure internal reliability.

The questionnaire was verbally administered to individual children to ensure they understood each question. Words used to describe the characters were laid out in a random order in front of children and they were able to choose which they thought most appropriate, and then write their responses on the answer sheet. The researcher’s role was passive and children were asked to choose whatever they felt most suitable, and assured there were no right or wrong answers. Children were encouraged to ask for help if they could not read a word or were unsure of its meaning. The two sections of the questionnaire were completed in a random order, to control for order-effect on responses.

Table 4.4 Words to describe characters

Words used to describe what character is like as a person		Words used to describe how character feels	
<i>Positive words</i>	<i>Negative words</i>	<i>Positive words</i>	<i>Negative words</i>
Helpful	Bully	Happy	Unhappy
Sensible	Liar	Pleased	Bad
Sporty	Greedy	Excited	Sad
Jolly	Mean	Calm	Lonely
Clever	Clumsy	Relaxed	Ashamed
Kind	Grumpy	Loved	Unloved
Funny	Wimp	Playful	Upset
Friendly	Dirty	Brave	Worried
Cool	Boring	Cheerful	Scared
Clean	Nasty	Good	Confused
Brave	Lazy	Great	Angry
Honest	Naughty		
Nice	Horrible		

4.3.6.5 The body image questionnaire

In order to assess the relationship between ethnic background and perception of children's body size and level of body satisfaction, a questionnaire was developed for self-completion by parents and children. Perceptions of body size and levels of body satisfaction were measured via a series of drawings, adapted from a validated survey by Collins (1991), and written questions (*"do you think you are/ do you think your child is: underweight/ a little underweight/ about the right weight/ a little overweight/ overweight?"*). Perceived satisfaction with a child's body size was determined by calculating the difference between the figure selected for the question *"please circle the drawing which is most like you/ your child"* and *"please circle the drawing that you would most like to look like/ your child to look like"*.

The use of line drawings or figure rating scales has previously been used to determine body satisfaction in childhood in studies with parents (Katz et al., 2004; Koch et al., 2008; Davis et al., 2009) and children (Collins, 1991; Sands and Wardle, 2003; Fisher et al., 2005).

To assess the accuracy of parents' and children's weight perceptions, children were weighed and measured. Measurements were taken in privacy to avoid possible embarrassment and upset to the child. Height and weight measurements were converted to BMI using the formula $\text{weight (kg)}/\text{height(m)}^2$. In line with the National Child Measurement Programme (The NHS Information Centre, 2010), children's measures were then converted to BMI Standard Deviation Scores (BMI SDS) based on the 1990 Growth Reference data (Cole et al., 1995).

4.3.7 Analysis

All groups were recorded with permission from participants and transcribed verbatim for analysis. This enabled a comprehensive inspection (Silverman, 2000) and avoided inaccurate recollection of conversations (Flick, 2002). During this process care was taken to ensure the anonymity of all data. Where focus groups were not facilitated in English, recordings were transcribed in their original language and later translated into English for analysis.

The principal researcher transcribed all focus groups conducted in English (groups with White British, Black African, Yemeni and Asian Bangladeshi parents, and all child groups). The facilitator of the Chinese parent group carried out both the transcription and translation of the recording. Whilst a separate translator was used to transcribe and translate the recording from the Somali parent group, the facilitator

checked both the Somali transcription and its translation. The facilitator added their field notes into the transcript as appropriate. In groups where interpreters were present but offered minimal assistance (Asian Bangladeshi and Yemeni parent groups), a translator transcribed and translated these sections. Areas of the transcripts that had been translated were highlighted for analytical purposes.

Conceptual translation of transcripts was used since the research focused on cultural attitudes and perceptions of the concepts under discussion. As Riazai (2003) explains, in conceptual translation, the unit of translation is neither the word nor the sentence; rather it is the concept.

The objective of data analysis was to elicit participants' perceptions and experiences of healthy body size, healthy eating and physical activity in childhood, building an organised system of categories from the unstructured data (Côté et al., 1995). Transcripts were imported into QSR NVivo 9.0 and subjected to analysis. Transcripts, audio files and field notes from each group were collated and data was coded; this process involved reading and re-reading text and assigning broad thematic codes, some of which were pre-defined, based on topics covered in the group schedule. All data was coded under at least one broad heading, but notably, some data was coded several times, based on the nature of the discussion. As analysis continued these codes were collapsed into categories. For each category, descriptive and interpretive summaries were written based on recursive engagement with the data. Specifically, deviant cases or instances which did not conform to the accounts of the data were used to inform and amend these explanations (Seale, 1999; Silverman, 2001). The semi-structured topic guide increased the comparability of the data (Flick, 2002) and emerging themes were

compared repeatedly across transcripts. Returning to the original texts was important in interpreting the participants' responses in the context of the flow of the focus group conversation. Thus, a combination of inductive analysis and deductive techniques were used to generate categories, themes and patterns.

To aid the credibility and trustworthiness of the results, analyses and interpretations of the data were discussed and checked with the research team, including facilitators and interpreters. Perceptions of children's body size and levels of dissatisfaction were triangulated with objective BMI measurements and focus group data. Questionnaire data was imported into SPSS 17.0 for Windows and descriptive statistics were generated.

4.3.8 Presentation of focus group data

In order to give depth to researchers' interpretations of participants' accounts, descriptions were given by using direct quotes from respondents, thus allowing participants to speak for themselves (Krane et al., 1997). Participants' quotations are followed by the participants' gender, and ethnic group. Myers and Macnaghten (1999) suggest, to provide context to the quote, as a minimum the preceding turn of speech should be reported. However, due to the chaotic nature of some focus groups, it was felt this was not always suitable; therefore, this method has only been included where deemed appropriate.

Throughout the results section, tables and figures are inserted to provide context and a more in-depth understanding of the findings.

4.4 Results

Three themes were identified from the data analysis:

1. Perceptions of weight in childhood
2. Awareness and understanding of healthy eating and physical activity
3. Influences on healthy eating and physical activity behaviours in childhood

4.4.1 Perceptions of overweight in childhood: children's accounts

Children in all ethnic groups recognised the overweight status of the characters presented to them (see Figure 4.2). Characters were described as *fat, overweight, chubby, big* and *huge*.

No ethnic differences in children's attitudes towards overweight peers were evident. Focus group data showed children believed the characters were *naughty, greedy, a bully, scary, mean, rough, lazy, disgusting, dirty* and/ or *boring*. Complementary to focus group findings, results from the obesity perceptions worksheet task demonstrated children from all groups regularly used negative words (≥ 2 words) to describe the male and female characters (73% and 55%, respectively). Most frequently, children cited obesity related stereotypes, referring to the characters as greedy and lazy (male character: greedy, 45%; lazy, 41%; female character: greedy, 56%; lazy, 41%). Children apportioned blame and responsibility to the characters for their overweight status.

*"Because he is fat that says he does not do enough exercise and just likes to eat junk and he is not healthy".
(Yemeni boy)*

For a full breakdown of words used in the worksheet task to describe the characters see Figure 4.2.

In relation to attitudes surrounding laziness, overweight characters were considered incapable of physical activity.

*“You [if overweight] might not be able to run”.
(Black Somali girl)*

Whilst unhealthy eating and sedentary lifestyles were considered causal factors of overweight, it should also be noted a few children (White British and Asian Bangladeshi children) acknowledged it could also be attributable to *“the make of you”*.

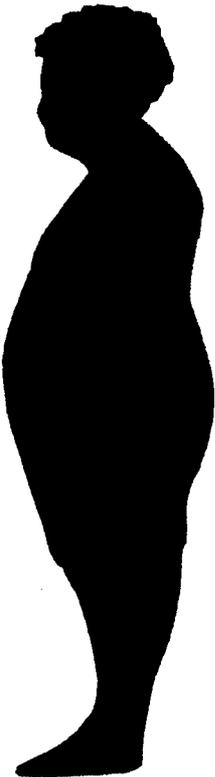
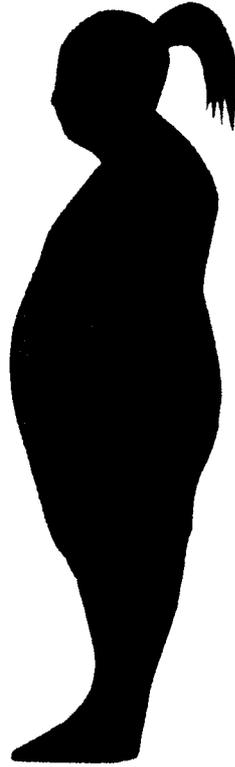
Children from all groups believed the characters would experience negative emotions and frequently cited within the group setting they would feel *sad, tired, lonely, cross, angry* and/ or *ashamed*. Moreover, worksheet data showed children used mainly negative words (≥ 2 out of 3 words) to describe how the male (86%) and female (82%) characters felt. Predominately, children believed the male character felt lonely ($n=9$, 41%), upset ($n=8$, 36%), ashamed ($n=7$, 32%) and sad ($n=7$, 32%), and the female characters was worried ($n=9$, 41%), sad ($n=8$, 36%) and upset ($n=8$, 36%).

Discrimination based on overweight status was considered common; children were aware of the social ramifications of being overweight, believing the characters would be bullied, *“skitted”* or made fun of because of their size.

N: She's a person, I think she's umh angry all the time
Facilitator: Angry, why do you think she's angry?
N: Because everyone calls her fat
(Black Somali Girl)

In response to comments made regarding the characters weight, it is important to highlight that some children (Black African, Asian Bangladeshi, Chinese, Yemeni and White British) referred to the remarks as socially unacceptable.

Facilitator: So from this picture what do you think Khaled's like as a person?
H: Fat
K: That's not nice of saying if he was real
(Asian Bangladeshi girl)

Words used to describe what the boy is like			Words used to describe how the boy feels	
<i>Negative</i>	<i>n</i>		<i>Negative</i>	<i>n</i>
Greedy	12		Lonely	9
Lazy	10		Upset	8
Boring	5		Sad	7
Nasty	4		Ashamed	7
Dirty	3		Unhappy	4
Mean	2		Worried	4
Naughty	2		Angry	3
Bully	2		Scared	3
Clumsy	2		Bad	3
Liar	1		Unloved	3
Horrible	1		Confused	2
Grumpy	1			
Positive			Positive	
Funny	4		Happy	3
Friendly	3		Relaxed	2
Sensible	3		Calm	2
Brave	2		Cheerful	2
Kind	2		Pleased	1
Jolly	2		Playful	1
Honest	2		Great	1
Cool	1		Good	1
Clever	1			
Helpful	1			
Words used to describe what girl is like			Words used to describe how the girl feels	
<i>Negative</i>	<i>n</i>		<i>Negative</i>	<i>n</i>
Greedy	10		Worried	9
Lazy	9		Upset	8
Boring	4		Sad	8
Grumpy	4		Unloved	6
Wimp	3		Angry	4
Mean	3		Scared	4
Bully	2		Lonely	4
Nasty	1		Ashamed	3
Dirty	1		Unhappy	3
Naughty	1		Bad	2
Clumsy	1			
Liar	1			
Horrible	1			
Uncaring*	1			
Positive			Positive	
Helpful	4		Happy	3
Nice	4		Good	2
Friendly	4		Brave	2
Funny	3		Cheerful	2
Sensible	2		Great	2
Brave	2		Pleased	1
Cool	2		Relaxed	1
Clever	1		Calm	1
Kind	1		Excited	1
Honest	1			

*Word added to list by one respondent (Yemeni boy)

Figure 4.2 Words used to describe characters in the questionnaire task

4.4.2 Judging healthy weight: parents' accounts

All ethnic groups cited the use of both subjective and objective measures to classify a child's weight status. Measuring height and weight was considered a way of knowing whether a child was healthy, but so was assessing a child's general physical appearance. Weight status was determined based on body composition, e.g. size of 'belly' and bone exposure, as well as through the colour and fullness of the child's face. Other visual modes of judgement included comparing the body size of their child to others of a similar age and using age appropriate clothing sizes as a baseline for healthy weight.

*"Yeah exactly, buying the right size for their age and not like if he's eight you buy eleven or twelve because that in my eyes that's not right".
(Yemeni mother)*

The beliefs of Chinese parents surrounding inherent differences in body size between ethnic groups, however, precluded comparisons between Chinese and non-Chinese children.

*"We won't compare our children with foreign children because we see that their child is not the same type, just say the same age, whether fat or not, healthy or not, we still follow our Chinese way".
(Chinese mother)*

Lifestyle factors were also used to determine a child's weight status. Parents felt a child's weight could be assessed by their motivation towards physical activity, ability to participate fully and/ or dietary habits followed.

Black African, Chinese and Black Somali parents referred to the absence of illness to judge their child's weight status; particularly in determining that the child was not underweight.

4.4.3 Ideal body size in childhood: parents' and children's accounts

Maintaining a healthy weight in childhood was considered important by parents and children from all ethnic groups. The physical and psycho-social consequences associated to overweight were also acknowledged.

Perceptions of what constituted a healthy weight differed by ethnic group.

Asian Bangladeshi, Black Somali, Yemeni and Black African parents expressed cultural preferences for 'chubby', 'fat' or 'full bodied' children. A fuller figure was considered by these groups to signify cuteness (Asian Bangladeshi and Black Somali parents), health (Asian Bangladeshi, Black Somali, Yemeni parents), good parenting (Yemeni parents) and wealth (Black African and Yemeni parents) (see Table 4.5).

Positive characteristics were also connected to overweight by some children; Yemeni and Black African boys associated overweight with increased strength, whereas Asian Bangladeshi girls discussed the relationship between chubbiness and cuteness.

*"It's good to be fat and then you get strong when you do exercise".
(Yemeni Boy)*

Girl: My mum says when you're chubby you look cute

Facilitator: Does she?

Girl: Yeah, I want to be cute

(Asian Bangladeshi girl)

Table 4.5 Parental preference for a 'chubby' child

	Example quotes	
Asian Bangladeshi group	<i>"... the more chubbier you are the more nicer it looks".</i>	<i>"... some people think chubbiness is actually healthy".</i>
Black African group	<i>"... in my background for instance uh obese or heavy built people are associated with riches".</i>	<i>"For instance, they see heavy built women as acceptable part of beauty, something like that".</i>
Black Somali group	<i>"We say fat child is healthy".</i>	<i>"It is a part of his cuteness".</i>
Yemeni group	<i>S: I think it's more acceptable for our Yemeni culture to accept obese children than I think the Western culture L: Yeah. You feed them well S: It's more acceptable L: The parents are looking after them, yeah, you know they're not stingy</i>	<i>"... so fat was viewed as something as really positive....good and wealth and health".</i>

Whilst parents associated positive characteristics to being 'chubby' in childhood, there was a consensus that children should not become "too much overweight".

Chinese parents were the only ethnic minority group within this study not to express a cultural preference for 'chubby' children. Rather parents perceived the body size of a Chinese child, in particular females, to be slim.

*A: There are a lot of fat people in UK
K: UK has many, Chinese girls are all slim
A: When I go to buy clothes, I can barely choose the right size
K: Right, their sizes are generally big
(Chinese parents)*

This view was in common with attitudes of White British parents, who cited Western ideals of slimness.

Within the Asian Bangladeshi, Black African, Black Somali and Yemeni groups, underweight was associated with negative attributes such as poverty (Black African and Yemeni group), illness and disease (Black Somali and Black African group) and

simply being undesirable (Asian Bangladeshi group). This led some Asian Bangladeshi and Yemeni parents to feel pressured to increase the weight of their children who were (incorrectly) perceived as underweight (see Table 4.6). This trend was reiterated by an Asian Bangladeshi child perceived as underweight, who considered their current healthy weight status as socially undesirable.

Facilitator: Why do you want to be fat?

A: Because everybody calls me a rat

Facilitator: A rat

K: Because she's so skinny, look

A: No skinny rat people call me

(Asian Bangladeshi girls)

Table 4.6 Negative attributes associated to underweight (parent groups)

	Example quotes
Black African group	<i>P: And thin people are associated with being poor E: Yes, why not eat, why not feed yourselves [laughs]</i>
Black Somali group	<i>"We cherish a fat child and we love him but a thin one we say "something's wrong with him or he is not healthy"</i>
Yemeni group	<i>"... like a couple of years ago we went back like on holiday to our homeland and it would be like if you weren't full in your body they'd be like ah she must be having a really bad life out there in England you know, she's not eating properly or they've got no food or they're poor"</i>
Asian Bangladeshi group	<i>"Underweight. I mean I take my daughter, she's really skinny [participants laugh]. I take my daughter [to the doctor] nearly every month for the same reason, you know, say "what shall I do because she's underweight". She's nine and she's really really skinny..."</i>

Traditional cultural attitudes that valued overweight were recognised by parents (Asian Bangladeshi, Yemeni, Black African and Black Somali), however, there was evidence amongst Yemeni mothers that these perceptions were no longer relevant to their own views. For example, on learning her child was a healthy weight rather than underweight, one mother modified her feeding strategies for this child.

S: I think, I think I go, I really saw my children as extremely underweight compared to the other kids, my friends kids and so on. So I went to the nurse and said "I'm very worried my children are underweight" and she went "come on pop them on the scales", and you know she said "I don't know what you're saying, he's absolutely perfect, he's not one inch, one pound underweight, he's perfect"

*L: That shows the image we have of what overweight is and what skinny is
S: And since then I've changed my mind about everyone saying to me feed them, feed them, feed them, they're always underweight. I said "no they're right" and I've stopped like going over the top with feeding them
(Yemeni mothers)*

Despite this mother's attitude change, pervasive cultural norms regarding negative connotations associated to underweight remain which this Yemeni mother continued to negotiate with extended family members and peers.

*"But there is a lot of pressure as well from the culture because when you go down to like your families, you know when I go down to his family in Birmingham. "Oh they're too skinny, oh don't they eat, oh", and you're like, they're saying I don't feed my children and you feel that kind of pressure".
(Yemeni mother)*

4.4.4 Perceived children's body size: parents' and children's accounts

Perceptions of children's body size were available for 28 parent-child dyads. Fifty-seven percent ($n=16$) of children underestimated their weight status, of which 63% ($n=10$) were overweight or obese. Ethnic differences in how children and parents perceived their child's body size were observed; rates of underestimation were most common among Asian Bangladeshi (4 out of 5), Yemeni (6 out of 8) and Black African (1 out of 1) children. The majority of overweight and obese Asian Bangladeshi (2 out of 3), Black Somali (2 out of 3) and Yemeni (4 out of 4) children misjudged the extent to which they were overweight. Chinese children were the most accurate in judging their overweight or obese status (2 out of 3).

Parents from the Asian Bangladeshi (5 out of 5), Chinese (4 out of 6) and Black African (1 out of 1) groups were most likely to underestimate their child's weight

status. Half (2 out of 4) of Yemeni parents with an obese child underestimated their child's weight. All ($n=4$) Black Somali parents judged their child's weight classification correctly. Of the parents who underestimated their child's weight status, 69% ($n=9$) of their children followed this trend.

4.4.5 Satisfaction with children's body size: parents' and children's accounts

Table 4.7 summarises parents' and children's satisfaction with body size in childhood. Two healthy weight children (Asian Bangladeshi, $n=1$; Black African, $n=1$) wanted to be bigger, although both considered themselves as a little underweight. Whilst 5 out of 15 overweight or obese children were satisfied with their size (Black Somali, $n=1$; Yemeni, $n=2$; Asian Bangladeshi, $n=1$; White British, $n=1$), three thought they were about the right weight (Yemeni, $n=2$; White British, $n=1$). Two obese children (Asian Bangladeshi, $n=1$; Black Somali, $n=1$) recognised the extent to which they were overweight but remained satisfied with their size. Conversely, 4 out of 14 (Yemeni, $n=2$; Black Somali, $n=1$; White British, $n=1$) healthy weight children wanted to be smaller. Only one of these healthy weight children considered themselves as overweight (White British child).

Half of parents ($n=6$; White British, $n=1$; Black African, $n=1$; Chinese, $n=2$; Asian Bangladeshi, $n=2$) with a healthy weight child thought their child should be bigger, although all misperceived their child as a little underweight. Three (out of 15) parents (Chinese, $n=2$; Yemeni, $n=1$) with an overweight or obese child were satisfied with their size. Out of these three parents, two considered their child to be a healthy weight (Chinese, $n=1$; Yemeni, $n=1$) and one (Chinese) recognised their child as a little overweight.

Table 4.7 Satisfaction with child's body size

		Healthy* weight	Overweight*	Obese*	Total
		<i>n</i>	<i>N</i>	<i>n</i>	<i>n</i>
Children	<i>Wanted to be bigger</i>	2	0	0	2
	<i>Satisfied with body size</i>	7	1	4	12
	<i>Wanted to be smaller</i>	4	4	6	14
	<i>Total</i>	13	5	10	28
Parents	<i>Wanted child to be bigger</i>	6	0	0	6
	<i>Satisfied with child's body size</i>	5	2	1	8
	<i>Wanted child to be smaller</i>	1	3	9	13
	<i>Missing value</i>	1	0	0	1
	<i>Total</i>	13	5	10	28

*Although children were objectively defined as healthy, overweight or obese, this does not mean children and parents perceived themselves as such (see Section 4.4.4)

Benefits associated to a healthy lifestyle

Physical

- Helps prevent illness and disease: "It [healthy eating] can prevent lots of diseases". (Black Somali mother)
- Aids body development and growth: "I think it's important because it builds up their body, it builds up a stronger body". (Black African father)
- Develop child's skill base: "We just hope our children can fully develop their skills, I will let him try everything". (Chinese mother)

Psycho-social

- Help children mentally: "I think like health wise, plus emotionally, everything physically, it plays a great part to keep them healthy". (Asian Bangladeshi mother)
- Impacts on child's happiness: "They feel happy, they feel happy [when they do exercise] and when they don't do exercise it makes... they don't feel happy". (Black African mother)
- Helps child fit in with peers: "...I always want him to participate in physical activity and that's why I keep coming back to physical activities. I want him to participate in school as fully to fit in, not to just fit in, to, to make friends, in these groups that they have". (Yemeni mother)

Practical

- Healthy behaviours will continue into adulthood: "He's doing karate at the moment, which I know, loads of people, the kids, the rest of the kids are doing as well but I just feel that if he doesn't do that when he's young he'll never do that when he's older. If he hasn't got the mentality to keep fit when he's younger he will never have it when he grows older". (Yemeni mother)

Physical

- Helps prevent illness and disease: "And if you have too much food it will be blocking your heart so your heart won't have any room to beat. So if your blood doesn't go around you you're going to start having heart cancer and then you're going to die". (Black African boy)
- Improves fitness: "It [physical activity] keeps you fit and your heart healthy". (Chinese boy)
- Aids body development: "And then if you want to be healthy, healthy you eat loads of proteins and good stuff like that for your body to help you grow up stronger, and exercise and stuff like that, and fruit and vegetables". (Yemeni boy)

Psycho-social

- Play with friends: "You can play running games with your friends". (Chinese girl)

Practical

- Healthy behaviours are easy to follow when integrated into a routine: "It's easy [healthy eating] once you get use to it". (Asian Bangladeshi girl)

Key
Red: Parents' accounts
Green: Children's accounts

Figure 4.3 Benefits associated to healthy eating and physical activity

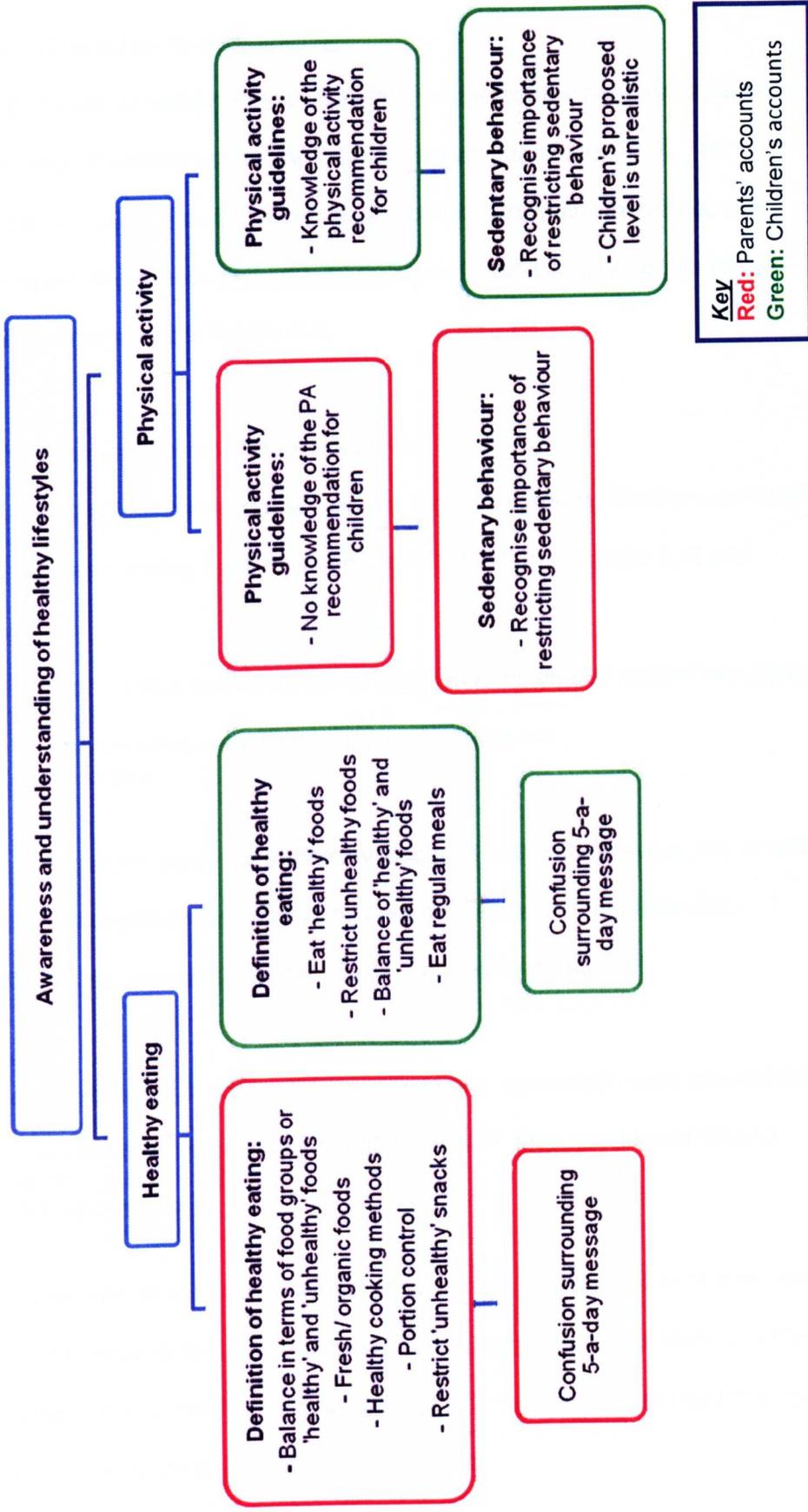


Figure 4.4 Knowledge and awareness of healthy eating and physical activity

4.4.6 Awareness and understanding

Parents and children were generally well-informed about the health and psychosocial benefits of healthy eating and physical activity (see Figure 4.3). The importance of routine in undertaking healthy behaviours in childhood was also acknowledged. Awareness and understandings of healthy eating and physical activity are summarised in Figure 4.4.

