An Exploration of the Effectiveness of Government Policy Geared Towards the Health and Well-Being of School-Aged Children: A Case Study of the North-West of Ireland

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Abstract

An exploration of the effectiveness of government policy geared towards the health and well-being of school-aged children: A case study of the North-West of Ireland

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The objective of this study was to evaluate government policies and initiatives that have been implemented to improve the diet and physical activity levels of primary school-aged children in Ireland This included exploring the perceptions of parents/ guardians of their children's health and lifestyle in the North-West region

The research was conducted by using the method of triangulation which included a literature review, quantitative and qualitative methods of data collection and analysis The initial stage of the quantitative research involved conducting a number of focus group discussions with parents/guardians of primary school-aged children The insights gained from the focus group discussions led to the content design of the questionnaire which was distributed to the parents/guardians of fifth class pupils in a sample of primary schools in Counties Donegal, Sligo and Leitrim The qualitative research was carried out by conducting a number of interviews with relevant experts in the areas of health, health promotion, education and policy-making

The findings reveal that the majority of parents/guardians are not aware of the extent to which environmental factors - which are linked to the cause of overweight and obesity- influence the health and well-being of their children In addition the findings indicate that school-based initiatives can be effective in promoting healthy eating and health education among children within the school setting but they need to be part of a multi-stranded approach to be effective in the long-term Therefore, there is a need for further government responses to promote the health and well-being of children within the home and school environments

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Declaration

I confirm that the enclosed is all my own work with acknowledged exception.

Candidate: Ann McCauley

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Abbreviations

AOA	American Obesity Association
ADA	American Diabetes Association
BCI	Broadcasting Commission of Ireland
BMI	Body Mass Index
CDC	Centers for Disease Control and Prevention
DoHC	Department of Health and Children
DH	Department of Health
EASO	European Association for the Study of Obesity
EC	European Commission
EHN	European Heart Network
EU	European Union
HBSC	Health Behaviour in School-aged Children Survey
HPA	Health Promotion Agency
HPU	Health Promotion Unit
HSE	Health Service Executive
IACFO	International Association of Consumer Food Organizations
IDF	International Diabetes Federation
IHF	Irish Heart Foundation
INDI	Irish Nutrition and Dietetic Institute
INTO	Irish National Teachers' Organization
IOM	Institute of Medicine
IOTF	International Obesity Task Force
NHS	National Health Service
NNSC	National Nutrition Surveillance Centre
PE	Physical Education
SPHE	Social, Personal and Health Education
SPSS	Statistical Package for the Social Sciences
UK	United Kingdom
US	United States
USDA	United States Department of Agriculture
WHO	World Health Organization

1.0 Introduction

The rise in obesity is a topic that has received much media coverage in recent times The explosion of newspapers articles and television documentaries on the subject has intensified public awareness around obesity and people who are overweight in Ireland and worldwide According to the World Health Organisation (WHO)

> Obesity has reached epidemic proportions globally, with more than 1 billion adults overweight – at least 300 million of them clinically obese – and is a major contributor to the global burden of chronic disease and disability
>
> Obesity and overweight pose a major risk for serious diet-related chronic diseases, including type 2 diabetes, cardiovascular disease, hypertension and stroke, and certain forms of cancer The health consequences range from increased risk of premature death, to serious chronic conditions that reduce the overall quality of life Of especial concern is the increasing incidence of child obesity
>
> The rising epidemic reflects the profound changes in society and in behavioural patterns of communities over recent decades While genes are important in determining a person's susceptibility to weight gain, energy balance is determined by calorie intake and physical activity Thus societal changes and worldwide nutrition transition are driving the obesity epidemic Economic growth, modernization, urbanization and globalization of food markets are just some of the forces thought to underlie the epidemic
>
> As incomes rise and populations become more urban, diets high in complex carbohydrates give way to more varied diets with a higher proportion of fats, saturated fats and sugars At the same time, large shifts towards less physical demanding work have been observed worldwide Moves towards less physical activity are also found in the increasing use of automated transport, technology in the home, and more passive leisure pursuits
> (WHO