4.4.6.1 Healthy eating: children's accounts

Understanding of healthy eating was similar across all groups. Children commonly referred to healthy eating as consuming 'healthy' food, in particular fruit and vegetables.

Facilitator: What kind of things do they [parents] do that make them [diets] healthy?

*A: My mum always cooks lots of vegetables to eat
(Chinese girl)*

Children categorised foods as 'unhealthy' because of their high sugar, fat, or salt content, and recognised they should be restricted as part of a healthy diet.

'Unhealthy' foods were described as 'junk', 'fat food' and 'rubbish'.

A basic understanding of the concepts balance and moderation were also exhibited.

"They need to eat, they're just eating fat stuff, they need to eat fat and healthy stuff".

(Yemeni boy)

Children's definitions of healthy eating had an impact on perceptions of their own eating habits. White British, Black Somali, Asian Bangladeshi and Yemeni children mainly classified their family's diets as unhealthy because of the amount of energy dense foods and/ or large portion sizes consumed.

Facilitator: Do you think your families eat healthily?

M (boy): Yeah

A (girl): Well not my brother

N (girl): Not my brothers

Facilitator: No, not your brothers, why?

N (girl): Cause they just like eating chips

A (girl): I know, my brother always has chocolate

Facilitator: Does he?

N (girl): Yeah, and when my mum makes food he eats loads and loads and loads

(Black Somali children)

Other children (White British, Black Somali, Yemeni, Chinese, Asian Bangladeshi) also felt their families' diets were 'sometimes' unhealthy because they 'sometimes' ate unhealthy food or were unknowledgeable as to whether they followed a healthy diet.

4.4.6.2 Healthy eating: parents' accounts

Parents exhibited awareness of health messages surrounding the concepts of balance and moderation across all ethnic groups.

"Healthy eating to me means trying to cut down on all the crisps and the sugary stuff and eating more of the fruit and the things that are good for you, and you can have bread and you can... but all in proportion".
(Yemeni mother)

Only a few parents (Black African, Black Somali and Asian Bangladeshi) referred to specific food groups they perceived to constitute a balanced diet.

"Yeah, if you have the right proportion of protein, fat, oil, sugar, vitamins found in the food it classifies as a healthy diet or maybe healthy eating".
(Black African father)

More frequently, parents from all groups used terms such as 'healthy' and 'unhealthy' foods to define healthy eating.

"What I see healthy food as is fruits, red meat, healthy meats, milk".
(Black Somali mother)

A healthy diet was also described as eating fresh and/ or organic fruit, vegetables and meat, using healthy cooking methods, controlling portion size and restricting the consumption of unhealthy snacks.

Parents and children regularly defined healthy eating in terms of the consumption of fruit and vegetables and frequently quoted the 5-a-day message. However, their understanding of the health message varied. Parents and children were confused whether 5-a-day referred to five fruits, five fruits or five vegetables, five fruits plus five vegetables or a combination of both; whether 5-a-day was a minimum or a maximum; and whether five of the same fruit or vegetable counted as your 5-a-day. Moreover, not all Black Somali parents had heard of the 5-a-day message.

*"Yeah because, you don't know if it's five fruit a day or five veg a day".
(Asian Bangladeshi mother)*

*"I know what health is, I know what health is, health is like a thing, everyday you must have five fruits a day".
(Yemeni boy)*

The majority of White British, Black Somali, Yemeni and Asian Bangladeshi parents considered their children's diets as unhealthy, whilst this trend was less apparent among Chinese and Black African parents. Children's diet were classified as unhealthy as a result of the amount of energy dense snacks (White British, Yemeni, Asian Bangladeshi, and Chinese group) and unbalanced, high fat cultural meals they eat (Black Somali, Yemeni, Asian Bangladeshi group), reluctance to try healthy foods (Chinese, Black African and Black Somali group) as well as large portion sizes (White British, Black Somali, Yemeni and Asian Bangladeshi group) and/ or time of food consumed (Yemeni and Asian Bangladeshi group).

4.4.6.3 Physical Activity: children's accounts

Children from all ethnic groups recalled that they were recommended to do at least one hour of physical activity each day, and felt that they participated in sufficient levels of physical activity. Specific physical activity knowledge varied among children. Jogging, running and 'exercise' were activities suggested by a few children to achieve weight loss or maintain healthy weight status; however other children failed to recognise a difference in activities or had misconceptions regarding the level of exertion necessary to gain the associated health benefits. Activities such as walking and playing the violin were also classified as 'good' physical activities because they involved moving.

A few children (Yemeni and Asian Bangladeshi) discussed the importance of moderating physical activity and diet in relation to the energy balance model.

"The people that are quite small, they eat a lot yeah, but it must be that they eat a lot but do exercise, but the people who like eat and they get bigger that means it's just laziness, laziness".
(Asian Bangladeshi boy)

Children from all groups acknowledged that restricting sedentary behaviour was an important part of leading a healthy lifestyle. However, children exhibited little knowledge of screen watching guidelines; examples given for the maximum amount of time children should spend watching the television and playing on the computer varied from 10 minutes to 6 hours a day. Black Somali and White British children commonly stated that they would frequently spend 'too much' time watching the television or playing on the computer.

4.4.6.4 Physical activity: parents' accounts

Parents defined physical activity from “*everything that actually involves moving your body*” to “*like real exercise*”. There was confusion regarding the intensity required to gain the associated health benefits. Some parents (White British, Yemeni, Chinese, Black African and Asian Bangladeshi) recognised that a particular level of intensity within an activity is required. These parents referred to “*proper*” physical activity, which included “*running around*” or “*like a football session, karate sessions, go swimming*”. Other parents (from all groups) considered any movement as important, thus failing to recognise differences in the types of activities that would be most beneficial for their children.

Parents were unaware of physical activity recommendations for children and estimated the maximum amount of time children should spend screen watching to range between 30 minutes and 3 hours a day. Most parents (across all ethnic groups) considered the physical activity children did at school, during PE classes, at break time and/ or when walking to and from school would fulfil the recommendation.

“It’s OK because already they do this in school, PE, running, PE, they’re doing this in school”.
(Asian Bangladeshi mother)

Parents cited, less frequently, that whilst children were active at school they also required additional activity to meet guidelines on weekdays.

The majority of White British, Yemeni, Chinese and Black African parents believed their children did sufficient activity. The opposite was true for Asian Bangladeshi and Black Somali parents.

Table 4.8 Summary of facilitators to healthy eating in childhood from a multi-ethnic sample of parents and children

Socio-ecological themes	General order themes	First order themes	Raw data themes
Parents			
Interpersonal	Parental feeding strategies	Control the consumption of food	"And another thing, that my secret is, if you don't want your kids to have it don't buy it". (Yemeni mother)
	Ethnic identity	Healthy cultural foods	"... most of our diet is African-Caribbean led or African-Caribbean origin but it still contains those necessary nutrients that their British food contains. So it might be a different culture background food but the necessary nutrients is there". (Black African father)
	Peers	Peers are role models for healthy eating	C: Friends affect N: It depends on what children see at school. A couple years ago my children did not eat fruits but they eat them now". (Black Somali mother)
Socio-environmental	School	School responsible for educating children on healthy eating; school policy promotes healthy eating	"It's like [school name], there doing the vegetable garden thing now, with the vegetable plot aren't they. I think that's really good because the kids are learning where it comes from". (White British mother)
Children			
			"Schools will advertise too, 5-a-day, these healthy packed lunches..." (Chinese mother)
Interpersonal	Parental feeding strategies	Parents restrict the consumption of unhealthy foods; parents prepare healthy meals	"It should be the parents fault they should be saying "no eat something healthier"". (White British girl)
			Facilitator: What kind of things do they [parents] do that make them [diets] healthy? A: My mum always cooks lots of vegetables to eat (Chinese girl)
Socio-environmental	School	Learn about healthy eating in school	"The cooks that learnt us, you know the cooks that learnt us ...the fruit thing in school". (Black Somali girl)

Table 4.9 Summary of barriers to healthy eating in childhood from a multi-ethnic sample of parents and children

Socio-ecological themes	General order themes	First order themes	Raw data themes
Parents			
Intrapersonal	Child's taste preferences	Children enjoy 'unhealthy foods'; children have unhealthy eating habits	<p>"They eat McDonald's which they really like". (Chinese mother)</p> <p>"It's getting them to eat healthy. Because some kids won't [eat healthy]". (White British mother)</p>
Interpersonal	Parenting styles: permissive parenting	Use of 'unhealthy' foods to modify behaviour; food used to show love and good parenting skills	<p>"The only thing for me is when I see them whinging and crying and I've just had a long day and to just shut them up, here's your crisps, here's your chocolate". (Yemeni Parent)</p> <p>"Yes, to satisfy the children... because you always want to satisfy the child you give him that quantity, the child, even though that he's aware that portion is too, that portion is too big for any child, so you just want to make the child happy so...". (Black African father)</p>
	Parenting styles: uninvolved parenting	No/ few restrictions on the consumption of energy dense snacks and drinks	<p>S: When it's there they just help themselves</p> <p>M: Especially the coke (Asian Bangladeshi mothers)</p>
	Parenting styles: authoritarian parenting	Enforce healthy eating	<p>"My son would eat like a small bowl and then he'd be in pain, "mum", and I went "[son] that wasn't too much, that was not enough [son]". I'm saying to him that was not enough, "I know, I know as an adult what is enough for you and that was not enough". (Yemeni mother)</p>

Lack of knowledge and/ or motivation	Gaps in parental knowledge of healthy eating; parents lack skills and motivation to make changes	<p>“Yeah it’s like with [daughter], she’ll eat a whole tin of beans and my partner will turn around and go “you haven’t given her a whole tin” and I’m like, “it’s only a tin of beans, she’ll eat it, she must be hungry because she’s eaten it”, and then I’m thinking is that too much beans to give her. (White British mother)</p> <p>“I think we’re lazy mentally to change our diets, we, I think everyone needs to get educated, some re-educated about umh the umh the science of food and things like that”. (Yemeni mother)</p>
Time	‘Unhealthy’ Western convenience foods are quicker to prepare than traditional cultural meals	<p>L: You’ve been working all day and you’re thinking oh do I have to cook up some big meal and whatever</p> <p>S: Throw some chips in</p> <p>L: Oh I’ll just put some chips on or something like that (Yemeni group)</p>
Ethnic identity	Unhealthy cultural foods and practices; healthy eating practices thought to conflict with cultural values; valuations of overweight; festivals	<p>“Yes it’s important [healthy eating], but we have a culture of rice, spaghetti, butter... I will try but the culture is above all”. (Black Somali mother)</p> <p>M: ... But to be honest our food it’s full of oils, we love oil, yeah</p> <p>P: Full of oil and you know spices</p> <p>M: Spices</p> <p>P: Very spicy</p> <p>S: And hot</p> <p>M: Lots of frying things as well (Asian Bangladeshi mothers)</p> <p>S: If we see a child, oh that’s excellent go on, go on, go on, eat more, eat more, that’s what it is isn’t it</p> <p>E: He’s a good eater (Yemeni mothers)</p> <p>“On festival time, we would eat more, sometimes we might eat some unhealthy food, in Spring Festival time, we might eat a lot of deep fried food, that might be unhealthy but it won’t happen often, only in festival time we might have to eat some unhealthy Chinese food”. (Chinese mother)</p>

Nuclear and extended family relations	Extended family members caring for children; pressure from family to conform to cultural norms	<p>S: Because they love their grandchildren so much they spoil them</p> <p>P: Yeah, spoil them, give them anything that they ask</p> <p>S: Yeah, by spoiling them their loving them but spoiling them can make them unhealthy (Asian Bangladeshi mother)</p>
Assimilation to Western culture	Eating 'unhealthy' Western foods; lifestyle changes	<p>S: This country chips, you know, it's like that</p> <p>R: Everything is chicken fried, very fatty (Asian Bangladeshi mothers)</p>
Peers	Children exposed to unhealthy foods via peers	<p>A: But in our culture we do not all eat together</p> <p>K: Everybody eats when they feel so</p> <p>A: When we were in our country we used to eat together but now everyone serves their own plate (Black Somali mothers)</p>
Socio-environmental	<p>Cost</p> <p>'Healthy' food is more expensive than the alternative</p>	<p>"I always put a sandwich, fruit and a yoghurt in [lunch box] and that's it. But she'll come home with packets of crisps and chocolate bars and I'm like where did you get them from and she's like [friend] gave it to me and all that and I'm like [child] you can't keep doing that". (White British mother)</p>
Availability	Healthy cultural food not available locally	<p>"Mothers cook food according to the family size and family income. They do not think about healthy food as they may not have enough money to buy". (Black Somali mother)</p> <p>"If you can't prepare the food or you can't get it to buy nearby then you fall on whatever is available". (Black African father)</p>
Media	Advertisements expose children to unhealthy foods	<p>J: Cheese strings, yeah, and fridge raiders that's all he wants to eat</p> <p>M: Cheese strings are just a nightmare</p> <p>E: So you're getting all these adverts on food as they're on the telly</p> <p>J: And they want it in their packed lunch don't they (White British mother)</p>

Children

Intrapersonal	Taste preferences	Preferences for unhealthy foods	<p>Facilitator: <i>Why do you think it's hard [healthy eating]?</i> N: <i>Cause you see all these chocolates</i> AM: <i>Junk foods that tastes so delicious (Black Somali girls)</i></p>
Interpersonal	Parenting feeding strategies	'Unhealthy' food readily available; 'healthy' food not available	<p>"I bet his mum must have fed him chips a lot". (Black African boy)</p>
	Power relations with parent	Exhibit negative behaviours to get unhealthy foods	<p>"She [sister] always moans for sweets". (Yemeni boy)</p>
	Ethnic identity	Consumption of energy dense foods at festivals and celebrations	<p>K: <i>At Bengali parties you know it's like tradition or something</i> A: <i>Yeah, yesterday, me, I went to my umh thingies, umh my uncles house cos we umh, whenever its someone's wedding we have like umh rice in their house and everything and I went, me other cousin went, me mum went, and other people went, and we had rice, we had crisps, we had like drinks and everything</i> K: <i>You get loads of sweets and that (Asian Bangladeshi boys)</i></p>

4.4.7 Influences on healthy eating in childhood: parents' and children's accounts

Using a socio-ecological framework, a range of intrapersonal, interpersonal and socio-environmental influences on healthy eating were identified. Table 4.8 and 4.9 summarise perceived facilitators and barriers to healthy eating in childhood.

The role of parents (interpersonal), school policy and curriculum (social environment) as facilitators to encouraging healthy eating were reported across all ethnic groups. Parents acknowledged the positive influence peers (interpersonal) had on their children's eating habits, and generally viewed this to take place within the school setting.

Parents were considered responsible for providing children with a healthy diet, and were recognised as both facilitators and barriers to healthy eating in childhood. Parents of all ethnicities referred to permissive parenting strategies (indulgent, lacking discipline). This included the use of energy dense snacks as a means to resolve conflict and re-gain control, modify behaviour or to reward children (Chinese, White British, Asian Bangladeshi, Black African and Yemeni), as well as to satisfy children and be good parents (White British, Black African, Black Somali, Yemeni and Asian Bangladeshi). Not providing children with energy dense snacks was therefore considered a form of social deprivation and bad parenting.

"I used to think my kids were really you know, things that came from Yemen, so I always wanted to give them sweets and crisps and stuff like that and if I don't give them chocolate sometimes I feel guilty, do you know what I mean, honestly. I was saying the other day, you know if I don't have chocolate in the house I think oh slack you know what I mean".
(Yemeni mother)

Children (White British, Yemeni and Asian Bangladeshi) were aware of the benefits of permissive parenting, recognising that exhibiting particular behaviours, e.g. moaning and crying, sometimes led parents to comply with their requests.

Uninvolved parenting styles (emotionally uninvolved, lacking rules), in terms of no or few restrictions on children's consumption of energy dense foods, were also reported by parents (White British, Asian Bangladeshi and Yemeni) and recognised to have a negative influence on children's eating habits. Permissive and uninvolved parenting strategies, specifically in relation to snacking, largely surrounded the use of Western foods.

Black African, Chinese and Yemeni parents referred to authoritarian parenting techniques, "*forcing*" children to eat healthily, but did not acknowledge the potentially negative effect research has shown this strategy can have on children's weight (Rhee et al., 2006). Parents felt the enforcement of vegetable consumption was necessary to ensure their child had a healthy diet and reported ignoring children's pleas that they are full on the basis that as parents they knew better. Parents recognised portion control as a necessary part of healthy eating but all groups exhibited confusion regarding how much their child should be consuming.

Yemeni and Asian Bangladeshi groups cited the extensive involvement of extended family members, in particular grandmothers, in both childcare and child feeding practices. Extended family members were thought to encourage mothers to conform to traditional cultural norms regarding body size by "*feeding up*" children. However, Yemeni and Asian Bangladeshi parents reported challenging the views of grandparents that went against their wishes in regards to overfeeding children.

S: I think one of the main things is when I see my son eating, and he is slim, and I must be honest, if I've seen him eat, he's had his meal and he's had bigger than a usual portion and he's fine, and I know he's not... but he'll still go into the biscuit cupboard to have biscuits and he'll still go into the crisp cupboard, and I'll say "no stop right there" and my mum's like "huh [gasp]"
[Participants laugh]

S: "No that's not fair", you know, I said "Mum I know what I'm doing"
(Yemeni mother)

Across all ethnic minority groups cultural foods and practices were a central part of parents' ethnic identity. Parents from all ethnic minority backgrounds referred to their families' diets using terms such as, "*the Chinese way*", "*as Yemenis or Arabs*", "*we Bengalis*", "*the Afro-Caribbean diet*", "*our culture*" and "*our diet*", and dietary comparisons were made against understandings of the Western diet.

"Just going back to what I was saying about like our diets, you know like, for example as Yemenis or Arabs, you know the meal is consistent. So many carbohydrates, so you'll have your meat, I mean a salad to us if just something we have extra, you know we can't have a salad just for our dinner".

(Yemeni mother)

Some children (Black African, Asian Bangladeshi and Chinese children) also referred to the influence of ethnic background on their diet.

"Like Bengali, yeah, we eat like rice and like meat or..."

(Asian Bangladeshi girl)

Ethnic minority parents recognised exposures to food from other cultures led children to recognise differences in their diet.

"Her friends invite her to their home, there are foreigners, they don't have the same style as our Chinese way. She sometimes will feel confused, she would ask, "why would my friends family have these things, but my family don't have?"..."

(Chinese mother)

Asian Bangladeshi, Black Somali and Yemeni parents described their cultural diets as "*not balanced*" (Yemeni parents), "*full of oil*" (Black Somali and Asian

Bangladeshi) and/ or “always fried” (Black Somali and Asian Bangladeshi). Whereas, Black African and Chinese parents considered their diets as nutritious and balanced. Black Somali, Asian Bangladeshi and Yemeni parents viewed healthy eating norms to conflict with their cultural diets.

L: ... you're not just going to cook for your child, go home and cook for your child if you've had a long day. You've got a husband waiting there for food and you know what I mean, "oh do I have to", "will he like this", you know and whatever, so you have to consider those things and there's times where it will work but it won't work everyday

E: Yeah

*L: You'll still have to make your curry and rice one day or your Biryani and stuff like that
(Yemeni mothers)*

Furthermore, cultural eating practices were identified as barriers by Black Somali, Yemeni and Asian Bangladeshi parents. Black Somali and Yemeni parents believed eating from a sharing platter prevented them from restricting their children's portion sizes. Yemeni and Asian Bangladeshi parents also viewed the cultural tradition of eating two meals in the evening as unhealthy.

*"Yes culture has an influence because we eat and share same food that leads the person to eat more food".
(Black Somali mother)*

S: Usually in our culture it's like when they get home from school eat something and then before bed

P: Then before bed have a big

SM: Big portion

[Participants laugh]

P: Again rice

SM: Before they go to bed eat like a big meal and then go to bed, so that's like a cultural...

(Asian Bangladeshi mothers)

S: Yeah because in the night... we have late supper, yeah

[Participants agree]

S: That's the worst, eight o'clock, eating that time

E: And it's a big meal

S: And you'll eat anything, whatever

(Yemeni mothers)

Black Somali, Yemeni and Chinese parents as well as Asian Bangladeshi parents and children recognised festivals and celebrations associated to their ethnic and religious background, an interpersonal barrier to healthy eating; acknowledging such occasions to increase the consumption of energy dense foods.

“Umh parties and that, when you go to parties you can’t stop children [eating unhealthily]”.

(Asian Bangladeshi mother)

Parents from all ethnic minority groups reported assimilation of children’s diets to Western culture. Parents cited how cultural foods eaten (Black African and Asian Bangladeshi parents) and/ or dietary customs practiced (Asian Bangladeshi, Yemeni and Black Somali parents) sometimes differed from traditions associated to their ethnic background.

“When they go to our country, like especially our children, if we take them to our country, it will take at least a month or two for them to get use to the food and stuff, it’s quite differently cooked”.

(Asian Bangladeshi mother)

Assimilation to Western diets had predominately taken place in terms of consuming Western style snacks and convenience foods, and parents recognised the negative influence this had on children’s eating practices. Yemeni parents reported cooking Western convenience food for children when they lacked time to prepare a traditional meal. Only Black African parents regularly prepared Western style meals as part of their children’s diet. Black Somali parents acknowledged lifestyle changes have led to the family no longer regularly eating together. Parents viewed this as a barrier to healthy eating since they were unable to monitor whether children were eating appropriate portions.

The absorption of Western health messages regarding dietary practices was also evident among ethnic minority children. For example, despite Yemeni parents

reporting the consumption of two evening meals as a cultural tradition, children recognised a healthy diet as eating three meals a day, which involved only one in the evening.

“You should only have three meals a day, one in the morning one in the middle and one in the night”.
(Yemeni boy)

The social environment was recognised as a barrier to healthy eating by White British, Black African and Black Somali parents. In particular, parents believed the cost of ‘healthy’ foods inhibited healthy eating. Black African parents cited limited availability of cultural foods locally to impact negatively on their child’s diet.

Table 4.10 Summary of facilitators to physical activity in childhood from a multi-ethnic sample of parents and children

Socio-ecological themes	General order themes	First order themes	Raw data themes
Parent			
Interpersonal	Parental encouragement/role model	Participate in activity with children; take children places where they can be active	"Every day I take her to swim". (Chinese mother) "We have a big park, they just run around in the park, play, and we play badminton altogether". (Chinese mother)
	Parenting strategies	Restrict screen watching time	"Cause if you just leave them there they'll sit there for sixty minutes in front of the telly won't they, all day and all night, so it's up to you". (White British mother)
	Ethnic identity	Cultural requirement to be active	"Because our nation requires us to pursue all kinds of development including moral, intellectual and physical aspects". (Chinese mother)
	Peers	Play with peers and siblings	"He's always playing out with friends". (Yemeni mother)
Socio-environmental	School	School policy, curriculum and environment promote physical activity	"In secondary schools around here most of them like taking part in PE lesson, not PE lesson where they sit in the classroom but PE lesson that will involve either cricket, football, or volleyball. A lot of them take part in it, the majority". (Black African father)
Children			
Interpersonal	Parental encouragement	Participate in activity with parents; parents take children places where they can be active	"It's like every single day me and my brother go to swim with my mum". (Chinese girl)
	Peers	Play with peers and siblings	"He needs to exercise. If you're going to play with him then try and make him play games where ... which he can have loads of exercise". (Black African boy)
Socio-environmental	School	School curriculum and environment promote physical activity	"You do physical activity in PE". (Yemeni boy)

Table 4.11 Summary of barriers to physical activity in childhood from a multi-ethnic sample of parents and children

Socio-ecological themes	General order themes	First order themes	Raw data themes
Parents			
Intrapersonal	Child's health/ overweight status Lack of motivation	Restricts participation in physical activity Prefer sedentary activities	<p>"For example if a child is already fat, that means he will have less interest in sport". (Chinese mother)</p> <p>"Or when you see them being very lazy so you'll say "oh come on shall we walk", for example to the ASDA, and they'll go "oh no I can't be bothered or I just want to sit here and watch this programme", and they've got programme after programme to watch". (Yemeni mother)</p>
Interpersonal	Parenting styles	Rely on sedentary activities to keep children occupied	<p>S: It's peace and quiet as you say, yeah, peace and quiet J: So you can get on with your tidying up M: Yeah, stick the telly or computer on and they'll be quiet (White British mother)</p>
	Parenting timetables	Responsibilities within and outside of the home	<p>"It's actually me not being able to find the time to take him to the places". (Black African father)</p>
	Lack of parental role model/ encouragement	Do not encourage children to be more active; not active with children	<p>M: Things like this [physical activity guidelines] are difficult to stick to as well though, you know actually every single day [Participants agree] M: Like you might do it every day for the first week and then after that its "well we'll do it tomorrow you know". Because when you're working and you get tired and stuff and your kids are like "yeah can we go" and you're like "yeah tomorrow, I promise I'll take you tomorrow", you know it's difficult to stick to (White British mother)</p>
	Pressure on child to achieve academically	Time to study and participate in extra classes	<p>"You will understand how to balance and you will make your children have sport, for activities, and have time for study too". (Chinese mother)</p>

Lack of parental knowledge	No knowledge of guidelines prevented encouragement; lacked knowledge of existing activities available	"We should encourage them really but I didn't know that it had to be 60 minutes a day". (Asian Bangladeshi mother)
Culturally appropriate behaviours in childhood	Perceptions children should be quiet; children should not work too hard; traditional gender roles	S: I think our communities don't know about the activities that are happening in the local sports centres for children. We don't... for some reason the information's not getting to us (Yemeni mothers) "Children must on one side be active and another side be quiet". (Chinese mother)
Peers	No active peers or siblings	"My daughter does not do enough activity when she is at home because she is alone. She does not have other children to play with so she is discouraged to play out". (Black Somali mother)
Socio-environmental	Language barrier	S: So we don't know where to take them, to the sports centres, unless you can speak excellent English and go there (Yemeni mother)
Cost	Equipment and/ or activities are expensive	"Like on my point, resources, I can't get him all, most of the things he needs like trainers and things uh... uh you know them bikes". (Black African father)
Lack of facilities/ space	A lack of local facilities; no female only facilities; no garden	P: I mean, you know, I wouldn't mind taking my daughter you know [swimming], when there's only girls, only females there, I wouldn't mind M: You know, but the pool is mixed (Asian Bangladeshi mothers) "Because I live in an apartment you see so I don't have a garden or anything you see, so she doesn't really run around as much as I would like her to". (White British mother)
Physical environment	Weather and season	"Children play out in the summer time but nobody goes out in the winter". (Black Somali mother)

Transport	Lack of transport	"Parents do not have time or transport to take children to the parks". (Black Somali mother)
Safety	Unsafe neighbourhood	E: My child no, because I don't, because he's never played out Z: Yeah E: Because the area that we live in, it's not good the area that we live in, it's not safe (Yemeni mother)

Children

Intrapersonal	Child's health/ overweight status	Prevents/ restricts participation in physical activity	"You [if overweight] might not be able to run". (Black Somali girl)
	Lack of motivation	Prefer sedentary activities	"Cause you like to watch TV and stuff and you forget like all about exercise and stuff like that". (White British girl)
	Timetable	Homework; extra lessons	"I'm just too busy on my work, homework, that's all". (Chinese girl)
Physical environment	Weather and seasons	Weather and season	"But if it's like a cold day and then it's cold outside and you've got to stay inside to keep warm". (Asian Bangladeshi boy)

4.4.8 Influences on physical activity in childhood: parents' and children's accounts

Facilitators and barriers to physical activity in childhood across all ethnic groups are outlined in Tables 4.10 and 4.11. For both parents and children, facilitators to physical activity were cited on interpersonal and environmental levels.

Parental encouragement, as an interpersonal facilitator to physical activity, was discussed by parents and children from all groups. Only Chinese parents and children reported to regularly take part in physical activity as a family. The cultural requirement to be active cited by Chinese parents was considered a positive influence on the family's physical activity levels. Hence, this cultural ethos promoting physical activity provided children with positive active role models.

At the interpersonal and socio-environmental level, parents and children from all groups considered peer groups and the school facilitators to physical activity in childhood.

Parents recognised the importance of supporting children to be physically active; however, Asian Bangladeshi and Black Somali parents suggested that a lack of parental encouragement was attributable to not knowing how much physical activity children should do.

"We should encourage them really but I didn't know that it had to sixty minutes a day".

(Asian Bangladeshi mother)

Moreover, Black Somali, Yemeni and Asian Bangladeshi parents believed they lacked the knowledge of how to increase their child's physical activity levels. Awareness of local facilities available for children to be active was considered low by White British, Yemeni, Asian Bangladeshi and Black Somali parents. A lack of

awareness was partly attributed to language barriers within the community by ethnic minority groups.

Parental lifestyles were considered to impact on children's opportunities to be active. Parents from all ethnic groups believed their work (Chinese, Asian Bangladeshi, Yemeni and Black African) and/ or responsibilities within the home (White British, Asian Bangladeshi, Yemeni and Black Somali) restricted activity levels.

*"It's about whether these things [children's activities outside of school] can fit into my lifestyle".
(Yemeni Parent)*

By extension, parents' responsibilities influenced parenting styles; where sedentary activities were often drawn on to keep children occupied in order for parents to continue with other tasks. Guidelines on sedentary activities (Change 4 Life, 2008) were perceived by Black African parents as too limiting, claiming, *"after two hours what do you do?"*, and White British parents were sceptical about making them work.

Chinese, Yemeni and Asian Bangladeshi parents considered children's educational commitments, including homework, faith classes and language lessons relating to ethnic background, a barrier to activity. Black African and Chinese children also viewed homework and extra classes to prevent them from being more active.

Expectations of how children should behave impacted on physical activity levels. Chinese parents acknowledged expectations of children to be quiet, whereas Asian Bangladeshi and Black Somali expressed concerns for their child working too hard, and in particular becoming too tired.

*"Children must on one side be active and another side be quiet".
(Chinese mother)*

"I know sometimes cause you're a parent you don't want your children to work you know, work too hard kind of thing [laugh], but you have to encourage them...".
(Asian Bangladeshi mother)

In relation, traditional gender roles and religious values were believed to restrict the physical activity behaviour of Asian Bangladeshi, Black Somali and Yemeni girls. Girls from these groups had less freedom to participate in activities outside the home and limited in the type of activities they were able to undertake.

M: I think for some girls it might be hard because
L: Yeah playing football and things like that
M: A cultural thing, is like girls not to go out too much
(Yemeni mothers)

"After secondary school no way Muslim girls go and play football, to be honest it's forbidden, you cannot".
(Asian Bangladeshi mother)

Thus, Western norms surrounding physical activity were viewed as a potential threat to traditional cultural values among these groups.

"In our home country girls use to play hop scotch, marbles, touch and run but here the environment is against them and football is not our culture".
(Black Somali mother)

Whilst a lack of local facilities for children to be active was recognised by all parent groups, a particular shortage of appropriate female-only sessions was cited as a barrier to physical activity by Yemeni, Black Somali and Asian Bangladeshi mothers. Therefore, Muslim girls were considered to experience greater difficulty in achieving the physical activity recommendation than boys. In relation, a lack of female-only facilities was believed to restrict parents' opportunities to be active role models for their children.

4.5 Discussion

This study aimed to explore parents' and children's attitudes towards healthy weight, awareness and understanding of health behaviours, and perceived influences on healthy eating and physical activity in childhood amongst ethnic groups identified in Study 1. Using a socio-ecological framework, findings demonstrated how intrapersonal, interpersonal and environmental factors are interlinked and impact on perceptions and behaviours in childhood among different ethnic groups. Attitudes and behaviours of ethnic minority parents and children reflected dominant cultural norms relating to ethnic background, Western culture or a combination of both.

4.5.1 Healthy weight

Parents in all ethnic groups acknowledged the physical and psycho-social benefits associated to 'healthy' weight. Yet, dominant cultural norms which valued overweight were apparent among Yemeni, Black African, Black Somali and Asian Bangladeshi parents. There was evidence however that the views of Yemeni parents were changing through the process of assimilation to Western culture and health messages. A rejection of traditional cultural attitudes that value overweight in adulthood have previously been reported among Black African (Gardner et al., 2010; Lawrence et al., 2007) and South Asian (Grace, 2011) groups living in the UK. In turn, this trend was apparent in Yemeni parents' perceptions of healthy weight in childhood. However, in circumstances where assimilation to Western norms were evident, traditional cultural values surrounding overweight continued to be a barrier to both healthy weight and healthy eating in childhood due to familial pressures to conform to pervasive cultural traditions. This research highlights the difficult task parents' face in negotiating ethnic identity, Western norms of health and familial influences. It is therefore important that differing levels of assimilation to Western culture within the family are addressed within an obesity management intervention.

Research has shown parents from various ethnic populations struggle to recognise whether their children are overweight (Hirschler et al., 2006; Styles et al., 2007; Júlíusson et al., 2010). However, it is of interest that all Black Somali parents ($n=4$) recognised their child's weight status correctly, whereas most Chinese parents (4 out of 6) did not. It is possible this is a reflection of the cultural extremities between the two populations. Black Somali parents may be more willing to accept overweight, whilst cultural ideals of slimness may lead to skewed perception among Chinese parents. These distinct differences in cultural attitudes may explain why Chinese parents stated they would not make comparisons between the body size of Chinese children and children from other ethnic groups; Chinese parents considered Chinese children, especially girls, to be slimmer than children from other ethnic groups living in the UK. Interestingly, the majority of Chinese children (2 out of 3) correctly recognised their overweight status, whereas the opposite was true for children from all other ethnic minority groups. Differences in dominant cultural values surrounding weight, and variations in assimilation to Western norms and acculturation within ethnic groups, illustrate the challenges in assisting parents and children from ethnic minority backgrounds in recognising weight status in childhood.

Regardless of ethnic background children cited stereotypical attitudes towards overweight peers, similar to research conducted with Caucasian and South Asian 9 to 11-year-olds living in the UK (Arshad, 2007), and White and Hispanic 11 to 16-year-olds in America (Greenleaf et al., 2006). However, in line with parental attitudes to overweight, Asian Bangladeshi children also expressed cultural preferences to overweight. Exposure to Western values and traditional cultural norms associated to ethnic background, highlights the complex task Yemeni, Asian Bangladeshi, Black Somali and Black African children face in negotiating competing cultural influences that may take place in different contexts.

4.5.2 Healthy eating

Parents and children from all ethnic groups exhibited a basic understanding of healthy eating and its health value. However, healthy eating was mostly described in terms of dichotomous 'healthy' and 'unhealthy' foods, rather than viewing those foods in the context of a healthy balanced diet as advocated by the Food Standards Agency (2001). Findings compliment earlier research by McKinley et al. (2005) who found among a multi-ethnic sample of 11 to 12-year-olds in the UK, children had a tendency to categorise foods as 'good', 'bad', 'healthy' or 'unhealthy'. This led to healthy eating being equated to feelings of deprivation since 'healthy foods' were not considered as appealing as 'unhealthy' foods (McKinley et al., 2005). Moreover, within the current study the belief that healthy eating refers to the consumption of fresh and/ or organic produce led to the view that healthy food was more costly among parents. Research by the Department of Health (2008b) also reported ethnic minority parents (including Black African and Asian Bangladeshi) considered meals as healthy on the premise they were cooked from scratch. To motivate parents and children to make positive changes, clearer health messages are needed.

Parents and children were aware of healthy eating messages (e.g. 5-a-day and portion control). At surface level, this finding supports previous data from the Health Survey for England (2007) that showed more than two thirds of adults (Thompson, 2008) and children aged 11 to 15 years (Pickup, 2008) were aware of the five portion recommendation. However with further exploration, it was found both parents and children lacked understanding of what these health messages meant and how they could be put in practice. The study showed the necessary depth required to elicit understanding of health messages which have implications for further research. It is important not only to investigate awareness of health messages, but also understanding of what these messages mean; research that focuses solely on the former should be interpreted with caution.

Perceptions of children's healthy eating practices varied within and between groups; however children's diets amongst all ethnic groups were characterised by the consumption of predominately traditional cultural foods. Regardless of whether parents had been born, or how long they had lived in the UK, cultural foods and practices played a central role in parents' ethnic identity. This finding compliments earlier research that found South Asian adults considered the consumption of cultural foods as obligatory within their family and community, particularly once settlement became more permanent (Lawton et al., 2008). Parents' cultural identification is also considered a key influence on children's dietary habits (Sealy, 2010), and some children (Black African, Asian Bangladeshi and Chinese) also openly recognised the effect of ethnic background on their diet.

Asian Bangladeshi, Black Somali and Yemeni parents perceived pursuing healthier eating strategies as a rejection of ethnic identity, and in turn unacceptable to other family members. Similar findings were reported by Lawton et al. (2008), whereby South Asian adults with type II diabetes balanced the risk associated with unhealthy cultural dietary practices with alienating themselves from their culture, family and community. As Tyler et al. (2005) recommended based on research with Mexican American adults, messages are needed that dismiss the notion that choosing to eat healthier means rejecting one's ethnic identity, helping parents make changes to existing dietary habits.

Ethnic minority groups reported the use of Western foods in children's diets, which were generally in the form of energy dense snacks and/ or fast foods. The assimilation of energy dense foods from Western cultures into the diets of ethnic minority populations has been documented in earlier research (Landman and Cruickshank, 2001; Anderson et al., 2005; Lawrence et al., 2007). Such exposures

to food from other cultures led some children to recognise differences in their diet. Thus, further tailored education on Western style food is needed for parents from all ethnic minority groups.

Multiple parenting strategies were found among all ethnic groups, relating to cultural norms surrounding body size and/ or the importance attached to satisfying their child. Notably, permissive and neglectful strategies included the use of predominately Western foods as snacks, in accordance with research conducted by the Department of Health (2008b) with a multi-ethnic sample of parents living in the UK. In the Yemeni and Asian Bangladeshi groups family influences sometimes undermined parents' intentions for healthy eating habits in their children, assimilating to Western health messages. The influence of extended family members on children's dietary intake, particularly among South Asian communities, has been reported elsewhere (Department of Health, 2008b; Maynard et al., 2009). These findings emphasise the importance of family interventions that address differences in parenting strategies, and give parents the necessary support to defend their decision to make healthier lifestyle choices for their children to family members.

Festivals and celebrations led to the increased consumption of food. Lawton et al. (2008) previously reported how festivals and community gatherings impact on South Asian adults' eating habits. During such events there are few restrictions on what and how much children eat and, as Chatterjee et al. (2005) reported, children will be exposed to parents' unhealthy eating behaviours. No parents in the current study however cited parental role modelling as a factor that impacted on their children's eating habits.

4.5.3 Physical activity

The health and psycho-social benefits associated to physical activity were acknowledged by parents and children from all ethnic backgrounds. This finding has also been reported previously with samples of multi-ethnic parents (Department of Health, 2008b) and school-aged children (ethnicity unknown) living in the UK (Davis and Jones, 1996; Burrows et al., 1999; Mulvihill et al., 2000).

Children from all groups were aware of the physical activity recommendations. This data contrasts findings reported by Roth (2008) that showed low awareness of physical activity guidelines among 11 to 15-year-olds. Since children reported learning the guideline at school, it is suggested this variation is attributable to differences or improvements in the awareness and delivery of health messages within the school environment. However, children exhibited confusion regarding the intensity required in an activity to gain the associated health benefits. Similarly, Hesketh et al. (2005) showed children (ethnic background not specified) have little understanding of the energy balance model, and often believed even small amounts of physical activity could counter act the consumption of unhealthy foods.

Parental awareness of physical activity guidelines among all groups was low, consistent with data from an Australian study with low SES, Middle Eastern and Chinese parents of three to five-year-olds (Dwyer et al., 2008), and a US study with Hispanic, Black and White parents of five to eight-year-olds (Styles et al., 2007). Similar to children, confusion existed surrounding the health value attached to activities that varied in intensity. These findings compliment the work of Styles et al. (2007) who reported a multi-ethnic sample of parents living in the US exhibited misconceptions regarding types of activities that would be of the greatest health value to their children. Hence, it is important physical activity recommendations, in

terms of both the amount and intensity required, are communicated effectively to parents and children.

Parents often did not encourage their children to be more active because they felt children participated in a significant amount of physical activity at school. The belief that children get sufficient activity at school has previously been reported among a sample of Asian Bangladeshi, Asian Pakistani and Black African parents (Department of Health, 2008b). Despite the significance of the primary school environment for providing children with opportunities for physical activity (Fairclough et al., 2008), levels of physical activity vary by ethnic background (Owen et al., 2009) and are expected to decrease further as children reach adolescence (Brodersen et al., 2007). The implication therefore is that parents assume children are active at school when they may not be. Emphasis needs to be given to promoting physical activity outside of school hours among ethnically diverse populations.

Time available for activity was decreased by pressure on children to achieve academically and participate in faith and language classes associated to their ethnic heritage. Emphasis on educational attainment in childhood as a barrier to physical activity is a recurrent theme in research with ethnic minority groups (e.g. Chinese (Tudor-Locke et al., 2003), Middle Eastern (Dwyer et al., 2001), Bangladeshi, Pakistani and Black African (Department of Health, 2008b) populations) living in Western countries. Given parental concern about education, relating the benefits of physical activity to improved concentration and cognitive functioning (Tomporowski, 2003; Sibley and Etnier, 2003) may increase engagement in activities.

Asian Bangladeshi, Black Somali and Yemeni mothers reported a lack of appropriate facilities for Muslim girls, as well as traditional gender roles, restricted

their physical activity levels. Religion per se, was not however considered a barrier to physical activity.

"I believe religion allows young children to build their body by doing activities".

(Black Somali mother)

Research with religious scholars and Islamic leaders has highlighted that whilst participants recognised the importance of participating in physical activity (which is supported by Islam), it was felt that exercise recommended by healthcare professionals often leads to the showy display of the body (which is strongly discouraged by Islam), and deemed inappropriate for Muslim women to undertake (Grace et al., 2009). Similarly, Muslim mothers (all Asian Bangladeshi, Yemeni and Black Somali mothers participating) in the current study considered pervasive types of physical activity in Western culture, including football, a threat to traditional cultural and religious values for Muslim girls and women.

In relation, Black Somali parents attributed 'God' as responsible for illness, not an individual's lifestyle. Nevertheless, Black Somali parents recognised the benefits of healthy eating and physical activity, believing children faced better immunity if they participated in a healthy lifestyle. This finding challenges stereotypical perceptions of Muslim populations that recognise fatalism as a characteristic of this group. This assertion has previously been made by Darr et al. (2007); where Pakistani-Muslim adults living in the UK often thought they had no personal control over the onset of coronary heart disease, yet they were still willing to make positive changes to their lifestyle to improve their health and safeguard against other problems. However, Black Somali and Asian Bangladeshi mothers reported a lack of knowledge of how to get children to be more active. Therefore practical ideas of how to help children to achieve 60 minutes of moderate to vigorous activity each day are required. Such advice should be sensitive to traditional cultural gender roles and religious values.

Busy lifestyles influenced parenting styles in all ethnic groups. Sedentary activities were utilised to occupy children to enable parents to continue with daily tasks. This use of sedentary activities has also been found in previous research (Jordon et al., 2006; Department of Health, 2008b; Slater et al., 2009). Encouragement of physical activity into the daily routines of parents and children is needed, helping parents become active role models for children and providing the family with opportunities to be active together.

4.6 Limitations

Despite the important findings, a number of limitations regarding the study's methodology must be addressed. Purposive and snowballing sampling techniques were crucial in recruiting and over-representing ethnic minority families, but such techniques may have led to bias in the sample. Opinions expressed cannot be considered representative of all children and parents from the ethnic groups under study and must be interpreted within the group context in which they were discussed. Further focus groups are needed with these ethnic groups in order to reach saturation of concepts and increase the transferability of findings. Research with other ethnic groups, in particular families with mixed heritage is required, to understand how multiple ethnic identities are negotiated within the context of weight, healthy eating and physical activity. Mothers predominately made up parental participants, and studies with fathers and extended family members would be insightful and a recommendation for future research.

Collecting data in one language and analysing it in another has direct implications on the validity of results but is recognised as a necessary component of cross-cultural research (Behling, 2000; Weeks et al., 2007). To help overcome this issue,

the quality of translation, including the translators' linguistic competence and knowledge of cultural issues (Birbili, 2000), was given important consideration.

Within the study cultural influences were not explicitly addressed with children. Appropriate methods are needed to encourage children to explore and discuss their experiences of ethnicity and lifestyle behaviours, in order to understand how ethnic identity in changing contexts surrounding body weight, healthy eating and physical activity is negotiated.

4.7 Conclusion

This study aimed to explore attitudes towards healthy weight and influences on healthy eating and physical activity in childhood among parents and children from ethnic groups identified in Study 1. Findings illustrated how intrapersonal, interpersonal and (social and physical) environmental factors are interlinked and impact on perceptions of healthy body size, healthy eating and physical activity behaviours in childhood among different ethnic groups. This research has documented the importance of researching the views of ethnic minority children in addition to parents, particularly when differences in their levels of assimilation and exposure to Western health messages are considered. It is therefore important that differing levels of assimilation to Western culture within the family are addressed within an obesity management intervention.

It is suggested that obesity treatment intervention for ethnic minority populations must deal with influences at all socio-ecological levels, addressing surface and deep-rooted influences on health behaviours (Resnicow et al., 1999). The data obtained from this chapter will therefore help inform the content of Study 3, the

development and evaluation of a culturally sensitive obesity management
intervention for ethnic minority children.

Chapter 5

Thesis study map: study 3

Study	Objectives and key findings
Study 1: Parental perceptions of weight in childhood within an ethnically diverse sample	<p>Objectives:</p> <p>To explore associations between ethnic background and:</p> <ul style="list-style-type: none"> • views of healthy body size in childhood • concern surrounding overweight in childhood • attitudes to perceived causes of overweight in childhood <p>Key findings:</p> <ul style="list-style-type: none"> • Data showed Black Somali parents tended to choose a larger figure for a 10-year-old child as healthy in comparison to parents from the Chinese group • Black Somali parents exhibited the lowest level of concern for overweight in childhood in contrast to all other ethnic groups, believing that overweight children can still be healthy children and that overweight children will grow out of it • Findings suggest parental readiness to make lifestyle changes for an overweight child may also differ by ethnic background • Overweight in childhood was attributed to a combination of lifestyle factors by the majority of parents. However, Yemeni parents were more likely to attribute overweight in childhood to dietary but not physical inactivity behaviour
Study 2: Barriers and preferences to healthy lifestyles in childhood	<p>Objectives:</p> <p>With key ethnic groups identified from Study 1, explore:</p> <ul style="list-style-type: none"> • perceptions surrounding healthy weight in childhood • factors influencing healthy eating and physical activity in childhood <p>Key findings:</p> <ul style="list-style-type: none"> • Cultural preferences for 'chubby' children were evident among Black African, Black Somali, Yemeni and Asian Bangladeshi parents • Regardless of ethnic background children cited stereotypical attitudes towards overweight peers. In line with parental attitudes to overweight, Asian Bangladeshi children also expressed cultural preferences to overweight • Evidence of acculturation to Western culture impacting on perceptions of body size and eating practices • Parents and children were aware of health messages but had limited understanding of what they meant and how they could be put into practice • Parents and children identified intrapersonal, interpersonal and environmental barriers to healthy weight. Whilst some influences to health behaviours were common across various ethnic groups, others were specific to particular ethnicities.
Study 3: The development and evaluation of a culturally sensitive healthy lifestyle intervention for ethnic minority families	<p>Objectives:</p> <ul style="list-style-type: none"> • to explore cultural preferences, and barriers to participation in lifestyle change interventions (healthy eating and physical activity) in ethnic minority groups • to implement and pilot a culturally accessible intervention, using the current provision for obese children (GOALS) as a framework for development • to assess the acceptability and effectiveness of the pilot intervention and establish key factors for its sustainability within a culturally diverse population

Chapter 5

Study 3: The development and evaluation of a culturally sensitive healthy lifestyle intervention for ethnic minority families

5.1 Introduction

The findings from Study 2 demonstrated the importance of developing a culturally sensitive healthy lifestyle intervention for obese children from ethnic minority backgrounds. Using a multi-method approach, Study 3 will explore the acceptability and effectiveness of a pilot healthy lifestyle intervention for families from multiple ethnic backgrounds.

Despite increased exposure to obesogenic environments (Department of Health, 2008b) and disproportionately high rates of obesity among some ethnic groups (The NHS Information Centre, 2010), obesity prevention and treatment interventions in the UK that target ethnic minority children are sparse (Maynard et al., 2009). In fact, the National Obesity Observatory (2010b) has asserted there is very limited evidence in general of the effectiveness of public health interventions for ethnic minority groups.

In order for a culturally sensitive intervention to be effective, Resnicow et al. (1999) claim 'surface' and 'deep' structural factors must be addressed. 'Surface structure' approaches require matching the intervention to superficial characteristics of the target populations. Matches may include, people, language, food, locations, and clothing (Resnicow et al., 1999). 'Deep structure' adaptations *"involves incorporating the cultural, social, historical, environmental and psychological forces that influence the target health behaviour in the proposed target population"* (Resnicow et al.,

1999: 10). It is acknowledged that whilst making 'surface' modifications will increase the 'receptivity' of health messages, to impact on behavioural change, interventions must also address 'deep' structural issues (Resnicow et al., 1999).

In practice strategies used to achieve cultural appropriateness vary widely (Kreuter et al., 2002; Netto et al., 2008; Food Standards Agency Wales, 2009). Strategies used to make health promotion programmes and material more culturally appropriate include: peripheral (giving programmes the appearance of cultural appropriateness by packaging them in ways to appeal to a given group); evidential (enhancing the perceived relevance of a health issue for a particular group by presenting evidence of its impact on that group); linguistic (making programmes and materials more accessible by providing them in the dominant or native language of the target group); constituent-involving (drawing directly on the experiences of members of the target groups e.g. employing staff members indigenous of the population); and socio-cultural (discussing health related issues in the context of broader social and/ or cultural issues) (Kreuter et al., 2002).

Research has demonstrated multi-component family-based interventions to be the most effective in the treatment of childhood obesity (Oude-Luttikhuis et al., 2009). Parents can influence many dietary habits and activity related behaviours that are associated with the likelihood of a child developing obesity (Ritchie et al., 2005). For example, there is substantial evidence that child-feeding strategies impact on children's eating habits and weight (Ventura and Birch, 2008). Research has found parental role modelling to positively affect children's fruit and vegetable consumption (Galloway et al., 2005; Wardle et al., 2005). Furthermore, parents' attitudes and physical activity levels have a strong influence on children's active behaviours (Sallis et al., 2000; Adkins et al., 2004; Cleland et al., 2005). Positive reinforcements of physical pursuits by parents have been shown to increase

physical activity levels and decrease sedentary behaviour in children (Biddle and Goudas, 1996; Epstein et al., 1997; Trost et al., 2003).

An example of a multi-component family-based intervention is the GOALS (Getting Our Active Lifestyles Started!) programme. Managed by Liverpool John Moores University in partnership with Liverpool PCT, Liverpool City Council, Alder Hey Hospital and the University of Salford (GOALS, 2009), GOALS is a community intervention for obese children ($\geq 98^{\text{th}}$ ile BMI) aged 3 to 16 years and their families. Founded in 2003, the GOALS intervention was developed in accordance with the Medical Research Council (MRC, 2008) framework for developing and evaluating complex interventions. The aim of the GOALS programme is to support the whole family in making gradual, sustainable changes to their physical activity and eating behaviours, with a view to reducing the child's level of overweight for their age and sex and improving the family's future health prospects (Dugdill et al., 2009; GOALS, 2009; Stratton and Watson, 2009). Parental role modelling of these health behaviours is a key component of the GOALS intervention, which draws on Taylor et al.'s (1994) socialization model of child behaviour (Watson et al., 2011).

Continuous refinement of the intervention has taken place. In its current format, the group-based intervention consists of twelve-two-hour multidisciplinary sessions focusing on diet, physical activity and behaviour change, with regular follow-ups (every six weeks up until a year from baseline). GOALS has proven successful at supporting families in making gradual, sustainable changes to their lifestyles. Between September 2006 and March 2009, 163 families participated in the intervention, with 143 opting to take part in the research. Whilst 74 of these families completed the intervention, 71 were included in the complete case analysis. There was a significant reduction in child BMI SDS from pre- to post-intervention that was maintained at 12-month follow-up (Watson et al., in preparation).

Monitoring data however has suggested an unrepresentatively low proportion of ethnic minority families who are referred to GOALS choose to access the service, and there is a need to explore ways in which the cultural relevance of the intervention can be improved. Since little is known about the cultural relevance of childhood obesity management interventions in general, and how participation amongst ethnic groups might be increased, it is proposed service users are involved in the development and evaluation process of culturally sensitive healthy lifestyle programmes (Carroll et al., 2002; Doherty et al., 2004).

Study 3a: Preferences and barriers to participation in a healthy lifestyle intervention

5.2 Aims and objectives

This study is divided into two parts. The first part (3a) aims to explore cultural preferences and barriers to participation in a healthy lifestyle intervention (healthy eating and physical activity) among ethnic groups who took part in Study 1 and 2.

5.2.1 Research questions

This section sought to answer the research question:

1. What factors would encourage or prevent attendance to a family-based healthy lifestyle intervention among key ethnic groups identified in Study 1 and 2.

5.3 Methodology

5.3.1 Method

Due to the exploratory nature of the study, and to gain the context, depth and understanding necessary to address the research question, focus groups were employed (Barbour, 2007).

5.3.2 Recruitment and sample

All parents who were invited to participate in Study 2 and agreed to further research contact were asked to take part in Study 3a. In total, 33 parents of children aged 4 to 16 years from six ethnic groups (ABG: Asian Bangladeshi; BA: Black African; BS: Black Somali; OC: Chinese; WB: White British; OY: Yemeni) took part in the study.

Of these 33 parents, 25 had participated in Study 2. The further eight parents who took part, were invited to participate in Study 2 but were unable to attend. Demographics of focus group participants are summarised in Table 5.1.

5.3.3 Procedure

The procedure for Study 3a is outlined in Chapter 4 (section 4.3.5). To aid consistency across studies, focus groups for each ethnic group were facilitated by the same member of the research team as in Study 2 (see section 4.3.5).

5.3.4 Topic guide

Focus groups were conducted using semi-structured topic guides based on a review of established literature. Example questions can be found in Figure 5.1.

1. What factors would make you want to attend a family-based healthy lifestyle programme?
2. What factors would not make you want to attend a family-based healthy lifestyle programme?
3. What cultural factors need to be considered when designing a healthy lifestyle programme?
4. What are the benefits of going to a healthy lifestyle programme for people from different cultural backgrounds?
5. What are the benefits of going to a programme designed specifically for one cultural group?

Figure 5.1 Example questions from the topic guide

5.3.5 Analysis

Interviews were transcribed verbatim and analysed alongside observational notes, using the same methods as reported in Study 2 (section 4.3.7).

Table 5.1 Demographics of participants

	ABG (n=4)	BA (n=3)	BS (n=5)	OC (n=6)	WB (n=9)	OY (n=6)
Gender	Mother n=4	Mother n=1 Father n=2	Mother n=5	Mother n=6	Mother n=9	Mother n=6
Religion	Muslim n=4	Christian n=3	Muslim n=5	Buddhist n=1 No religion n=2 Not disclosed n=3	Christian n=7 No religion n=1 Not disclosed n=1	Muslim n=6
Place of birth	UK n=1 Bangladesh n=3	Africa n=3	Somalia n=5	China n=6	UK n=9	UK n=3 Yemen n=3
Years lived in the UK (if not born in the UK)	0-5 years n=1 16-20 years n=1 21-25 years n=1	0-5 years n=1 11-15 years n=2	6-10 years n=2 11-15 years n=3	6-10 years n=6	n/a	6-10 years n=1 10 years n=2
Main language spoken (if not born in the UK)	Bengali n=3	English n=3	Somali n=5	Mandarin n=6	n/a	Arabic n=3
How well English is spoken (if English not first language)	Very well n=1 Well n=2	n/a	Well n=1 Not at all well n=4	Very well=1 Not well n=3 Not at all well n=1 Missing n=1	n/a	Very well=1 Well n=2
IMD Level	Level 1 n=2 Level 2 n=2	Level 1 n=3	Level 1 n=5	Level 1 n=3 Level 2 n=1 Level 7 n=2	Level 1 n=9	Level 1 n=4 Level 2 n=1 Level 3 n=1
Employment	Unemployed n=3 SOC 6 n=1	Unemployed n=2 SOC 5 n=1	Unemployed n=4 SOC 9 n=1	Unemployed n=3 SOC 9 n=2 Missing n=1	Unemployed n=7 SOC 6 n=2	Unemployed n=4 SOC 6 n=1 SOC 9 n=1

Key: ABG, Asian Bangladeshi; BA, Black African; BS, Black Somali; OC, Other-Chinese; WB, White British; OY, Other-Yemeni

5.4 Findings

5.4.1 Facilitators to attending a healthy lifestyle programme

On consultation with parents, facilitators to attending a healthy lifestyle intervention were identified and are listed in Table 5.2 with example quotes. Ethnic differences were evident regarding what parents thought would encourage them to attend such a programme. Black African, Yemeni, Black Somali and Asian Bangladeshi parents deemed the ethnic composition of the group an important consideration, since it impacted on whether they would feel “welcomed” at the programme. Parents from all groups believed delivering a programme for families from different ethnic backgrounds was more advantageous than a programme designed specifically for one ethnic group, for it was felt a multi-ethnic group would facilitate knowledge exchange and increase community cohesion.

*“Because you are exchanging ideas, different cultures and knowledge”.
(Black Somali mother)*

Moreover, Muslim groups expressed concerns about attending the programme if fathers were also invited, based on religious and cultural grounds. Physical activity sessions would need to adhere to cultural and religious requirements to enable mothers and daughters to participate. Black Somali parents suggested recruitment materials should make clear the programme is inclusive of ethnic minority families, in order for them to recognise its relevance.

All ethnic minority groups felt it would be valuable if the dietary advice given was relevant to their own cultural background and considered it essential that the programme catered for all religious food requirements of the group.

Table 5.2 Facilitators to attending a healthy lifestyle intervention

Facilitators to attending	Example quotes
Ethnic composition of the group is important to feel welcome	<p><i>C: I would feel more comfortable to be in an environment where I've got like people of my background, ethnic background</i></p> <p><i>P: Yeah</i></p> <p><i>C: Unlike, if I was to go to a programme like this here [GOALS], I'd probably find I am the only person of an ethnic minority, I'm not going to come back next week, because I feel</i></p> <p><i>P: Unwelcome</i></p> <p><i>C: You know a bit</i></p> <p><i>P: Uncomfortable</i> (Black African fathers)</p> <p><i>S: If we feel welcomed that will be nice</i></p> <p><i>P: Yeah</i></p> <p><i>S: But if you feel like an outcast or... then that might put you off</i> (Asian Bangladeshi mother)</p>
Gender composition of the group is important to consider for Muslim groups (especially in regards to physical activity)	<p><i>"Yeah if it's female only, not mixed".</i> (Yemeni mother)</p> <p><i>S: If it's [activity] something that, you know, if it's</i></p> <p><i>P: Something that I could do, I'd do it you know what I mean</i></p> <p><i>S: Yeah</i> [participants laugh]</p> <p><i>S: Only the women parents, only the mum</i> (Asian Bangladeshi mothers)</p>
Design suitable recruitment literature that makes clear the programme is suitable for ethnic minority families and will cater for their religious and cultural needs	<p><i>B: Yes but I don't consider it [Change 4 Life programme] of my concern because nothing of my culture is shown so I ignore it</i></p> <p><i>Facilitator: So for example, would it be better if there was a picture of a girl wearing the Hijab?</i></p> <p><i>W: Yes, it would show us that we are included, the people that the programme is intended for</i> (Black Somali mothers)</p>
Programme should be delivered by suitably qualified, friendly and trustworthy staff to help families feel comfortable	<p><i>"I must have trust in the place to consider it".</i> (Black Somali mother)</p>
Provide a supportive and understanding environment to motivate the family to make changes	<p><i>"Everybody has the same goal, when we do it together, it might be easier to achieve".</i> (Chinese mother)</p>
Deliver programme at a suitable location	<p><i>"Yeah, because people you know, people from like ethnic minority communities are quite worried to go into far communities like Anfield, Aigburth and so on, they don't really know that area, just especially if there's a language barrier it's always, there's a transport barrier to".</i> (Yemeni mother)</p>

Deliver programme at a time and day convenient with families	<p><i>Facilitator: Is there anything else that would prevent you from attending?</i></p> <p><i>V: Only the timing, I'm doing a course here at the school (White British mother)</i></p>
Offer a free programme to families	<p><i>"I would just like to be more knowledgeable on the healthy eating part of it. I mean we do try from our little knowledge, but having somebody who offers help free of charge, that would help a lot". (Black African father)</i></p>
Language is the key to understanding, therefore the programme should accommodate for non-English speakers	<p><i>"There should be people who speak our language working in the place in order to make it easy to understand what's going on and encourage us to go". (Black Somali mother)</i></p>
Accommodate religious needs	<p><i>"I think for me the culture side, if there are some activities that are very umh, not cultural, doesn't fit into my culture, like for example if they're doing food and they're cooking like pork so on, that would make me feel very uncomfortable. So for them to consider the culture side, barriers that we've got to make sure that it fits in with everything". (Yemeni mother)</i></p>
Deliver culturally appropriate and enjoyable food sessions	<p><i>C: Uh, the kind of foods you're going to be encouraging people to be taking part, like using for their diets... I mean, I'd just give an example like, say if the group was to be, if somebody was running the group was to be uh of English background they'd be talking about an English diet of which probably of somebody of an ethnic minority, like I am, I wouldn't probably be going too much with that diet</i></p> <p><i>Facilitator: OK</i></p> <p><i>C: So in a way I would find that to be like, you know un-useful</i></p> <p><i>(Black African group)</i></p>
Give the family an opportunity to learn about weight status and health consequences	<p><i>"I mean the affects of overweight on that, blood pressure and the heart, and the pulse rate... Because that would really hone in the message more to the parents, that specifically, people think that when they grow up they'll lose it but it affects them when they're young as well". (Yemeni mother)</i></p>
Incentives and rewards would encourage parents and children to participate and make changes	<p><i>"Instead of saying, telling them to keep running for about thirty minutes uh let them involve in football or maybe something like a game that maybe, at the end of the day maybe you tell them that when you get this, how do you call it, something like more, a small treat". (Black African father)</i></p>

5.5 Addressing parental views to achieve cultural appropriateness

This study aimed to explore cultural preferences, and barriers to participation in healthy lifestyle interventions (healthy eating and physical activity) in a range of ethnic groups. Many facilitators to attending a healthy lifestyle intervention, cited by parents, were shared across groups; whereas others were specific to cultural and religious values of particular ethnic groups. In order to address parental views and achieve cultural appropriateness, diverse approaches were taken to tailor the intervention.

Designing a culturally appropriate family-based intervention was deemed important in order to improve dietary habits and physical activity levels in childhood. Parents felt, not only did they want to learn and participate with their children, but their children needed the support of parents to make healthy changes. Only mothers and female carers were invited to the programme in order to respect the religious and cultural values of the groups attending.

Ethnic minority parents cited diversity within the ethnic composition of the group as a facilitator to attend a healthy lifestyle intervention. It is suggested by Farooqi et al. (2000) that a programme tailored to meet the needs of ethnic minority populations may also help alleviate the stress associated to belonging to an ethnic minority group. 'Peripheral strategies' (Kreuter et al., 2002) were therefore used to give the intervention the appearance of cultural appropriateness, thus encourage attendance from ethnic minority families. For example, recruitment letters highlighted the programme would be delivered in a centre at "*the heart of the community*", was for female parents/carers and their children (up to 11 years), all staff attending would be females, and the programme would give families the opportunity to take part in culturally appropriate physical activity and multi-cultural cooking sessions.

Parents from all ethnic groups felt a multi-cultural programme was deemed an opportunity to promote knowledge exchange of healthy lifestyles between groups and increase community cohesion. Previous research from community based nutritional interventions in the UK (Foods Standard Agency, 2004; Mhesuria et al., 2008; Gatenby et al., 2010) as well as childhood obesity programmes in the US (McMurray et al., 2002; Berry et al., 2009; Jansen et al., 2011), have shown interventions designed for multi-ethnic populations to be successful. Berry et al. (2009) has highlighted that it is important to know that multiple ethnic groups can be taught together, learn from each other, and learn equally well in a community setting in the context of childhood obesity interventions. Therefore, families from a range of ethnic minorities were invited to attend the pilot intervention.

Parents recognised language "*as the key to understanding*". In order for all parents and children to learn, linguistic support was therefore considered essential (Kreuter et al., 2002; Netto et al., 2010; Szczepura, 2011), accounting for participants ability to speak English as well as literacy skills in general (Netto et al., 2008). To aid understanding, bi-lingual community worker, parents and children offered interpretation support for the group. Other communication strategies included the use of translated materials and visual aids.

A trusting and supportive environment was identified as a facilitator to attending a healthy lifestyles intervention, similar to previous research conducted with ethnic minority groups (Kumanyika et al., 2003; Berry et al., 2009). Since research has identified cultural mistrust can lead to service users being unwilling to disclose information (Huer and Saenz, 2003), constituent-involving strategies were adopted. This strategy involved community workers belonging to the target population helping with either recruitment, welcoming families on arrival and/ or on the delivery of the

programme, as proven successful in previous studies (Williams and Sultan, 1999; Thomas, 2002; Matthews, 2005). Moreover, the primary researcher and GOALS team maintained regular contact with service users, a critical factor in establishing trust with families.

Yemeni parents highlighted education surrounding the health implications associated with overweight and unhealthy lifestyle behaviours would facilitate attendance. Appropriate evidential strategies to culturally sensitive health promotion addressed concerns surrounding the increased risk of obesity-related morbidities among particular ethnic minority groups (Patrick and Nicklas, 2005). Presenting this information to ethnic minority groups was considered to increase the relevance of eating healthily and being physically active among these populations.

The disadvantaged socio-economic position of ethnic minority families was acknowledged by parents, and socio-cultural strategies were developed to account for this within the design and delivery of the intervention. Previous research has shown attendance may be increased among low SES groups if transport is provided (Patel and Shah, 2005), the cost of programmes are kept low (Lew et al., 1999), and caring responsibilities of mothers catered for (Carroll et al., 2002). Therefore, the location of the programme was carefully chosen and was within a two-mile radius of all families who attended. Transport from the programme was provided for families when requested, attendance and take home resources were free, and crèche facilities were provided for preschool children.

Table 5.3 summarises how the themes identified in the focus groups were addressed in the intervention design, delivery and setting.

Table 5.3 Pilot intervention components informed by focus group themes

Facilitators to attending	How the programme accommodated families' needs
Design a multi-cultural programme	<ul style="list-style-type: none"> • Families from a range of ethnic backgrounds invited to attend • Families offered the opportunity to participate in activities with each other
Only allow women and children to attend	<ul style="list-style-type: none"> • Obesity rates are highest among Asian Bangladeshi and Black African populations (The NHS Information Centre, 2008) and therefore considered most in need of an intervention. All Black Somali and Asian Bangladeshi parents who participated in the focus groups were Muslim • Only mothers/ female carers were invited to attend • All programme staff were female
Design suitable recruitment literature	<ul style="list-style-type: none"> • With support from the Social Inclusion Team at Liverpool PCT, amendments were made to the GOALS promotional literature • Recruitment letter specified only mothers/ female carers invited, all staff would be female, and multi-cultural food sessions would be provided
Programme delivered by suitably qualified, friendly and trustworthy staff	<ul style="list-style-type: none"> • Experienced GOALS team delivered sessions • The GOALS team and staff at the Al Ghazali Centre greeted families at reception • Trusted community workers used to recruit families • Staff called families in-between sessions, spoke with parents before, during and after sessions to help build relations
Offer a supportive and understanding environment	<ul style="list-style-type: none"> • Goal setting with parents and children • GOALS staff provided support for families and offered advice • Timetable provided opportunity for parents and children to do activities together
Deliver programme at a suitable location	<ul style="list-style-type: none"> • Delivered the pilot programme at a well known centre within the community • Centre had bi-lingual support and extensive experience working with ethnic minority families • All families who attended lived within a two mile radius • Taxi support home was provided for families concerned about walking in the local area after dark
Deliver programme at a time and day convenient with families	<ul style="list-style-type: none"> • Programme was delivered every Wednesday at 5-7pm for seven weeks • Crèche facilities were provided by GOALS volunteers and staff • Extended family members were invited to attend (women only and children up to the age of 11) to accommodate for caring and family responsibilities
Offer a free programme to families	<ul style="list-style-type: none"> • Programme was free to attend • Resources were provided free of charge
Accommodate for non-English speakers	<ul style="list-style-type: none"> • A bi-lingual support worker, as well as parents and children on the programme offered language support as required • A number of programme materials were available in Somali • Visual aids used to promote understanding
Accommodate religious needs	<ul style="list-style-type: none"> • Space was provided for parents and children to pray • Traditional dress was allowed • Accommodated for religious dietary requirement

	<ul style="list-style-type: none"> • Ensured all physical activity sessions were delivered appropriately (e.g. women only adult sessions, no spectators)
Deliver culturally appropriate and enjoyable food sessions	<ul style="list-style-type: none"> • Food sessions delivered were relevant to cultural backgrounds of group members and accounted for individual differences in assimilation to Western dietary practices • Practical and interactive sessions were delivered • Culturally sensitive learning resources used (e.g. Somali Eat Well Plate) • Findings from Study 1 and 2 informed development of session plans e.g. healthy Western meals, alternative snacks, adapting cultural recipes
Deliver culturally appropriate and enjoyable physical activity sessions	<ul style="list-style-type: none"> • Sessions delivered by female coaches • Activity area was closed from public view • Time was allowed for mothers to change • Parents sign posted to female-only physical activity sessions delivered at the centre • Culturally appropriate activities delivered as identified in Study 2 • Practical ideas given regarding how to do activity within the home
Learn weight status of child and health consequences	<ul style="list-style-type: none"> • Height and weight of parents and children was measured and feedback was given to each family individually • An interactive session was delivered on health implications associated with overweight and unhealthy lifestyles
Offer incentives and rewards	<ul style="list-style-type: none"> • Children who completed weekly goals were given rewards (water bottles, pump bags and t-shirts) • Parents were given a £10 supermarket voucher for attending at least four sessions and participating in a face-to-face interview

5.6 Conclusion

To adapt healthy lifestyles interventions for ethnic minority communities, barriers to access and participation must be identified (Netto et al., 2010). Facilitators to attending a healthy lifestyle intervention were often shared across groups; others were specific to cultural and religious values of particular ethnic groups. Based on parental views, diverse approaches were taken to tailor the intervention. Culturally appropriate adaptations made to the GOALS programme, based on parental views included; 'peripheral strategies' which gave the intervention and recruitment literature the appearance of cultural appropriateness; 'evidential strategies' which enhanced the perceived relevance of eating healthily and being physical active among ethnic minority groups; 'linguistic strategies' that accommodated for

language barriers; 'constituent-involving' strategies which helped overcome issues surrounding cultural mistrust; and 'socio-cultural' strategies associated to the deprived background of families and caring roles of women.

Study 3b: The development and evaluation of a culturally sensitive healthy lifestyle intervention for ethnic minority families

5.7 Aims and objectives

The aim of Study 3b was to implement and pilot a culturally accessible intervention, using the GOALS framework for development, with the objectives to assess the acceptability and effectiveness of the pilot intervention and establish key factors for its sustainability within a culturally diverse population.

5.8 Intervention design

5.8.1 Participants and recruitment

In recognition of the ethnic differences in perceptions and attitudes found in Study 1 and 2, the marketing of the pilot intervention focused on healthy lifestyles rather than child weight. It was anticipated that this approach would attract families from ethnic groups who may be less motivated to make changes for reasons associated with their child's weight.

All ethnic minority mothers who participated in a focus group were invited to take part in the pilot healthy lifestyle intervention with their children aged up to 11 years. Community workers helped to recruit eligible parents. Two ethnic minority families on the GOALS waiting list, one who had previously dropped out of the programme due to transport problems and one where parents would need language support, were also given the opportunity to attend. Families registered for the programme on a first come first served basis. All families who attended the intervention also took part in its evaluation.

Participants were given information sheets prior to attending the programme as well as during the first session. All adult participants who registered for the intervention were asked to give verbal and written consent for their family to take part in both the programme and evaluation. All children over eight were asked to provide verbal and written assent to participate and for their data to be used in the evaluation.

Nine Muslim families attended the pilot intervention. Parents self-identified their ethnic background as: Asian British ($n=1$), Asian Bangladeshi ($n=1$), Black Somali ($n=5$), and Yemeni ($n=2$). Mothers were aged between 30 and 54 years (mean age=42.5 years). Five mothers were married and living with their partner, four were separated or single. All families lived within the 20% most deprived areas of the UK, with seven residing in the 10% most deprived locations. Seven parents had no educational qualifications, whilst two were educated to level three or four. With regards to employment status, seven mothers were unemployed. Two mothers worked part-time in personal services (SOC 6) and elementary occupations (SOC 9). Four mothers were UK born, and five had been born in Somalia. Mothers born in Somalia had been living in the UK for between 6 and 13 years (mean age=8.8 years). Parents identified their main language spoken as English, Arabic and/ or Bengali. Four of the five mothers who did not identify English as one of their main languages believed they did not speak English well.

In total, 13 children participated in the programme; five were male and eight were female. Children were aged between 5 and 13 years (mean age=10.12 years). Three children had not been born in the UK.

At baseline, eight of the nine mothers were overweight ($n=1$) or obese ($n=7$) according to the World Health Organisation (1995) classifications. Two children

were a healthy weight, one was overweight (>91st %ile BMI for age and sex according to UK 1990 references) and ten were obese (>98th%ile BMI).

5.8.2 Delivery of intervention

Taking into account findings from the previous studies (Studies 1, 2, 3a), the research and GOALS team developed a seven-week pilot intervention based on the GOALS framework. The pilot intervention was delivered at the Al Ghazali Centre in Picton from October to November 2010 with a follow-up session in January 2011. Since the aim of the pilot was to explore processes of working with a multi-ethnic group and to pilot key sessions, the brief length of the intervention was determined for pragmatic reasons and was not intended as a blueprint for replication.

Modified components of the GOALS programme were delivered via practical and interactive sessions that aimed to improve healthy eating behaviours (e.g. reduce intake of high fat, salt and sugary foods and increase consumption of fruit and vegetables), increase physical activity levels and reduce sedentary behaviours. Behaviour change techniques used to promote health included consciousness-raising, goal-setting and positive reinforcement (Watson et al., 2011). All families received materials to take home that aimed to reinforce health messages given during the sessions. A follow-up review was delivered for all families 14 weeks from baseline.

The programme was delivered by the GOALS team and volunteers (comprising of community members and undergraduate students). All members of the delivery team were White British. One Black-Somali community worker provided bi-lingual support on the programme. Staff at the Al Ghazali Centre, including Arabic speakers, helped promote the programme and made families feel welcome on arrival.

5.8.3 Data collection

Figure 5.2 illustrates the timeline for data collection.

5.8.3.1 Body Mass Index (baseline, post-intervention and follow-up)

Objective height and weight measurements were taken from parents and children at baseline, post intervention and at 14 week follow-up. Weight was measured using a Tanita WB/100MA floor scale and recorded to the nearest 0.1kg. Height was measured using a portable stadiometer and recorded to the nearest 0.1cm.

Height and weight were converted to BMI using the formula $\text{weight (kg)}/\text{height(m)}^2$.

In line with the National Child Measurement Programme protocol (The NHS Information Centre, 2010), children's measures were then converted to BMI Standard Deviation Scores (BMI SDS) based on the 1990 Growth Reference data (Cole et al., 1995). A BMI SDS (also referred to as BMI z-score) represents how many units of the standard deviation a child's BMI is from the mean for their age and sex, and thus accounts for changes in age from baseline.

Adults' BMI scores were classified according to cut-off points defined by the World Health Organisation (WHO, 1995).

5.8.3.2 Lifestyle Assessment Questionnaire (baseline and post-intervention)

Evaluation tools need to be appropriate for ethnic minority groups (Wales Food Standards Agency, 2009). The development of the parents' lifestyle assessment questionnaire was guided by Ihmels et al.'s (2009) validated Family Nutrition and Physical Activity (FNPA) screening tool but adapted for a UK multi-ethnic sample. The questionnaire was designed to measure perceptions of the families' eating and cooking habits, physical activity and sedentary behaviour as well as parenting styles. Example questions can be seen in Table 5.4. Responses were scored on a scale of

0 to 2 (0=unhealthy behaviour exhibited, area to target for behaviour change, 1= scope to improve health behaviour for some or all family members, 2= healthy behaviour exhibited, no change needed). Further questions were adapted from GOALS resources to assess self-perceptions of current weight, health and fitness status (see Appendix 6 for a copy of the questionnaire).

Table 5.4 Example questions taken from the parents' lifestyle assessment questionnaire

Concept	Responses	Score
Physical activity	My family do a lot of physical activity	2
	My family do some physical activity, but not a lot	1
	My family never do any physical activity	0
	Some of my family do a lot of physical activity, others don't	1
Unhealthy food	I always limit the amount of unhealthy foods my children eat	2
	I sometimes limit the amount of unhealthy foods my children eat	1
	I don't limit the amount of unhealthy foods my children eat	0

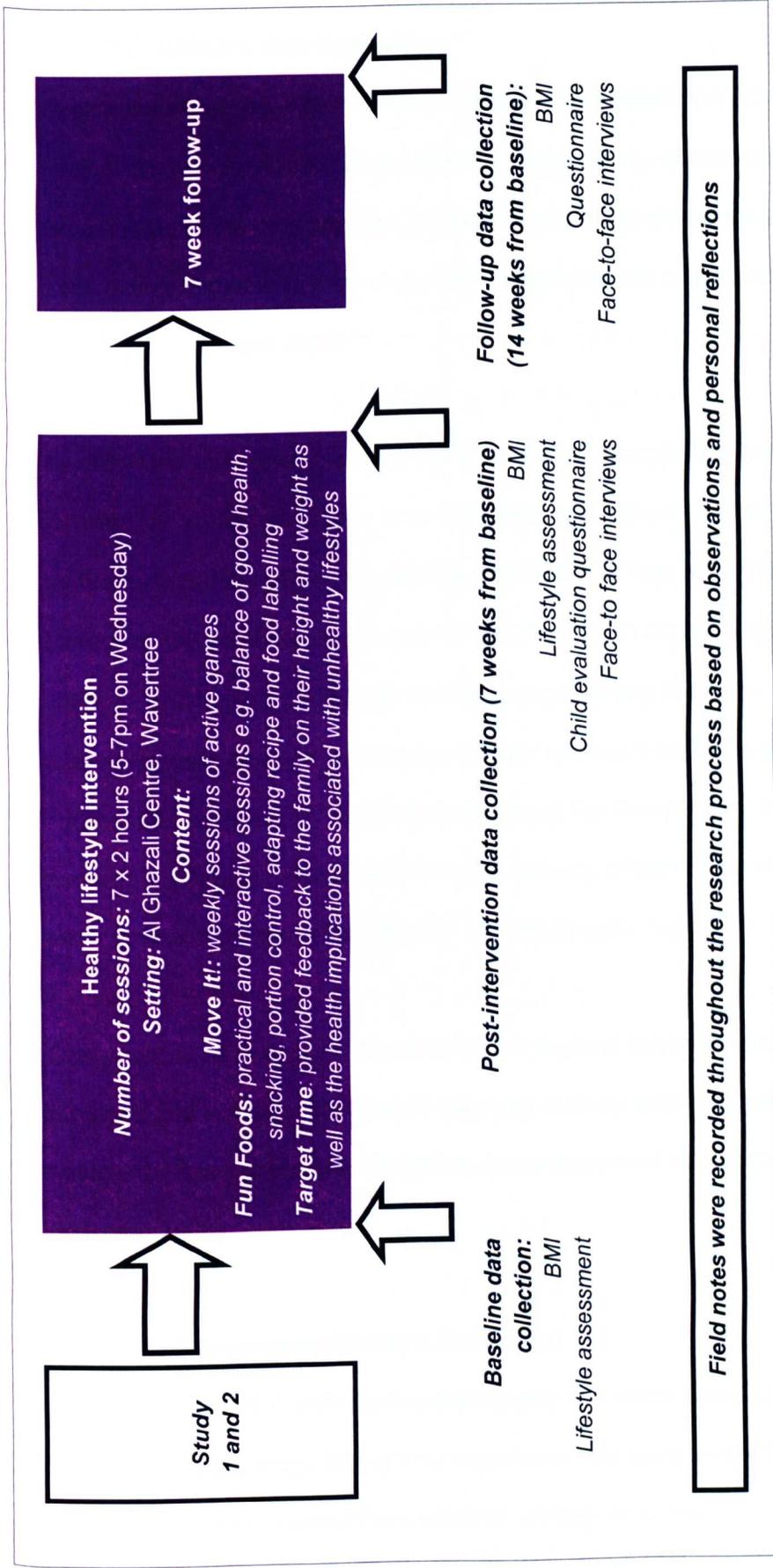


Figure 5.2 Timeline of activities for pilot intervention

5.8.3.3 Qualitative data collection

Evaluation sheet (post-intervention). Children were asked to fill in a self-report evaluation questionnaire that gave them an opportunity to reflect on their experiences of the programme. Children were considered active participants in the intervention and able to offer a valuable insight into the programmes' acceptability and lifestyle changes made.

Face-to-face interviews (post-intervention and follow-up). The intervention was followed by qualitative face-to face interviews with parents that sought their views on the acceptability of the programme and ideas for improving the intervention. Moreover, the semi-structured interviews provided an opportunity to explore lifestyle changes and identify barriers to making and sustaining changes. Face-to-face interviews were deemed a more appropriate method than focus groups, in order to address the acceptability of group dynamics of the intervention. A female interpreter assisted a White British researcher in the delivery of interviews with Black Somali parents who considered their level of spoken English as poor.

Observations (duration of intervention). Throughout the programme "full field notes" (Loftland and Loftland, 1995) were taken by delivery staff and researchers. Field notes were used to summarise events, behaviours and document initial reflections (Bryman, 2008).

5.8.3.4 Follow-up questionnaire (follow-up)

Parents completed a self-report questionnaire 14 weeks from baseline to assess whether changes made during the programme had been sustained. The questionnaire was adapted from existing GOALS resources.

5.8.4 Analysis

Interviews were transcribed verbatim and analysed alongside observational notes, using the same methods as reported in Chapter 4 (section 4.3.7). For questionnaire and BMI data, comparisons between baseline, post-intervention and follow-up data were reported via descriptive statistics. Qualitative data from the child's evaluation questionnaire were included in the analysis. To aid validity of the findings, data from lifestyle assessments, interviews and evaluation forms were triangulated. Where data is missing, sample size is reported.

5.9 Findings

5.9.1 Intervention outcomes

Attendance rates ranged from 43% to 100% (mean attendance=4.4 sessions). Four families attended the follow-up session.

Complete BMI data was available for eight children, seven of whom were overweight ($n=1$) or obese ($n=6$) (see Table 5.5). For the overweight and obese children, the mean change in BMI SDS from pre- (mean=3.07) to post-intervention (mean=3.04) was -0.02 (SD=0.1). Four of the seven overweight and obese children decreased their BMI SDS. One child had reduced the severity of her weight from obese to overweight. Figure 5.3 illustrates all children's BMI SDS at baseline, post-intervention, and again 14 weeks from baseline.

Pre and post BMI measures were taken from six parents and data is illustrated in Table 5.6. There was minimal change in BMI from pre- (mean=32.24) to post-intervention (mean=34.21). Three parents, two of whom were overweight or obese, decreased their BMI.

Table 5.5 Children's BMI SDS at baseline, post-intervention and 14-week follow up

Child	Baseline weight status	Baseline SDS	Post-intervention SDS	Follow up SDS	Change baseline to post-intervention	Post intervention weight status	Change baseline to 14-week follow up	Follow up weight status
Family 1, boy	Obese (>99.6th)	2.75	2.84	-	0.09	Obese (>99.6th)	-	-
Family 2, girl	Healthy	1.27	1.03	1.06	-0.24	Healthy	-0.21	Healthy
Family 2, boy	Obese (>99.6th)	4.04	4.02	4	-0.02	Obese (>99.6th)	-0.04	Obese (>99.6th)
Family 3, girl	Obese (>98th)	2.07	1.85	-	-0.22	Overweight (>91st)	-	-
Family 3, boy	Obese (>99.6th)	3.99	3.95	-	-0.04	Obese (>99.6th)	-	-
Family 4, girl	Healthy	0.6	-	-	-	-	-	-
Family 5, girl	Overweight (>91st)	1.81	1.84	-	0.03	Overweight (>91st)	-	-
Family 6, girl	Obese (>99.6th)	3.4	3.36	3.27	-0.04	Obese (>99.6th)	-0.13	Obese (>99.6th)
Family 7, boy	Obese (>99.6th)	3.41	3.44	3.56	0.03	Obese (>99.6th)	0.15	Obese (>99.6th)
Family 8, girl (a)	Obese (>98th)	2.29	-	-	-	-	-	-
Family 8, girl (b)	Obese (>99.6th)	3.5	-	-	-	-	-	-
Family 9, boy	Obese (>99.6th)	2.77	-	2.84	-	-	0.07	Obese (>99.6th)
Family 9, girl	Obese (>99.6th)	3.07	-	3.25	-	-	0.18	Obese (>99.6th)

Table 5.6 Mothers' BMI at baseline, post-intervention and 14-week follow up

Mother	Baseline weight status	Baseline BMI	Post-intervention BMI	Follow up BMI	Change baseline to post-intervention	Post- intervention weight status	Change baseline to 14-week follow up	Follow up weight status
Family 1	Healthy	21.78	20.98	-	-0.8	Healthy	-	-
Family 2	Obese III	40.94	41.37	40.86	0.43	Obese III	-0.08	Obese III
Family 3	Overweight	25.73	25.66	-	-0.07	Overweight	-	-
Family 4	Obese I	32.11	-	-	-	-	-	-
Family 5	Obese I	33.78	33.5	-	-0.28	Obese I	-	-
Family 6	Obese II	35.1	35.49	34.89	0.39	Obese II	-0.21	Obese II
Family 7	Obese II	36.12	36.25	36.41	0.13	Obese II	0.29	Obese II
Family 8	Obese III	44.39	-	-	-	-	-	-
Family 9	Obese III	44.93	-	45.49	-	-	0.56	Obese III

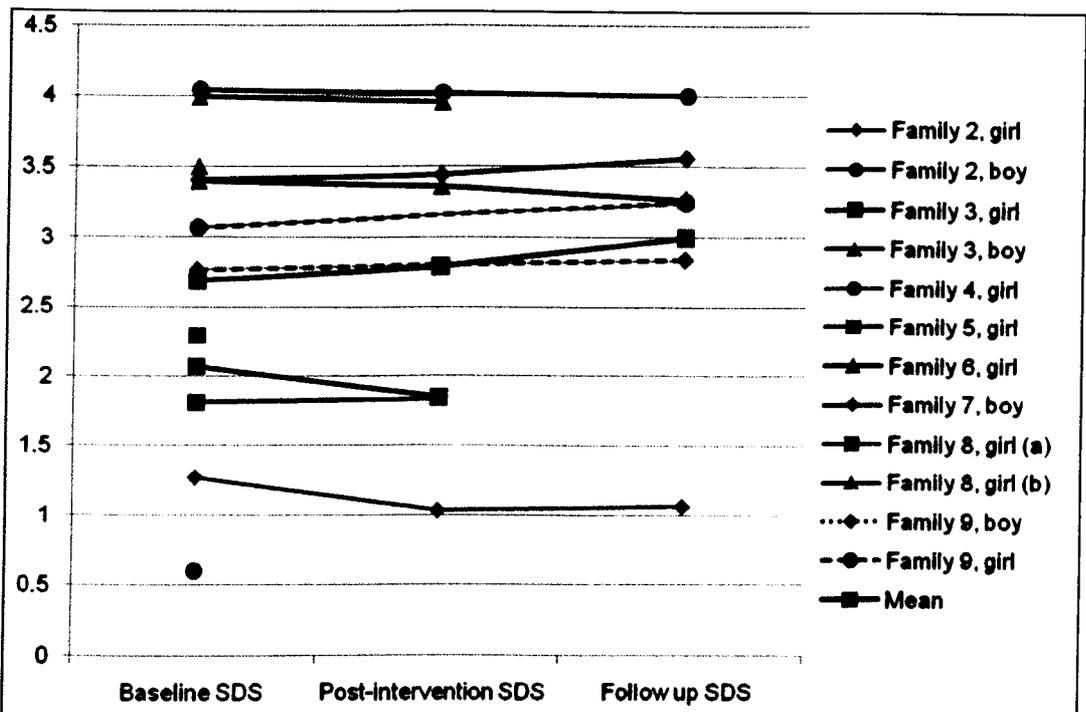


Figure 5.3 Children's BMI SDS from baseline to post-intervention and follow-up

This figure shows changes in individual children's BMI SDS data. Where there is missing data, no data point is shown. A solid line indicates change between consecutive measurement points; a dotted line indicates change across measurement points where an interim measure has been missed.

5.9.1.1 Awareness and understanding

During the interviews parents ($n=7$) reported that the programme had been successful in teaching them about healthy eating and physical activity (see Table 5.7 for example quotes). Specifically, parents believed they had gained a better understanding of what makes up a healthy diet and why it is important, the sugar and fat content in unhealthy snacks and fizzy drinks, what the 5-a-day message means and how to incorporate more fruit and vegetables into their family's diet, as well as how to read and understand food labels. Parents had also learnt more about physical activity, in particular how much they and their children should be doing, as well as the level of exertion necessary to gain the associated health benefits.

Table 5.7 Improvements in parental awareness and understanding related to healthy eating and physical activity following participation in the pilot intervention

Example quotes

Healthy eating	<p><i>"When we go shopping I actually take note of the grams and stuff so, I never thought that these kinds of things existed before, and now I've got it it's really good. Now I know what's healthy and what's not, like a bit more". (Asian Bangladeshi mother)</i></p> <p><i>"Like eat 5-a-day, you know, fruit or vegetable. I always you know for my kids have to open those beans you know, I open a big tin of beans and I know now three spoons that's one portion.... Before we were not bothered before". (Yemeni mother)</i></p> <p><i>"I've learnt to cook food with less oil, to drink less sugar, to eat salad, lot of salads, vegetables and fruit, 5-a-day".(Black Somali mother)</i></p> <p><i>"Well actually that table was quite good you know about the somosa's, I remember, frying somosa's bake them instead, you know how you could do that". (Asian Bangladeshi mother)</i></p>
Physical activity	<p><i>"It was interesting to find out how many minutes of physical activity they need a day, those things I don't know, some things I do know and some things I've learnt that I didn't know at all, so it's nice to know them things". (Asian British mother)</i></p> <p><i>Facilitator: So what have you learnt about physical activity?</i> <i>N: Yeah, it's umh, I thought, you know if you went to like umh, if you just walk, I thought just walk, all the walking is just the same, but I never thought that you know, you had to make like umh, fast walking and slow walking is different, I thought they both do the same work". (Black Somali mother)</i></p>

5.9.1.2 Behaviours

Questionnaire data showed improvements in parents' and children's health behaviours. Regarding lifestyle data taken at baseline and post-intervention ($n=6$), all six mothers reported to have made changes to their family's lifestyle. The number of lifestyle improvements made ranged from one to five (mean= 2.7 changes). Half ($n=3$) of mothers made changes to their cooking habits, two mothers no longer deep-fried food for their family most days of the week, and one mother stopped deep-frying food altogether. Other improvements reported by at least two mothers included an increase in the number of family members following a healthy diet, a decrease in the family's consumption of fizzy drinks and unhealthy snacks,

greater restrictions placed by parents on children's consumption of unhealthy foods, and less time spent watching television.

In support of these findings, during the interviews all parents stated they had made healthy changes to their family's diet (see Table 5.8 for example quotes). Most commonly, parents reported cutting down on sugary food, eating more fruit and vegetables, reducing portion size and adding less oil and salt to their cooking.

Since coming to GOALS, most parents believed their family's physical activity levels had increased. Parents who had not seen a change in their child's physical activity levels reported their children were already active 'enough'.

*"Maybe they could do a bit more out of school but because I know they get it in school I'm happy that way as well".
(Asian British mother)*

The main changes made to the family's physical activity included an increase in walking, playing more games as a family, as well as reducing children's sedentary behaviour.

Parents also believed GOALS had motivated them and their children to be healthier, had increased their children's confidence and improved awareness of their families' overweight status and its seriousness.

However, parents did report barriers to making healthy lifestyle changes. Regarding healthy eating, parents felt it was difficult to change children's existing bad dietary habits. Barriers to physical activity included being too busy to increase physical activity levels, bad weather, not enough space within the house to do games, a lack of female only facilities, and health concerns.

Overall, parents felt further changes needed to be made to their family's eating behaviours and physical activity levels.

Table 5.8 Changes in family behaviour following participation in the pilot intervention

<i>Example quotes</i>	
Healthy eating	<p><i>"The portions, umh I do cook Indian stuff and all that stuff, curries and somosa's and whatever, but because like I have got my husband's side of the family, you know my brother in-laws and all that, so like they're eating, they're eating most of the greasy stuff but whereas me, [son] and [daughter] are cutting down on the stuff. Instead of eating three or four somosa's we will just having two or one. Where [son] I will give him two, and he goes 'that's enough mum', whereas before you would give him a plate full of somosa's and he'd just eat it. Yeah it's just cutting down on things now and eating more healthy. Before, like, there was no salad or nothing in the house but now there's loads of salad so.... and like before he never used to eat salad". (Asian Bangladeshi mother)</i></p> <p><i>"Oh yes, I watch their diet, and I watch the little girl and what she wants to eat. Sometimes you know if she wants like snacks, I make sure that they are healthy snacks. And I never used to fry in the house anyway but now when I use the oil, I use less and the fat and everything". (Black Somali mother)</i></p>
Physical activity	<p><i>"Like the sports and that, we've been doing them in the house". (Yemeni mother)</i></p> <p><i>"You know laptop time, I've cut that down. So I'll say to [son] as well 'remember the sessions, laptop, computer time', so we've cut that down to like one hour, before he use to sit there for ages, so we've cut that down". (Asian British mother)</i></p> <p><i>"We're walking more now, I know it's at slow paces but at least he's doing it now". (Asian Bangladeshi mother)</i></p>
Increased confidence and motivation	<p><i>"I've noticed he talks to all the staff, normally when we go anywhere he doesn't talk to anyone". (Asian Bangladeshi mother)</i></p> <p><i>"... I have learnt things that I didn't know before and it's stressed to me how important it is to have a healthy diet and it's made me take it a bit more seriously than what I use to". (Asian British mother)</i></p>

5.9.1.3 Children's evaluation data

Data from the child's evaluation questionnaire ($n=8$) showed that they learned about healthy eating and made healthy lifestyle changes by attending the pilot intervention.

Q. What have you learnt from coming to GOALS?

*To not eat things that have fat and chocolate and sugar everyday and to stay fit and healthy.
(Black Somali boy)*

Children reported to have increased their physical activity levels and/ or to now eat healthier, by eating less snacks high in fat and sugar and increasing their fruit and vegetable consumption.

Q. What have you changed?

From eating fat food from learning about healthy things.

(Black Somali girl)

5.9.1.4 Follow-up data

Seven out of nine families completed a follow-up questionnaire. Six out of seven families reported they had *“made healthy changes during GOALS and kept these up”*. The seventh family reported they had *“made healthy changes during GOALS but had fallen back into old habits”*. They supplemented this by saying *“I try my best, have improved but sometimes go back to some bad habits”*. Changes parents had continued to see in their family since starting the pilot programme included eating less sugar, salt and fat, eating more fruit and vegetables as well as walking more. Four parents also claimed to serve the family smaller portion sizes.

All seven families reported increased fruit and vegetable consumption since starting GOALS. Six families stated they now eat less crisps and sugary snacks. Fizzy drink consumption had improved in five of the families, with two parents reporting their children did not drink fizzy drinks before they started GOALS.

On a scale of 1 (not at all confident) to 10 (extremely confident), families' confidence to keep up their healthy lifestyles in the future ranged from 5 to 10, with a mean of 8.6. The lowest rating of five was provided by the same mother who reported falling back into *“bad habits”* since attending the pilot.

Seven weeks after the programme ended (14 weeks from baseline), all families felt GOALS had worked for them.

5.9.2 Process evaluation

5.9.2.1 Reasons for attendance

Data from evaluation sheets and face-to-face interviews showed parents and children attended the pilot intervention to learn about and participate in health behaviours in relation to healthy eating and physical activity. Whilst parents frequently reported registering for the programme because they wanted to lose weight, only a minority of parents cited concern over their child's weight as motivational factors for attending. Mothers had been attracted to the programme through advertisements specifically aimed at mothers/ female carers and their children and the fact the pilot was delivered in a local community setting (see Table 5.9).

Reasons for non-attendance included family commitments and caring responsibilities, illness, bad weather and the programme coinciding with other after school activities.

Table 5.9 Facilitators to attending the pilot intervention

<i>Facilitators</i>	<i>Evidence</i>
<i>To learn about healthy eating and physical activity</i>	<i>"To do the physical activities and do the nice cooking as well as learning healthy eating". (Black Somali girl)</i> <i>"Just for advice about our health, activities and health, and what to eat and what not to eat. Just for advice to teach us... specially for the kids as well". (Yemeni mother)</i>
<i>For advice on overweight status (parent and/or child)</i>	<i>"It was like... I don't know... I was really really stuck and I was really depressed and I was really confused, honest to god I was really confused. Because we are a big family but when I just look at [son], I use to go 'what am I doing, where am I going wrong'". (Asian Bangladeshi mother)</i>
<i>Designed for women only</i>	<i>"I think the fact it was just designed for women encouraged most of them, Muslim women, to come". (Asian British mother)</i>
<i>Family programme</i>	<i>"Mostly because, me and [daughter] are involved as well, especially because mum is involved. And the people there understand him, know what his condition is. He feels more comfortable". (Asian Bangladeshi mother)</i>
<i>Location of the programme</i>	<i>"Oh, yeah, that was really brilliant, that was the other reasons as well you know [dropping out of previous GOALS programme] because of the distance and all that, but when I heard it was Al Ghazali, I thought, you know it's right in front of our house, why should I let that opportunity go". (Asian Bangladeshi mother)</i>

5.9.2.2 Group composition

Parents reported inviting families from different ethnic backgrounds was "a good idea" and worked well. All mothers on the programme were Muslim and felt the programme accommodated their religious requirements.

Whilst all parents who attended the programme had some understanding of the English language, four parents did not believe they spoke English well. Language support was offered to parents via a bi-lingual community worker, other parents and children in the sessions, as well as translated materials and visual aids. Notably, as relations developed with parents throughout the programme, researchers noted that Somali mothers who considered their spoken English as poor would engage in conversations in English with other families and staff.

During the programme, Yemeni and Somali parents who were able to speak English as well as Arabic or Somali offered language support to parents less able. Whilst parents were happy to offer assistance to others, they reported that sometimes it was difficult and suggested greater support would have been beneficial.

"It was quite difficult but it was help and I didn't mind to do that. But maybe next time I would prefer someone who interpreted to be there if it's possible".
(Black Somali mother)

Notably, all parents who considered their spoken English as limited, reported having understood the sessions.

"Yeah, that wasn't any problem because we had an interpreter that would talk to every individual and would cater for their need, actually speak or say what is going on".
(Black Somali mother)

"It was difficult some weeks, but my little girl she understands so I was getting help from her".
(Black Somali mother)

It was documented by staff and parents that time spent interpreting information did slow down the pace of sessions. Moreover, staff and researchers recognised that delivering sessions to a diverse ability group (in terms of language skills) was sometimes a challenge; whilst staff made sure everyone had adequate time to understand the concept or instruction being explained, staff also felt pressure to ensure families who were fluent in English did not get frustrated with waiting. However, no parent thought that the time spent on interpreting impacted negatively on their experience and acknowledged it as a product of attending a programme for ethnic minority families.

"You can't say that everyone there should speak English because it's like different cultures, different countries and all that, obviously they've got their own language".
(Asian Bangladeshi mother)

To deal with the concerns of staff, on occasions the group was divided into parents who deemed English to be one of their main languages and parents who considered

their spoken English as poor. Parents fluent in English considered this as advantageous, but not necessary for all sessions (e.g. practical sessions).

5.9.2.3 Delivery of sessions

All parents and children reported to enjoy the Move It! and Fun Foods sessions. In particular, parents liked taking part in activities with their children and regarded the sessions as beneficial, since they offered practical recipes you can do at home and that children liked to eat.

“When we did cookery, it was fun. You know cooking is a fun activity anyway. [Child] went home and wanted me to make that curry. So that was a good outcome, so the children liked it and wanted me to make it at home”.
(Asian British mother)

“It was good you know [the physical activity sessions], because we were having fun”.
(Yemeni mother)

Table 5.10 outlines suggested modifications to a future programme as recommended by parents and children.

Table 5.10 Future recommendations to the delivery and content of sessions

Sessions	Suggested modification
Fun Foods	Provide more one-to-one support for adapting cultural recipes
	Have more practical cooking sessions
	Deliver regular review sessions for families who have been absent
Move It	Deliver more physical activity sessions with a greater range of activities
	Deliver parent-only physical activity sessions, parent and child physical activity sessions and/ or a combination of both
	Smaller groups for physical activity sessions

Interestingly, parents were divided regarding whether they wanted to participate in physical activity sessions with children or have parent-only groups; some mothers wanted to do physical activity with their children in order to be seen as a positive role model as well as learn games they could play with their children, whereas others did not feel capable of keeping up with the children and felt embarrassed taking part. Notably one mother, who did not participate in the physical activity sessions, expressed concern about taking part as this was something she had not done before.

"Most Muslim women, maybe, Bangladeshi women as well, they feel a bit embarrassed to do physical activity. So maybe like small groups of that. Only because I've never done it before, and for them, even me, to put a pair of trainers on its like, oh my gosh I've never done it before, how am I going to do that, you know..."
(Asian Bangladeshi mother)

5.10 Discussion

Based on findings from Study 1, 2 and 3a a culturally accessible pilot intervention was designed, using the GOALS framework for development. The acceptability and effectiveness of the pilot intervention was assessed and key factors for its sustainability within a culturally diverse population were established.

Nine families attended the seven week intervention. Despite promoting the pilot as a healthy lifestyle programme rather than an obesity intervention, eight out of the nine families had an overweight or obese child. Only a minority of mothers reported concern for a child's weight as a motivational factor to attending, rather attendance was facilitated by offering families an opportunity to learn about healthy eating and physical activity through practical and engaging sessions.

The intervention was successfully piloted and families benefited by learning about healthy eating and physical activity. Whilst parents exhibited an increased understanding of the physical activity guidelines and how activities differ by the level of exertion put in, assumptions remained that children do enough physical activity during the school day. Parents reported their families' eating habits had improved by cutting down on sugary foods, eating more fruit and vegetables, reducing portion size and adding less oil and salt to their cooking. Since coming to the intervention parents also thought the family had become more active and/ or participated in less sedentary behaviour. Fourteen weeks from baseline, six out of seven families had kept up healthy lifestyle changes. On average, parents were very confident they would keep up changes made to their family's lifestyle. However, parents reported they needed further support to make necessary changes to their families' lifestyle.

The previous success of a multi-component family-based overweight treatment intervention for multi-ethnic populations has been documented by Berry et al. (2007; 2009). Simple, culturally sensitive nutrition and exercise messages were delivered to parents and children aged 7 to 17 years from Latino, African American and White backgrounds within a community setting. Data showed improved parental health responsibility, physical activity and nutritional knowledge, as well as stress management skills increasing in all ethnic groups. In particular, Latino parents reported significantly more improvements in health responsibility and physical activity from baseline to post intervention in comparison to other ethnic groups. Parents' and children's pedometer steps from baseline to six months had also increased. Further positive findings have been reported from a community based intervention for a singular ethnic group. The Girls Health Enrichment Multi-Site Study (GEMS) delivered a pilot 12-week family-based obesity prevention trial aimed for 8 to 10-year-old African American girls. Data demonstrated a trend towards reduced BMI and waist circumference. In addition, girls reduced their consumption

of sweetened beverages and increased their servings of water. Levels of MVPA measured by accelerometers also increased from pre to post intervention (Beech et al., 2003). To date, no data on UK-based multi-component family-based community interventions for ethnic minority populations has been reported.

To develop a culturally sensitive intervention 'surface' and 'deep' structural modifications (Resnicow et al., 1999) were made to the GOALS programme. Whilst parents offered a diverse range of strategies to ensure cultural appropriateness (see Study 3a), further 'deep' structural modifications were made based on findings from Study 1 and 2. An important part of this approach involved working with cultural and religious values that motivated and inhibited behavioural change (Netto et al., 2010). The programme recognised differences in service users' cultures, including variations in acculturation to Western norms, and these were effectively accommodated for within the programme. In doing this, the programme built on the beliefs, attitudes and behaviours that already existed within the target group to promote healthier lifestyles, rather than attempting to rectify 'deficiencies' in knowledge or 'incorrect' behaviour (Greenhalgh et al. 1998). For example, in ethnic groups where cultural attainment was prioritised over physical activity pursuits the educational benefits associated to activity were reinforced.

Parents considered the content, composition and delivery of the programme acceptable, accommodating for their cultural and religious needs to a satisfactory level. However, observational and interview data showed interventions aimed at singular ethnic groups may be beneficial where service users' spoken English is limited. This is supported by research undertaken by Ma et al. (2004), who emphasised the use of native languages to enable participants to discuss concerns with health professionals.

Only mothers and female carers were invited to the programme in order to respect the religious and cultural values of the groups attending. Whilst it has been reported the role of fathers from Bangladeshi, Pakistani and Black African populations in bringing up children to be limited (Department of Health, 2008b), conflict within both the nuclear and extended family are barriers reported by mothers to healthy eating in childhood (identified in Study 2). Moreover, the importance of a family-based intervention is supported by research conducted by Kjollesdal et al. (2010). Kjollesdal et al. (2010) found Norwegian Pakistani women who participated in a culturally sensitive healthy lifestyle intervention considered family conflict and expectations during social gatherings as barriers to healthy dietary changes. Whilst parents within this study were given health messages to help negotiate the importance of making healthy changes with family members, it is recognised engaging with fathers and extended family members in family-based healthy lifestyle programmes may be beneficial.

5.11 Limitations

Purposive and snowballing sampling techniques were crucial in recruiting ethnic minority families, but such techniques may have led to bias in the sample. Opinions expressed cannot be considered representative of all children and parents from the ethnic groups under study.

The main aim of Study 3 was to develop and assess the effectiveness and acceptability of a culturally sensitive healthy lifestyle intervention for ethnic minority families. Therefore, the iterative design of the programme did not allow for the fidelity of programme to be rigorously measured. Moreover, tools to measure the impact of the programme were developed for the purpose of the intervention and

piloted during the programme. The impact of a future intervention for ethnic minority families should be measured through validated tools. The brief length of the pilot did not allow for impact that might be anticipated if the intervention were delivered fully.

The pilot intervention focused on Black Somali, Yemeni, Asian Bangladeshi and Asian British groups. Further research is required to explore the intervention process for families from other ethnic and religious backgrounds and attempts should be made to include fathers.

5.12 Conclusion

Culturally sensitive healthy lifestyle interventions have the potential to reduce health disparities between ethnic groups. By involving service users in the development and evaluation of a culturally sensitive healthy lifestyle intervention, 'surface' and 'deep' structural modifications were made to the GOALS programme (Resnicow et al., 1999). Data showed families benefited from a family-based healthy lifestyle (healthy eating and physical activity) intervention that was designed to be culturally acceptable to multiple ethnic groups.

Chapter 6

Thesis study map

Study	Key findings
<p>Study 1: Parental perceptions of weight in childhood within an ethnically diverse sample</p> <p>Objectives: To explore associations between ethnic background and:</p> <ul style="list-style-type: none"> • views of healthy body size in childhood • concern surrounding overweight in childhood • attitudes to perceived causes of overweight in childhood 	<ul style="list-style-type: none"> • Black Somali parents tended to choose a larger figure for a 10-year-old child as healthy in comparison to parents from the Chinese group • Black Somali parents exhibited the lowest level of concern for overweight in childhood in contrast to all other ethnic groups • Parental readiness to make lifestyle changes for an overweight child may also differ by ethnic background • Overweight in childhood was attributed to a combination of lifestyle factors by the majority of parents. However, Yemeni parents were more likely to attribute overweight in childhood to dietary but not physical inactivity behaviour
<p>Study 2: Barriers and preferences to healthy lifestyles in childhood</p> <p>Objectives: With key ethnic groups identified from Study 1 (Asian Bangladeshi, Black African, Black Somali, Chinese, Yemeni and White British), explore:</p> <ul style="list-style-type: none"> • perceptions surrounding healthy weight in childhood • factors influencing healthy eating and physical activity in childhood 	<ul style="list-style-type: none"> • Cultural preferences for 'chubby' children were evident among Black African, Black Somali, Yemeni and Asian Bangladeshi parents • Regardless of ethnic background children cited stereotypical attitudes towards overweight peers. In line with parental attitudes to overweight, Asian Bangladeshi children also expressed cultural preferences to overweight • Evidence of acculturation to Western culture impacting on perceptions of body size and eating practices • Parents and children were aware of health messages but had limited understanding of what they meant and how they could be put into practice • Parents and children identified intrapersonal, interpersonal and environmental barriers to healthy weight. Whilst some influences to health behaviours were common across various ethnic groups, others were specific to particular ethnicities
<p>Study 3a: Preferences and barriers to participation in a healthy lifestyle intervention</p> <p>Objective:</p> <ul style="list-style-type: none"> • to explore cultural preferences, and barriers to participation in health lifestyle interventions (healthy eating and physical activity) in ethnic minority groups 	<ul style="list-style-type: none"> • Facilitators to attending a lifestyle change intervention included an ethnically diverse group composition, a female-only programme, the use of culturally inclusive recruitment literature and the design and delivery of culturally relevant and appropriate sessions. Parents suggested the location must be accessible and known to families, and offer a trusting and supportive environment • A healthy lifestyle intervention should be culturally relevant to the ethnic backgrounds of all families attending, it was also deemed an opportunity to promote knowledge exchange of healthy lifestyles between groups

Study 3b: The development and evaluation of a culturally sensitive healthy lifestyle intervention for ethnic minority families

Objectives:

- to implement and pilot a culturally accessible intervention, using the current provision for obese children (GOALS) as a framework for development
 - to assess the acceptability and effectiveness of the pilot intervention and establish key factors for its sustainability within a culturally diverse population
 - Data showed families' eating habits had improved. Parents also reported their families had become more active and/ or participated in less sedentary behaviour
 - Fourteen weeks from baseline, six out of seven families had kept up healthy lifestyle changes
 - Parents considered the content and delivery of the programme acceptable, and felt it accommodated for their cultural and religious needs
 - It was acknowledged by parents that to meet the needs of some groups, a targeted intervention for one ethnic group may sometimes be necessary, especially where parents felt more comfortable speaking in their native language
-

Chapter 6

Synthesis, conclusions and recommendations

6.1 Introduction

The aim of this thesis was to improve the cultural relevance of family-based childhood obesity treatment, and increase the evidence-base for local and national strategic planning surrounding obesity and ethnicity. This chapter will:

- present a synthesis of the key findings
- discuss the implications of findings for childhood obesity management in Liverpool
- discuss the implications of findings for policy and practice
- put forward recommendations for further research
- provide a reflection on the research process
- provide a concluding set of statements

6.2 Synthesis

From a public health perspective this thesis has added to the limited evidence base surrounding the cultural relevance of family-based childhood obesity treatment in the UK for ethnic minority groups. The research successfully overcame well-documented challenges to engaging ethnic minority populations in research (McLean and Campbell, 2003; Yancey et al., 2006). The multi-method design provided the depth and understanding required to comprehensively address the research aims and objectives. Engaging service users in the development of a culturally sensitive intervention helped ensure the acceptability and effectiveness of the intervention. In accordance with MRC guidelines for complex interventions an

exploratory feasibility study was developed, and both process and outcome measures have been reported. The extensive process evaluation of the intervention spans across all three studies and makes clear and practical recommendations for policy and future practice.

In order to address childhood obesity in ethnic minority groups, influences to healthy weight and health behaviours (healthy eating and physical activity) must be addressed at all levels of the socio-ecological model. Figure 6.1 summarises key influences to healthy weight in childhood (identified in Study 1 and 2) from the perspectives of parents and children from multiple ethnic groups. However, it is important to recognise influences to health behaviours can be common across ethnic groups, or specific to particular ethnicities, but may also work in opposing directions between groups. Such findings illustrate the importance of exploring intra- and inter-ethnic group differences in order to develop effective health promotion strategies.

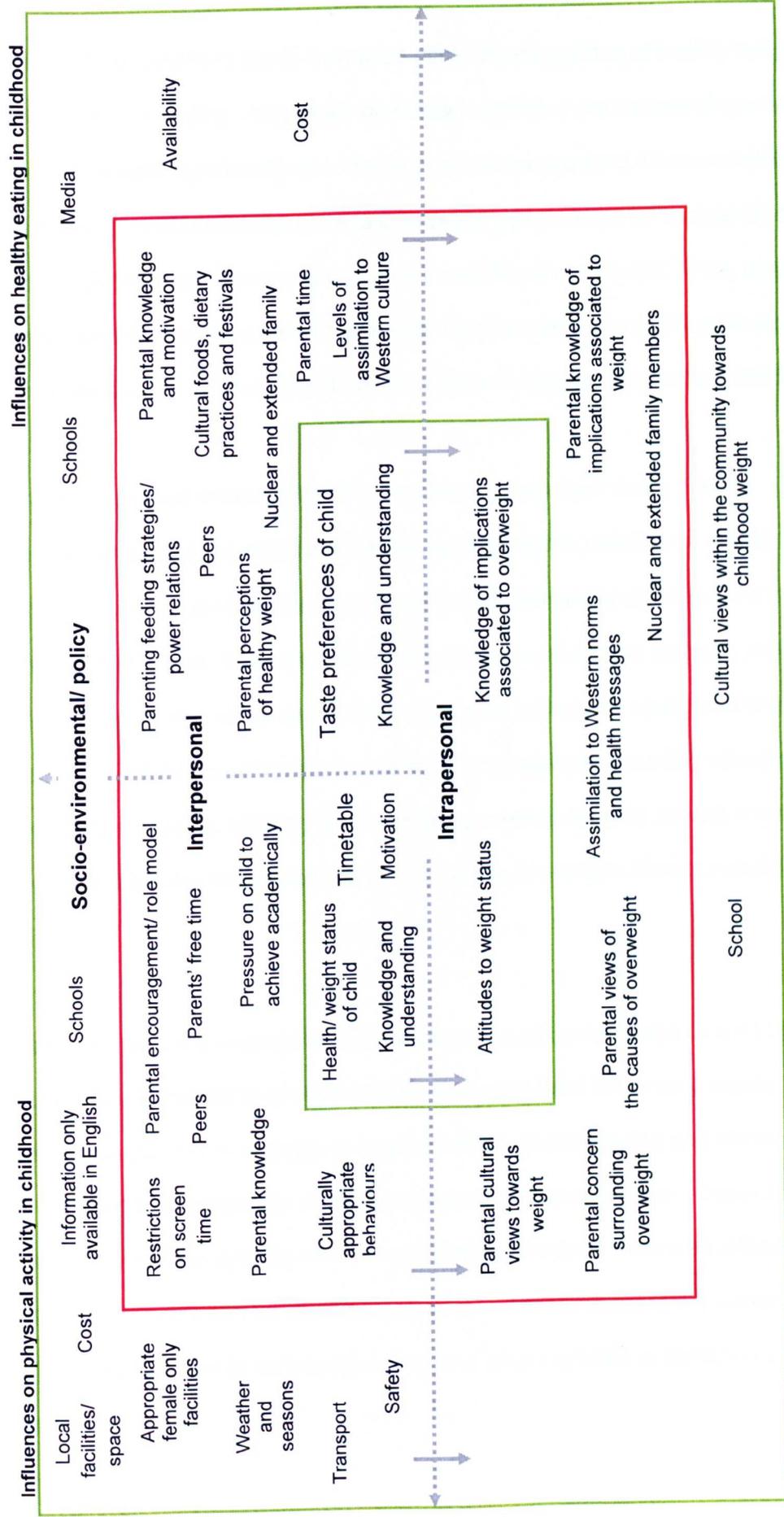


Figure 6.1 Key findings from Study 1 and 2 mapped onto socio-ecological model

Quantitative data from Study 1 showed parental perceptions of healthy weight, concerns surrounding overweight, and views regarding the causes of overweight in childhood were significantly associated to ethnic background. It was notable in particular that Black Somali parents expressed a preference for a larger body size and exhibited less concern with regards to childhood overweight. Thus, assertions were made that such views and attitudes might lessen their readiness to act on health promotion information related to childhood obesity (Rhee et al., 2005).

It was considered essential that the explanatory data from Study 1 was supplemented with an exploratory study, examining the reasons for ethnic differences in parental perceptions of childhood overweight and how they impact on children's lifestyles. The objectives of Study 2 were to explore attitudes towards healthy weight and views surrounding influences on healthy eating and physical activity in childhood, with parents and school-age children from key ethnic groups identified in Study 1. Utilising the focus group method allowed cultural norms and individual attitudes to be explored through group interaction (Barbour and Kitzinger, 1999).

Based on the socio-ecological framework proposed by Sallis and Owen (1999), data from Study 2 showed all groups experienced multi-level influences, working both independently and in synergy, to healthy weight, healthy eating and physical activity in childhood. Determinants of lifestyle behaviours extended from intrapersonal and interpersonal influences, to environment factors. Findings illustrated influences to health behaviours can be common across different ethnic groups. However, some are more prominent in certain ethnicities and others specific to particular ethnic groups.

Cultural preferences for 'chubby' children were evident among Black African, Black Somali, Yemeni and Asian Bangladeshi parents. Positive attributes to overweight were also cited by Asian Bangladeshi, Yemeni and Black African children. There was evidence however that the views of Yemeni parents were changing through the process of assimilation to Western culture and health messages. A rejection of traditional cultural attitudes that value overweight in adulthood have previously been reported among Black African (Gardner et al., 2010; Lawrence et al., 2007) and South Asian (Grace, 2011) groups living in the UK.

In Study 1 data showed Black Somali parents viewed a larger body size as healthy in comparison to Chinese parents. It was proposed this might lead Black Somali parents to underestimate their child's weight status (as suggested by the work of Killion et al. (2006) who found Hispanic and African American mothers showed preferences for larger body sizes but also perceived their own children to be thinner than they were). However, data from the body image questionnaire (Study 2) found all Black Somali parents to recognise their child's weight status correctly, whereas the majority (4 out of 6) of Chinese parents did not. This led to an alternative explanation as to why ethnic differences in estimations rates of weight in childhood occur. It was suggested Black Somali parents may be more willing to accept overweight, thus accurately recognising overweight in their child, whilst cultural ideals of slimness among the Chinese groups could lead to skewed parental awareness.

Based on focus group findings, it is suggested the body image scale used in Study 1 to measure parental perceptions of healthy body size in childhood was insensitive to less extreme inter-group differences. Since overweight is defined as $\geq 91^{\text{th}}$ percentile and obesity at the 98^{th} percentile (Cole et al., 1990), even subtle differences in attitudes to healthy body size are important to consider. These

findings highlight the benefits associated to a multi-method approach; whilst recognising the limitations of each method employed, a rounded picture of particular phenomenon by studying it from multiple viewpoints can be gained (Devine and Heath, 1999). Findings from Study 2 suggest more sensitive pictorial tools are needed to measure observable differences when used in the context of defining healthy weight. For example, this may involve ordering images randomly, rather than by size, to prevent regression to the mean in participants' responses.

Differences in dominant cultural norms surrounding weight status, and variations in assimilation to Western norms and acculturation within ethnic groups, highlights the complex task in assisting parents and children from ethnic minority backgrounds to recognise weight status in childhood. Data from these studies illustrate further research is required to fully understand the role of cultural norms in parents' underestimation of weight status in childhood.

Study 2 demonstrated that parents and children from all ethnic groups exhibited a basic understanding of healthy eating and physical activity and their health value. This finding is of interest since Study 1 found ethnic background to be significantly associated to parental perceptions of 'causes' of overweight; which in turn may impact on the lifestyle changes they deem necessary for an overweight child, or what lifestyle choices should be made to prevent overweight in the future.

Study 1 data showed Yemeni parents were the least likely to attribute overweight to a combination of lifestyle factors (dietary and physical activity/ sedentary behaviours) and most likely to attribute overweight to dietary but not physical inactivity. When these perceptions were explored in more depth during Study 2 however, it was found that Yemeni parents considered both healthy eating and physical activity important in managing their child's weight. It is asserted findings from Study 1 addressed 'surface' level thoughts about the causes of overweight,

whereas Study 2 explored 'deeper' subjective attitudes of physical activity in relation to participants embodied experiences. It is argued both approaches offer distinct and legitimate sources of knowledge of the social world; although the different context in which both types of knowledge were derived must be distinguished from one another.

Notably, whilst parents and children were aware of health messages, understanding of what these health messages meant and how they could be put into practice was limited. These findings correspond to earlier studies (Kalichman and Rompa, 2000; Arnold et al., 2001; Paasche-Orlow et al., 2005) that have illustrated low health literacy skills among ethnic minority and low socio-economic populations. Study 2 exemplified the necessary depth required to elicit understandings of health messages which have implications for further research. It is important not only to investigate awareness of health messages, but also deeper understanding of what these messages mean; research that focuses solely on the former should therefore be interpreted with caution.

Results illustrate how the cultural milieu influenced children's dietary and physical activity behaviours. Children's diets from all ethnic groups were characterised by the consumption of predominately traditional cultural foods. Black Somali, Yemeni and Asian Bangladeshi groups considered healthy eating practices to be in conflict with cultural norms surrounding food, body size and parenting styles, viewing culture and the family as barriers to healthy eating in childhood. In particular, Yemeni and Asian Bangladeshi parents recognised the negative influence extended family members had on their children's dietary habits. All ethnic minority groups reported the use of Western foods in children's diets, which were generally in the form of energy dense snacks and/ or convenience meals. Chinese, Yemeni and Asian Bangladeshi parents, and Black African and Chinese children viewed education commitments to

restrict physical activity. Asian Bangladeshi, Black Somali and Yemeni mothers reported a lack of appropriate facilities for Muslim girls, as well as traditional gender roles, constrained physical activity levels. Barriers relating to low socio-economic status, including cost, safety and access were prominent among all ethnic groups.

Service users were involved in the developmental process of a culturally sensitive healthy lifestyles programme. This involvement helped ensure measures taken to modify the current childhood obesity management provision (the GOALS programme) addressed the needs of target populations and was both effective and acceptable. Results from Study 3a documented that parents viewed the ethnic composition and gender make-up of the group to be important when designing a healthy lifestyle intervention, as a multicultural group would help ethnic minority families feel welcome and comfortable. Parents suggested recruitment literature should be clear, that the programme is inclusive, and will also meet the religious and cultural needs of ethnic minority families. The location and support offered at the programme were considered further facilitators to attending.

The contextual data obtained from Study 1, 2 and 3a helped inform the content of a culturally sensitive healthy lifestyle intervention for ethnic minority children (Study 3b). The pilot programme successfully reached families from four ethnic minority groups (Yemeni, Asian British, Asian Bangladeshi and Black Somali).

The pilot was promoted as a healthy lifestyle programme rather than an obesity intervention, based upon previous findings (from Study 1 and 2) that asserted parental readiness to make changes for the overweight child were potentially low among some ethnic groups. In total nine families attended the intervention, eight of which had an overweight or obese child. Only a minority of mothers reported concern for a child's weight as a motivational factor to attending, rather attendance

was facilitated by a desire to learn about healthy eating and physical activity, thus supporting findings from Studies 1 and 2.

It is suggested that a healthy lifestyle intervention for ethnic minority populations must deal with influences at all socio-ecological levels, addressing surface and deep-rooted influences on health behaviours (Resnicow et al., 1999). 'Surface' adaptations made to the GOALS programme included; 'peripheral strategies' which gave the intervention and recruitment literature the appearance of cultural appropriateness i.e. through multi-cultural cooking and female-only physical activity sessions; 'evidential strategies' which enhanced the perceived relevance of healthy eating and physical activity among ethnic minority groups; 'linguistic strategies' that accommodated for language barriers; 'constituent-involving' strategies which helped overcome issues surrounding cultural mistrust. 'Deep' structural adaptations involved 'socio-cultural' modifications. An important part of this approach involved working with cultural and religious values that motivated and inhibited behavioural change (Netto et al., 2010). The programme recognised differences in service users' cultures, including variations in acculturation to Western norms, and these were effectively accommodated for within the programme. In doing this the programme built on the beliefs, attitudes and behaviours that already existed within the target groups (identified in Study 1 and 2), to promote healthier lifestyles, rather than attempting to rectify 'deficiencies' in knowledge or 'incorrect' behaviour (Greenhalgh et al., 1998). The disadvantaged socio-economic position of ethnic minority families was accounted for in the location and cost of the programme, and caring responsibilities of mothers were accommodated through the provision of crèche facilities for preschool children.

Subjective reports and 'objective' measures showed that parents and children's knowledge of healthy lifestyles had improved and healthy changes had been made

to their families' healthy eating and physical activity behaviours. Moreover, findings from qualitative methods showed parents considered the content and delivery of the programme acceptable, accommodating for their cultural and religious needs to a satisfactory level. Findings illustrate the importance of process evaluations, offering a useful resource for others in future research.

6.3 Implications for childhood obesity management in Liverpool

(GOALS)

Findings have a number of implications for the GOALS programme. The team's involvement in the design process and delivery of a culturally sensitive programme has increased staff awareness of the needs of ethnic minority families. Based on service users' recommendations, recruitment literature has been modified to make clear the programme is inclusive of ethnic minority families, including culturally representative photographs and a statement of inclusivity drafted with the help of the Social Inclusion Team at Liverpool Primary Care Trust. Moreover, 'socio-cultural' and 'linguistic' adaptations have been made to health education materials. For example, the lard used in fat pots to illustrate the fat content in unhealthy snacks has been substituted with a pig-free product that is culturally acceptable, a recipe book of healthy meals adhering to the food requirements of Muslim families has been developed, and the team has sourced learning aids such as the Eat Well Plate based on the Somali diet.

As an outcome of this research the profile of GOALS as a local service available for ethnic minority families has increased. Leaflets are now widely available in all community centres and places of worship where research took place. Moreover,

important links with key community centres in the “*heart of the community*” have been established which hope to be utilised in future collaboration.

It is recognised ethnic minority families need further tailored support to make healthy lifestyle changes where objective outcomes are rigorously measured. Programmes tailored specifically to ethnic minority families will be incorporated into future GOALS strategic planning, and funding bids will focus on the development of community-level healthy lifestyle programmes to meet the needs of ethnic minority families in Liverpool.

6.4 Implications for policy and practice

Implications of findings extend beyond local childhood obesity management to policy and practice nationally. Findings illustrate barriers to healthy weight, healthy eating and physical activity in childhood must be addressed at all levels of the socio-ecological model.

It is recommended culturally sensitive healthy lifestyles programmes should be built on the beliefs, attitudes and behaviours that already exist within the target groups to promote healthier lifestyles, rather than attempting to rectify ‘deficiencies’ in knowledge or ‘incorrect’ behaviour (Greenhalgh et al. 1998). Tailored support is needed to help parents recognise overweight and the associated health risks in their children. In groups where cultural preference for ‘chubby’ children are evident, such support will require an acceptance of cultural differences in ideal body size and instead focus on education surrounding health risks associated with body size. In cultures where overweight and/ or its health implications are not recognised interventions may benefit from adopting a healthy lifestyles rather than a weight approach to reach ethnic minority families. Moreover, given parental concern about

education, relating the benefits of physical activity to improved concentration and cognitive functioning that have been illustrated in research (Sibley and Etnier, 2003; Tomporowski, 2003) may increase engagement in activities. Encouragement of physical activity into the daily routines of parents and children is needed, helping parents become active role models for children and providing the family with opportunities to be active together.

The families' limited health literacy skills must be accounted for when delivering a lifestyle change intervention. Clear messages about healthy eating and physical activity guidelines must be articulated to parents with culturally sensitive examples of how to put these into action. Differing levels of assimilation to Western culture within the family must be addressed, giving parents the necessary support to defend their decision to make healthier lifestyle choices for their children to family members.

Research has shown the ethnically diverse composition of the group is an important consideration when designing a healthy lifestyle intervention in order for ethnic minority families to feel welcome and comfortable. To encourage Muslim women to attend, female-only sessions should be delivered. Recruitment literature must be clear that the programme is inclusive and will meet the religious and cultural needs of ethnic minority families. Programmes should be relevant to family's cultural eating habits and physical activity behaviours. Delivering programmes at a suitable location within "*the heart of the community*", as well as offering a supportive environment and assistance for parents with limited spoken English will aid attendance from ethnic minority families. The low socio-economic status of families must be accounted for in terms of cost and transport. Whilst this research recognises the importance and benefits of designing and delivering inclusive programmes, a targeted approach may be necessary to meet the needs of some ethnic minority groups.

To address recommendations for practice, and thus reduce childhood obesity in ethnic minority groups at the local and national level, political commitment to the cause is critical. It is asserted a cross-government strategy (including for example, the Department of Health, Department for Education; Department for Communities and Local Government; Department for Transport; Department for Environment, Food and Rural Affairs; and the Department for Culture, Media and Sport) is required to effectively address childhood obesity in ethnic minority groups. Whilst reducing health inequalities among ethnic minority groups is high on the political agenda and outlined in national policies such as *Tackling Health inequalities: A Programme for Action* (Department of Health, 2003) and *Healthy lives, healthy people: a call to action on obesity in England* (Department of Health, 2011b), childhood obesity rates remain highest among certain ethnic minority groups (The NHS Information Centre, 2010), with no evidence this gap is narrowing (The NHS Information Centre, 2009; The NHS Information Centre, 2010).

Based on research data generated through this thesis, a number of policy recommendations have been drawn:

- Local and national governments need to increase resources available to support effective community- and population- based childhood obesity prevention and treatment interventions for ethnic minority groups.
- To ensure sustainability of childhood obesity prevention and treatment programmes targeted at ethnic minority groups, local and national governments need to explore how these can be incorporated into existing health and educational services.
- Local and national governments should promote partnership work across organisations to help create environments that are supportive of health

behaviours in ethnic minority communities, including increasing female only sport and exercise facilities, educational opportunities surrounding multicultural nutrition, and efforts to combat racism and crime.

- Local and national governments must increase efforts to develop effective strategies to improve health literacy (surrounding healthy eating and physical activity) in groups facing the greatest health inequalities (including ethnic minority groups).

6.5 Recommendations for future research

Whilst this thesis has answered a number of research questions, the research process has generated further questions that warrant attention. Data showed limited awareness and understanding of healthy eating and physical activity messages within the ethnically diverse sample of parents in Study 2. Future research should focus on interventions to improve health literacy in regards to healthy eating and physical activity messages (i.e. the understanding of messages related to these behaviours and the competency to put these into action), particularly in groups with limited English language skills. There is currently no known way of measuring health literacy (with regards to healthy eating and physical activity), and further research is required to develop and validate an appropriate tool to explore population skills and measure impact of interventions aimed at improving health literacy.

The pilot intervention focused on Black Somali, Yemeni, Asian British and Asian Bangladeshi groups. Further research is required to explore the intervention process for families from other ethnic and religious backgrounds. There is also a need to understand fathers' perceptions of lifestyle behaviours and facilitators to attending a healthy lifestyle change intervention.

In line with the Medical Research Council (MRC, 2008) framework for developing and evaluating complex interventions, the feasibility and effectiveness of the pilot must be tested on a larger scale. Research should be undertaken to validate evaluation tools for ethnic minority populations that address cultural differences in eating practices and physical activity behaviours.

6.6 Reflective practice

In social research reflexivity is potentially a very useful tool. Reflexive practices can open up unconscious motivations and implicit biases, examining the implications associated to the researcher's position, perspective and presence (Finlay, 2002). Whilst reflexivity does not eradicate these influences, it gives the reader important contextual and relevant information (Devine and Heath, 1999).

Throughout the research process, my role has involved developing relations with participants. Time has been spent in community settings to aid recruitment and gain the trust of gatekeepers and participants. I was present at all venues when focus groups took place and often acted as the facilitator. During the intervention phase, I coordinated its development, delivery and evaluation with the assistance of the GOALS team and supervisors. I attended all intervention sessions, adopting a *"researcher-participant"* (Gans, 1968) role, observing and participating with families. It could be suggested my close workings with the families compromised the 'neutrality' of the research. However, on reflection, this proved invaluable to the research process. For example, during the focus group studies many Black Somali mothers rarely spoke directly to me, instead they relied on bi-lingual support from community workers and children to relay information. A few weeks into the delivery

of the intervention my relationship with the mothers attending the programme changed and parents would regularly initiate discussions with me in English. It was asserted by one parent that her initial reluctance to speak directly to me was due to embarrassment over her limited English skills and fear of ridicule. Therefore, working closely with families helped overcome barriers relating to trust and enabled parents to feel comfortable. However, ethical dilemmas arose from the development of this relationship between 'researcher and participant', and it is unknown whether participants always recognised my role as a researcher when present.

Throughout the research process, it was acknowledged that commonalities as well as differences in the researchers' social positions and that of participants may impact on the research process (Gaskell, 2000). In regards to the White British facilitators and interviewers, our ethnic background undoubtedly had an effect on accounts given by participants. Whilst engaging with parents and children from diverse ethnic groups, participants openly recognised differences between our ethnic background and their own. The acknowledgement of 'difference' was in most cases considered advantageous. Parents and children were empowered and provided in-depth explanations of cultural traditions, assuming White British researchers to be unfamiliar with these practices, and offered examples of how they perceived their own background to differ from ours. In contrast, where researchers' facilitated focus groups in Studies 2 and 3 and shared the same ethnic background as participants (e.g. White British, Black Somali and Chinese parents and White British children) it was evident participants assumed a level of familiarity with their cultural traditions and were less likely to provide examples for the group. Potential problems associated with ethnic differences between the facilitator and participants were also recognised. Where facilitators were unfamiliar with cultural norms and practices, it is possible this could lead to incorrect interpretations of participants' accounts. Moreover, when parents took part in focus groups and interviews

facilitated in English and this was not their native language, the freedom with which they were able to articulate their viewpoint and/ or understand discussions may have been limited. To help overcome these problems and enhance the credibility of research findings, facilitators, interviewers and interpreters probed participants to gain in-depth explanations and clarify meaning. Furthermore, to avoid inaccurate representation of participants accounts, member checking of facilitators' interpretations were sought throughout the discussions. Nevertheless, it is recognised that within different contexts the accounts offered by participants may have varied or meanings attributed to these interpretations might have differed. Hence, this research is acknowledged as a socially embedded product (Denzin and Lincoln, 1998).

From a personal and academic perspective, this research has been a learning experience. My commonsensical assumptions have been deconstructed through "*thinking sociologically*" (Bauman and May, 2001) and exploring concepts from a societal perspective (Mills, 1959). The process of "*defamiliarizing the familiar*" (Bauman and May, 2001:10) has developed my intellectual biography across multiple disciplines. My knowledge base has expanded in terms of; quantitative and qualitative methodologies; health and social inequalities experienced in ethnic minority groups; determinants to healthy weight and the influence of ethnic background; and effective practice in the design and evaluation of health promotion programmes. The practical experience gained from employing multiple methods has been an invaluable training experience.

6.7 Conclusion

Findings from this thesis make an important contribution to understandings of childhood obesity in ethnic minority groups. This study is original in its methodology and aim; thus making an important contribution to the evidence base surrounding the cultural relevance of family-based childhood obesity treatment for ethnic minority groups in the UK from a public health perspective.

The evidence base surrounding perceptions of weight status, healthy eating and physical activity among ethnic minority populations predominately comes from research outside of the UK. Relevant research from UK studies remains limited, and is often restricted to ethnic groups including South Asian, Black African and/ or Caribbean populations. Previously, researchers have reported a lack of evidence surrounding children's views of healthy eating and physical activity in general (O'Dea, 2003; Thomas et al., 2003). This research adds to this limited body of evidence by exploring the views of both parents and children in regards to weight, healthy eating and physical activity in childhood from the perspectives of six ethnic groups. Since results showed important differences among ethnic groups, findings from this thesis raise important questions regarding the relevance of existing childhood obesity management interventions for ethnic minorities in the UK.

This thesis provides support to the school of thought that claims the connection between research strategy and epistemological and ontological assumptions is not deterministic (Patton, 1990; Tashakkori and Teddlie, 2003; Creswell and Plano Clark, 2011). In this thesis methodological triangulation was used to seek convergence, corroboration and add trustworthiness to the findings. A multi-method design aided the development of methods in sequential studies, expanded the

breadth and depth of inquiry, and sought elaboration of research findings (Creswell and Plano Clark, 2011).

Challenges to engaging ethnic minority populations in research are well documented (McLean and Campbell, 2003; Yancey et al., 2006). This study has however been successful in over-representing the views of ethnic minority groups. The methodologies and reflective statement outlined in this thesis have illustrated how this problem has been overcome. Developing relationships with gatekeepers; using snowballing sampling techniques; offering linguistic support through translation and interpreters; involving community workers in the development of research tools to aid their conceptual relevance; empowering participants through qualitative research methods and ensuring their acceptability; and offering financial incentives to populations that experience high levels of deprivation have contributed to the success of this study and are credible methodological considerations for future studies.

Engaging service users in the development and evaluation of a culturally sensitive intervention helped ensure the acceptability and effectiveness of the programme. Based on service users' recommendations 'peripheral', 'evidential', 'constituent-involving', 'linguistic' and 'socio-cultural' (Kreuter et al., 2002) modifications to the GOALS programme were made. Process and outcome findings from this thesis have significant importance due to the limited evidence surrounding the effectiveness of public health interventions for ethnic minority groups (National Obesity Observatory, 2010b).

The importance of exploratory studies prior to experimental trial is detailed in MRC guidance for complex interventions (MRC, 2000; MRC, 2008). Process and outcome information gained through mixed methodology has provided 'context'

specific data. Using process findings it has been possible to document key factors that may influence the successful implementation of a family-based healthy lifestyle intervention for ethnic minority families. This research therefore can act as a direct resource for others to further the evidence base in this area.

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Appendix 1:
Development of the
questionnaire
(Study 1)

Development of the questionnaire

Question	Responses	Concept	Justification
<i>Section 1</i>			
Q1. Who asked you to complete this questionnaire?	Child's school, doctor's surgery, hospital, community centre, other	Gatekeeper	To document types of gatekeepers who were successful in recruiting parents from different ethnic groups.
Q2. Which age group do you fit into?	Under 19, 20-29, 30-39, 40-49, 50-59, 60 or older, rather not say	Age	To describe age demographics of sample. Due to sensitivity surrounding reporting age, bands were employed (Aldridge and Levine, 2001).
Q3. What is your postcode?		Socioeconomic status (SES)	<p>Respondents' postcodes were used to calculate deprivation using the Index of Multiple Deprivation (IMD) (Noble et al., 2008).</p> <p>IMD is a measure of deprivation related to Super Output Areas (SOA) of local areas within England (ODPM, 2008). This measure takes into account seven domains of deprivation, relating to income deprivation, employment deprivation, health deprivation and disability, education skills and training deprivation, barriers to housing and services, living environment deprivation, and crime. Information is based on the 2001 census SOA's, ranked by the IMD and then grouped into 10 equal indices. The most deprived SOA is given a rank of one (top 10%) (ODPM, 2008). IMD has been used as a proxy for SES in previous studies (Dwyer et al., 2008; Lampard et al., 2008; Mitchell et al., 2008).</p> <p>Since data was collected via a self-administered tool, it was necessary the questionnaire was short and unobtrusive to aid response rates and help prevent missing data. Postcode was considered the most efficient means to collect data on SES. It is recognised other methods including level of parental education (Carnell et al., 2005; Lampard et al. 2008; West et al., 2008), income (Sherry et al., 2004; Huang et al., 2007; Esenay et al., 2010), receiver of public assistance (Ariza et al., 2004; Rhee et al., 2005) and/ or employment status (Sherry et al., 2004; Warschburger and Kroll, 2009; Esenay et al., 2010) have previously been used to measure this concept.</p>

<p>Q4. Please describe your ethnicity.</p>	<p>Asian: British, Indian, Pakistani, Bangladeshi, Other Asian</p> <p>Black: British, Caribbean, African, Other African, Nigerian, Somali, Other Black</p> <p>Mixed White and Black Caribbean, White and Black African, White and Asian, Other</p> <p>Other: Yemeni, Chinese, Gypsy, Traveller, Other</p> <p>White: British, Irish, Other</p> <p>Unknown, Rather not say</p>	<p>Ethnicity</p>	<p>To describe the ethnic composition of the sample and test for associations, details on ethnic background were requested. The question format was taken from the Neighbourhood Renewal Fund demographic questionnaire. This question format was adopted due to its relevance to the ethnic composition of the Liverpool population.</p>
<p>Q5. What is your religion?</p>	<p>No religion, Christian, Buddhist, Hindu, Jewish, Muslim, Sikh, any other religion, rather not say</p>	<p>Religion</p>	<p>This question was asked in the same format as the 2001 Census (ONS, 2001). Details on religious beliefs enabled demographics of sample to be described. Data was also used to select eligible parents for Study 2.</p>
<p>Section 2</p>			
<p>Q6/7. Please circle the drawing that (in your opinion) would be the healthiest weight for a 10 year old girl/ boy.</p>	<p>Body figures one to seven</p>	<p>Perception of healthy weight</p>	<p>Respondents were asked to select which figure represented the healthiest weight for a 10 year old. In attempts to make the questionnaire a suitable length for self-completion, it was unfeasible to provide gender specific figure scales for each child parents had (aged between 4 and 16 years). Since the eligibility criteria stated all parents must have at least one child aged between 4 and 16 years, the mean age of 10 years was considered an appropriate reference point for the question.</p>

Previous studies have used visual scales to examine classifications of overweight in unrelated children (Sherry et al., 2004; Warschburger and Kroller, 2009). The scale employed in this study was initially designed and validated by Collins (1991) to measure body dissatisfaction in children. Justification for the use of this scale included: previously validated by an ethnically diverse sample of children (Collins, 1999) and used by parents from a range of ethnic backgrounds in a separate study (Sherry et al., 2004); line drawings were considered more ethnically sensitive than photographs; and drawings were designed to depict preadolescent children.

This question assessed the importance parents placed on their children being a healthy weight. A five-point Likert scale was used, providing the opportunity to measure intensity, extremity and direction of responses (De Vaus, 2002). The purpose of this question was to examine the relationship between the importance given to children being a healthy weight and level of concern for an overweight child.

Statement one examined whether parents felt rates of obesity in the UK were a problem. This topic has previously been examined by Small et al. (2009) with a sample of parents in the US, to determine its relevance to respondents. Furthermore, this initial statement introduced the concept and response options, whilst other questions were more specific.

Previous research (Pagnini et al., 2007; Booth et al., 2009) conducted in Australia from unidentified ethnic samples found parents reported being overweight in childhood was more acceptable than being too thin. Statement two was therefore designed to explore whether a preference for underweight or overweight was evident within the ethnically diverse sample.

It has been reported awareness of health problems related to overweight is low (Adams et al., 2005; Genovesi et al., 2005; Rhee et al., 2005). Statements three and six were designed to examine parental awareness of health and psycho-social implications surrounding overweight.

<p>Q8. How important is to you that your child/ children are a healthy weight?</p>	<p>Very important, fairly important, neither important nor unimportant not important, not important at all</p>	<p>Concern for own child's weight status</p>
<p>Q9. How strongly do you agree or disagree with the following statements?</p>	<p>Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree</p>	<p>Concern for childhood overweight in general</p>
<p>1. "Childhood obesity is a problem in the UK"</p>		
<p>2. "I would prefer my children to have too much body fat than not enough"</p>		
<p>3. "Being overweight is only a problem if it makes the child unhappy"</p>		
<p>4. "Most overweight children will grow out of it"</p>		
<p>5. "If a child is overweight, it is important to sort it out as soon as possible"</p>		

6. "Overweight children can still be healthy children"

In connection, statements four and five explored parental readiness to make lifestyle changes if they had an overweight child. Previous research has explored parental concern for future overweight in their children (Eckstein et al., 2006; Mitchell et al., 2008; Esenay et al., 2010).

Parental perceptions of causes of overweight have previously been measured by: asking parents directly via qualitative methods (Jackson et al., 2005; Styles et al., 2007; Goodell et al., 2008); assessing what health behaviours have been or are intended to be made for an overweight child (Myers and Vagus, 2000; Rhee et al., 2005; Eckstein et al., 2006); and getting parents to compare their child's dietary and physical activity behaviours with their peers (Campbell et al., 2006; Bossink-Tuna et al., 2009; Esenay et al., 2010).

Since this research aimed to assess the perceptions of parents with both overweight and non-overweight children, asking parents directly what they believe causes overweight was deemed the most effective indicator for this concept. Moreover, this question format removed personal and familial influences between the parent and child.

To help establish parental readiness to make changes for an overweight child. Data from Q9 (statements 4 and 5) can be cross-checked against responses in order to test the validity of the questionnaire.

Perceived causes of overweight

Not enough physical activity, eating too much, eating the wrong kinds of foods, illness/injury, genes, too much TV and computer, other

Q10. What do you think causes children to become overweight?

Concern for childhood overweight in general

Doctor or nurse, teacher or learning mentor, family or friends, community worker, nobody- would make changes at home to child's eating and physical activity, nobody - would wait to see if child grows out of it before doing anything, nobody- it would not worry you, other

Q11. If you child was overweight, would you see support from:

Section 3	
Q12. How many children do you have?	Family size To describe family sizes within the sample.
A1. Child's date of birth and age	Age Data used to describe demographics of sample. Date of birth was required to calculate child's BMI.
A2. Sex:	Sex of child Data used to describe demographics of sample and calculate BMI.
A3. Height and weight:	BMI Data used to calculate child's BMI. Test parents' accuracy in estimating weight status of child. Taking objective measures of height and weight was beyond the scope of this study. Previous research has also relied on parental reports of children's height and weight (Koch et al., 2008; Hansson and Rasmussen, 2010).
A4. What is your relationship with this child?	Relationship to child and gender of respondent To ascertain relationship with child and gender of the respondent.
A5. Do you feel this child is:	Perceived weight status of child underweight, a little underweight, about the right weight, a little overweight, overweight The intention of this question was to assess parental perceptions of child's weight status. Previous questions have measured perceptions via dichotomous response (Myers and Vagus, 2000), a three point (Maynard et al, 2003; Jackson et al., 2005; Valdes et al., 2009) or five point scale (Carnell et al, 2005; Fisher et al. 2006; May et al., 2007), as well as comparisons between child's weight and their peers (Campbell et al., 2006; He and Evans, 2007). Since the sample comprised of parents with under-, healthy- and overweight children, a five point scale was considered the most suitable method to gauge extremity and direction of perceived weight status.

A6. Are you worried about this child's weight right now?	not at all worried, a little worried, moderately worried, very worried	Concern for own child/children's weight status	This question measured parental concern for child's current weight status. Previously, concern for a child's weight status has been measured via a dichotomous variable (Valdes et al., 2009), as well as three (May et al., 2007) and four point scales (Campbell et al., 2006; Lampard et al., 2008) stating progressive levels of concern. Moreover, levels of agreement have been used to measure concern for current weight status (Eckstein et al., 2006; Bossink-Tuna et al., 2009; Esenay et al., 2010).
A four point scale was considered the most effective means to establish different levels of concern for a child's weight status, providing a greater level of detail than other measures.			
A7. Does this child have any medical conditions that affects their growth or physical activity?	Yes, no If yes, please provide further details	Medical reasons for overweight status	This question was asked to ascertain whether children had any medical conditions that impacted on their growth or physical activity. If children did have such a condition, this would have the potential to impact on parents' perceptions of weight in childhood. This question was adapted from research conducted by Eckstein et al. (2006).
Section 4			
Opportunity to recruit participants for Study 2			
Q13. Would you be willing to take part in some research discussion groups with other parents to discuss your responses?			Incentive employed to aid response rate (Buckingham and Saunders, 2004)
Q14. Would you like to be entered in the prize draw to win a £50 shopping voucher?			Offered respondents the opportunity to provide additional information they felt was not addressed within the questionnaire.
Q15. Are there any further comments you would like to make about this research?			

Appendix 2:

Questionnaire (Study 1)

Parent's feelings about children's weight questionnaire

Please fill in all 4 sections of this questionnaire. Once completed, please return in the envelope to Joanne Trigwell, Research Institute for Sport and Exercise Sciences, Liverpool John Moores University, 15-21 Webster Street, Liverpool L3 2ET. If you have any questions please call Joanne on 0151 231 4408.

Section 1: About you

**Please complete
one copy of this
questionnaire only**

Q1. Who asked you to complete this questionnaire? (tick one box only)

- Child's school
- Doctor's surgery
- Hospital
- Community Centre
- Other (please write in).....

Q2. Which age group do you fit into? (tick one box only)

- Under 19
- 20-29
- 30-39
- 40-49
- 50-59
- 60 or older
- Rather not say

Q3. What is your postcode?

Q4. Please describe your ethnicity: (tick one box only)

- Asian – British
- Asian – Indian
- Asian – Pakistani
- Asian – Bangladeshi
- Asian – Any other Asian Background (please write in).....

- Black – Black British
- Black – Caribbean
- Black – African
- Black – Any other African background (please write in).....

- Black – Nigerian
- Black – Somali
- Black – Any other Black background (please write in).....

- Mixed – White and Black Caribbean
- Mixed – White and Black African
- Mixed – White and Asian
- Mixed – Any other Mixed background (please write in).....

- Other – Yemeni
- Other – Chinese
- Other – Gypsy
- Other – Traveller
- Other – Any other background (please write in).....

- White – British
- White – Irish
- White – Any other White background (please write in).....

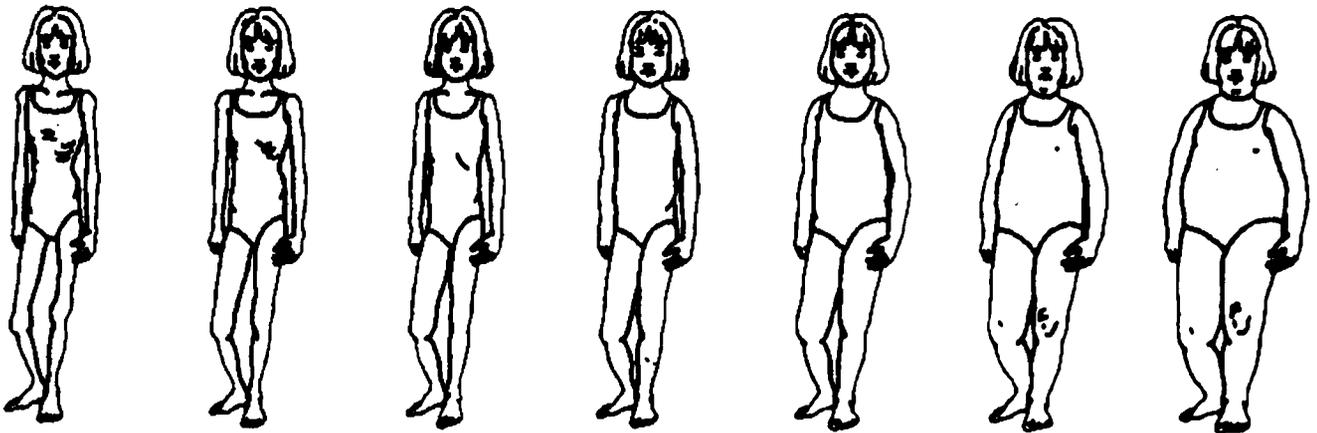
- Unknown
- Rather not say

Q5. What is your religion? (tick one box only)

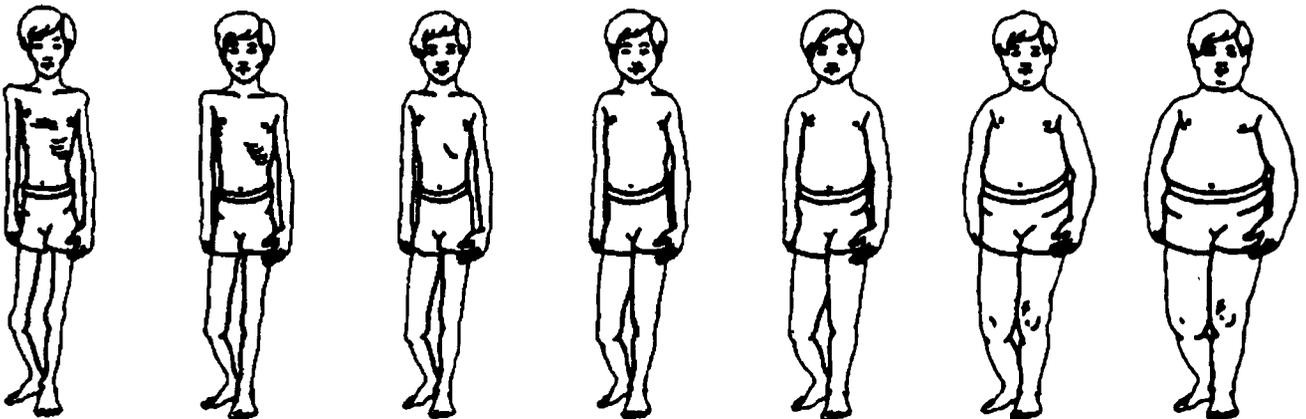
- No religion
- Christian (including Church of England, Catholic, Protestant and all other Christian denominations)
- Buddhist
- Hindu
- Jewish
- Muslim
- Sikh
- Any other religion (please write in).....
- Rather not say

Section 2: Weight in childhood

Q6. Please circle the drawing that (in your opinion) would be the healthiest weight for a 10-year old girl.



Q7. Please circle the drawing that (in your opinion) would be the healthiest weight for a 10-year old boy.



Q8. How important is it to you that your child / children are a healthy weight? (tick one box only)

- Very important
- Fairly important
- Neither important nor unimportant
- Not important
- Not important at all

Q9. How strongly do you agree or disagree with the following statements?

(tick one box for each statement)

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
<i>"Childhood obesity is a problem in the UK"</i>					
<i>"I would prefer my children to have too much body fat than not enough"</i>					
<i>"Being overweight is only a problem if it makes the child unhappy"</i>					
<i>"Most overweight children will grow out of it"</i>					
<i>"If a child is overweight, it is important to sort it out as soon as possible"</i>					
<i>"Overweight children can still be healthy children"</i>					

Q10. What do you think causes children to become overweight? (tick all that apply)

- Not enough physical activity
- Eating too much
- Eating the wrong kinds of foods
- Illness / injury
- Genes
- Too much TV and computer
- Other (please write in).....

Q11. If your child was overweight, would you seek support from: (tick all that apply)

- Doctor or nurse
- Teacher or learning mentor
- Family or friends
- Community worker
- Nobody – But make changes at home to the child's eating and physical activity
- Nobody - Wait to see if the child grows out of it before doing anything
- Nobody - It would not worry you
- Other (please write in).....

Section 3: About your children

Q12. How many children do you have?

Please complete the questions for each child between 4 and 16 (starting with the oldest), then move onto section 4. If you have more than four children aged between 4 and 16 please attach an extra sheet.

CHILD A

A1. Child's date of birth: (day) / (month) / (year) **Age:**

A2. Sex: Male Female

A3. Height:..... **Weight:**.....

A4. What is your relationship with this child? (tick one box only)

- Mother
- Father
- Other (please write

A5. Do you feel this child is: (tick one box only)

- Underweight
- A little underweight
- About the right weight
- A little overweight
- Overweight

A6. Are you worried about this child's weight right now? (tick one box only)

- Not at all worried
- A little worried
- Moderately worried
- Very worried

A7. Does this child have any medical condition that affects their growth or physical activity?

Yes No

Please provide further details.....

CHILD B

If you only have one child aged 4-16, please go to Section 4

B1. Child's date of birth: (day) / (month) / (year) **Age:**

B2. Sex: Male Female

B3. Height:..... **Weight:**.....

B4. What is your relationship with this child? (tick one box only)

- Mother
- Father
- Other (please write

B5. Do you feel this child is: (tick one box only)

- Underweight
- A little underweight
- About the right weight
- A little overweight
- Overweight

B6. Are you worried about this child's weight right now? (tick one box only)

- Not at all worried
- A little worried
- Moderately worried
- Very worried

B7. Does this child have any medical condition that affects their growth or physical activity?

Yes No

Please provide further details.....

CHILD C

If you only have two children aged 4-16, please go to Section 4

C1. Child's date of birth: (day) / (month) / (year) **Age:**

C2. Sex: Male Female

C3. Height:..... **Weight:**.....

C4. What is your relationship with this child? (tick one box only)

- Mother
- Father
- Other (please write

C5. Do you feel this child is...? (tick one box only)

- Underweight
- A little underweight
- About the right weight
- A little overweight
- Overweight

C6. Are you worried about this child's weight right now? (tick one box only)

- Not at all worried
- A little worried
- Moderately worried
- Very worried

C7. Does this child have any medical condition that affects their growth or physical activity?

Yes No

Please provide further details.....

CHILD D

If you only have three children aged 4-16, please go to Section 4

D1. Child's date of birth: (day) / (month) / (year) **Age:**

D2. Sex: Male Female

D3. Height:..... **Weight:**.....

D4. What is your relationship with this child? (tick one box only)

- Mother
- Father
- Other (please write

D5. Do you feel this child is...? (tick one box only)

- Underweight
- A little underweight
- About the right weight
- A little overweight
- Overweight

D6. Are you worried about this child's weight right now? (tick one box only)

- Not at all worried
- A little worried
- Moderately worried
- Very worried

D7. Does this child have any medical condition that affects their growth or physical activity?

- Yes No

Please provide further details.....

If you have more than four children aged 4-16, please attach an extra sheet

Section 4: Further research

Q13. Would you be willing to take part in some research discussion groups with other parents to discuss your responses? A £10 shopping voucher will be given to thank you for each group you attend.

- Yes (please write in your contact details below)

By ticking 'yes' you agree for us to contact you with further information about the group discussions. Not everyone will be contacted. If you are contacted you do not have to take part. If you agree to take part you have the right to withdraw at any time.

- No

Q14. Would you like to be entered in the prize draw to win a £50 shopping voucher?

- Yes (please write in your contact details below)
 No

Name:.....

Telephone number:.....

Address:.....

Q15. Are there any further comments you would like to make about this research?

.....
.....

Thank you for completing this questionnaire

Appendix 3:
Participant information
sheet (Study 1)

Healthy Weight Project – Parent/carer information sheet

The logo for Liverpool John Moores University (JMU) is located in the top right corner. It consists of the letters 'JMU' in a white, bold, sans-serif font, set against a black rectangular background.

Parents of children aged 4-16 are invited to take part in a MerseyBEAT funded research project to help us improve local services for families. We are interested in how parents from different cultural backgrounds feel about healthy weight in children, and would like to learn how we can support families to eat healthily and be physically active. As a local parent, your views are very important to us.

What does the research involve?

Phase 1 – QUESTIONNAIRE (everyone)

Attached is a short questionnaire asking your views on healthy weight in children. There are no right or wrong answers – we are interested in how parents feel about this topic. The questionnaire will take approximately 10 minutes to complete. We would be grateful if you could fill in the questionnaire and return it in the prepaid envelope by **18th December 2009**. As a thank you, everyone who returns a completed questionnaire by this date will be entered into a prize draw to win a £50 shopping voucher. You may complete the questionnaire without taking part in phase 2 or 3.

Phase 2 – DISCUSSION GROUPS (some families only)

Based on the answers to the questionnaire, you may be asked to take part in one or two parent discussion groups during January or February 2010. The groups will take place locally and each will last approximately one hour. There may also be a child discussion for children over 8 who wish to join in.

As a thank you for your time you will receive a £10 shopping voucher for each group you take part in, and your child will receive a GOALS pump bag if they also take part. Please indicate on your questionnaire if you do not wish to be contacted about the discussion groups.

Phase 3 – PILOT INTERVENTION (some families only)

A small group of families who have attended the focus groups will be invited to take part in a pilot healthy eating and physical activity intervention.

Confidentiality and right to withdraw

The information received will be kept confidential and names will be removed before any data is published. You have a right to withdraw at any time.

Further information

Questions or to receive a summary of the research results:	Joanne Trigwell 0151 231 4408 / j.trigwell@ljmu.ac.uk
Complaints:	Paula Watson 0151 231 4305 / p.m.watson@ljmu.ac.uk
Independent advice & support:	Patient Advice & Liaison Service 0800 073 1106 (24 hour voicemail) / PALS@liverpoolpct.nhs.uk

**Appendix 4:
Participant
information sheets
(Study 2)**

Research Information Sheet (parent / carer – phase 2)



Title: Views on physical activity, healthy eating and child weight

Investigator: Paula Watson, Joanne Trigwell

We are doing some research to explore the views of parents from different cultural backgrounds towards physical activity, healthy eating and child weight. This sheet provides information to help you decide if you would like to take part in this research.

Parent focus groups

What does the research involve?

You will take part in two focus groups, both held at [venue] at the following times:

[date and time] – lasting one hour

[date and time] – lasting one hour

What will we talk about?

We are interested in your views about physical activity, healthy eating and child weight. The discussions will be informal and involve groups of between 4 and 7 parents. We will talk about the things you enjoy about being active and eating healthily and the things that stop you being as healthy as you would like. We will also talk about weight and health in childhood, and you will view some body size pictures and be asked about how you feel about your own children's weight.

What if I do not wish to comment on a topic?

If you would rather not saying anything about a particular topic that is fine.

Child focus groups

What does the research involve?

Your child is invited to take part in a child-only discussion group (once only) at [place] on [date and time]. They will also look at body size pictures and discuss the topics of physical activity, healthy eating and weight. They will be weighed and measured when they come for the group.

General questions

Will the conversations be tape-recorded?

Yes. The conversations will be tape-recorded. The tape-recording will be written down and all names will be removed. The original tapes will be destroyed.

Who will hear what I've said?

Anything you tell us for the research will be kept confidential. This means your name will be removed straight away, and only the researcher will know what you have said. Once the names are removed, the data will be stored in a locked cabinet for 10 years.

Do I have to take part in the research?

No. And if you'd prefer not to, that's no problem.

If I say yes, can I drop out later?

Yes

What if I want to take part but my child doesn't?

That is fine, your child does not have to take part.

What if my child wants to take part, but I don't?

That is also fine, your child may take part with your permission.

What are the risks of taking part in the research?

There are no known or foreseeable major risks involved.

What are the benefits of taking part in the research?

You will receive a £10 shopping voucher for each group you attend. Children will receive a GOALS pump bag if they attend the child focus group.

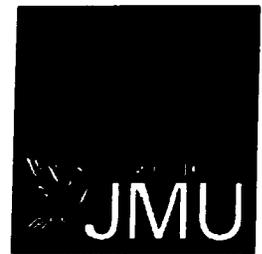
A note on child protection

All researchers have undergone full Criminal Records Bureau checks. Parents should be aware that researchers have a responsibility to take any reasonable action to ensure the safety of the children they are with. In the rare circumstance where the staff have reason to be concerned that a child may be subject to ill treatment, neglect or other forms of abuse, they have no alternative but to follow local Child Protection Procedures and inform Social Services of their concern. In such cases staff will inform parents of their concerns prior to contacting Social Services, unless staff believe the safety of the child will be compromised by their doing so.

Where can I get further information?

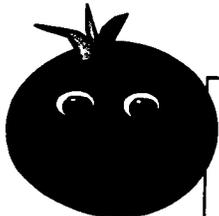
Questions or to receive a summary of the research results:	Joanne Trigwell 0151 231 4408 / j.trigwell@ljmu.ac.uk
Complaints:	Paula Watson 0151 231 4305 / p.m.watson@ljmu.ac.uk
Independent advice & support:	Patient Advice & Liaison Service 0800 073 1106 (24 hour voicemail) / PALS@liverpoolpct.nhs.uk

RESEARCH INFORMATION SHEET (CHILD – phase 2)

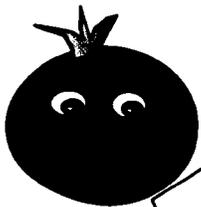


Aim of project: To listen to children's views about physical activity, healthy eating and weight

Research team: Joanne Trigwell, Paula Watson



Hi! You are invited to take part in some research to tell us what you think about being active, eating healthily and managing your weight. This sheet tells you what you will be asked to do so you can decide whether you want to take part.



What will I be asked to do?

You will meet with a researcher and 4 or 5 other children to talk about healthy eating, physical activity and weight. You will also be weighed and measured to see how tall you are and how much you weigh.

Apart from talking, will we do anything else?

You will be asked to look at pictures of different body sizes and asked some questions about how you feel. Because talking can sometimes be a bit boring, we might also ask you to do some activities or drawing to help us learn more about you!

What if I don't know the answers to the questions?

There are no right or wrong answers, we just want to listen to what you have to say, so if you don't want to answer a question you don't have to.

Will you tape-record what we say?

Yes. This is so we can remember the information. The tape-recording will be written down and all names will be taken off. The tapes will be thrown away.

Who will hear what I've said?

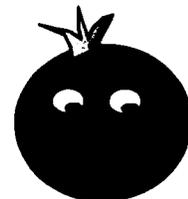
Anything you tell us for the research will be kept **confidential**. This means your name will be taken off, and nobody will know who said what.

Do I have to take part?

No. And if you'd prefer not to, that's no problem.

Will I get anything for taking part?

Yes – a GOALS pump bag!



If I say yes and change my mind, can I drop out?

Yes, you can drop out any time.

Got any more questions?

Call Joanne on 0151 231 4408 or e-mail her on j.trigwell@jmu.ac.uk

Appendix 5:
Focus group topic
guides
(Study 2)

Focus group topic guide: parents

Topic	Questions	Prompts
Weight in childhood	What does the term 'healthy weight' mean to you?	
	What does the word 'obese' mean to you?	What do you think it means if a child is obese?
	How important is it to you that your children are a healthy weight?	Why do you think being a healthy weight in childhood is important/ not important?
	How do you know whether your children are underweight, the right weight or overweight?	
	How do your cultures affect how body size in childhood is viewed?	How do your cultures affect how overweight in childhood is viewed? What influences how you view body size in childhood?
Healthy eating	What does the term 'healthy eating' mean to you?	Do you think your children have a healthy diet? Why do you consider a healthy diet in childhood as important/ not important?
	What stops your children from having a healthier diet?	
	How do your cultures affect your children's diet?	Types of food eaten/ portion size/ eating patterns/ where children eat
Physical activity	What does the term 'physical activity' mean to you?	How much physical activity do the guidelines suggest children should do each week? What do you consider as 'enough' physical activity in childhood? Why do you consider being physically active in childhood as important/ not important?
	What is the maximum amount of time you think your children should spend watching the TV or working/ playing on the computer each day?	Do you think your children spend too much time watching the TV or working/ playing on the computer?
	What stops your children from being more physically active?	
	How do your cultures affect your children's physical activity?	Type of activity children take part in / where children take part in activity/ when do they take part in activity/ who they take part in activity with

Focus group topic guide: children

Introduction	Ask everyone to say their name and their favourite kind of fruit in turn	
Ice breaker	Give children two minutes to list all words associated with the term 'healthy lifestyles'. Facilitator to write down the words on flip chart paper and encourage children to shout out	
Topic	Questions	Prompts
Weight in childhood	What do you think [male character] is like?	<p>What do you like about [male character]?</p> <p>What do you not like about [male character]?</p> <p>Would you be [male character's] friend?</p> <p>Do you think [male character] is: underweight, a little underweight, about the right weight, a little overweight, overweight</p>
	What do you think [female character] is like?	<p>What do you like about [female character]?</p> <p>What do you not like about [female character]?</p> <p>Would you be [female character's] friend?</p> <p>Do you think [female character] is: underweight, a little underweight, about the right weight, a little overweight, overweight</p>
	Have you heard the word 'obese' before?	What does the word 'obese' mean?
	How do you know whether you are underweight, about the right weight or overweight?	
Healthy eating	Do you think [characters] eat healthily?	<p>What do you think 'healthy eating' means?</p> <p>How important do you think it is to eat healthily?</p> <p>Why do you think it's important/ not important to eat healthily?</p>
	How healthily do you think your family eat?	How healthily do you think you eat?
	What stops you from eating healthier?	
Physical activity	What does the word 'physical activity' mean?	<p>How much physical activity do you think you should do each day?</p> <p>How important do you think it is to do physical activity?</p> <p>Why do you think it's important/ not important to do physical activity?</p>

How much time do you think you should watch the TV or work/ play on the computer for each day?

Do you think you spend too much time watching the TV or working/ playing on the computer?

Do you think your family do enough physical activity?

Do you think you do enough physical activity?

What stops you from doing more physical activity?

Appendix 6:
Lifestyle assessment
questionnaire
(Study 3b)

Parents' lifestyle assessment questionnaire

Name:

1. How healthy are you?

Very unhealthy	Unhealthy	Fairly Healthy	Healthy	Very healthy	Don't know
----------------	-----------	----------------	---------	--------------	------------

2. How fit are you?

Very unfit	Unfit	Fairly fit	Fit	Very fit	Don't know
------------	-------	------------	-----	----------	------------

3. Do you think you are:

Underweight
A little underweight
About the right weight
A little overweight
Overweight

Now, I'm going to ask you some questions about your family's lifestyle. By family, we mean mum and/ or dad and children living within the home. For each question I'm going to give you a list of options, let me know which one is most like your family.

4. Healthy diet:

All my family eat a healthy diet

Some of my family eat a healthy diet

None of my family eat a healthy diet

I don't know if my family eat a healthy diet

5. Physical activity:

My family do a lot of physical activity

My family do some physical activity, but not a lot

My family never do any physical activity

Some of my family do a lot of physical activity, others don't

6. TV:

My family watches a lot of TV

Some of my family watch a lot of TV

None of my family watch a lot of TV

7. Computer:

My children play on the computer a lot

My children play on the computer sometimes

My children never play on the computer

Some of my children play on the computer a lot, others don't

Which console (ie. Wii, X-box, Playstation)?

.....

8. Portion size:

My family eat big portions

My family eat average portions

My family eat small portions

Some of my family eat big portions, others don't

9. Water:

My family drink a lot of water

My family drink some water, but not a lot

My family never drink any water

Some of my family drink a lot of water, others don't

10. Fizzy drinks:

My family drink a lot of fizzy drinks

My family drink some fizzy drinks, but not a lot

My family never drink fizzy drinks

Some of my family drink a lot of fizzy drinks, others don't

11. Breakfast:

All my family eat breakfast

Some of my family eat breakfast

None of my family eat breakfast

12. Eating habits :

All my family eat a meal in the evening at the same time

All my family eat a meal in the evening but a different
times

Some of my family eat a meal in the evening

None of my family eat a meal in the evening

13. Cooking habits :

I deep fry food for my family most days of the week

I sometimes deep fry food for my family, but not often

I never deep fry food for my family

When you deep fry or shallow fry food, what kind of fat do you fry your food in?

.....

14. Salt:

I add a lot of salt to my cooking

I add some salt to my cooking, but not a lot

I never add salt to my cooking

15. Snacking:

My family eat a lot of unhealthy snacks

My family eat some unhealthy snacks, but not a lot

My family never eat unhealthy snacks

16. Takeaways:

My family eat takeaway food most days of the week

My family eat takeaway food once or twice a week

My family eat takeaway food, but not every week

My family never eat takeaway food

17. Screen watching:

I always limit my children's TV and computer time

I sometimes limit my children's TV and computer time

I don't limit my children's TV and computer time

I limit my children's TV time, but not computer time

I limit my children's computer time, but not TV time

18. Unhealthy food:

I always limit the amount of unhealthy foods my children eat

I sometimes limit the amount of unhealthy foods my children
eat

I don't limit the amount of unhealthy foods my children eat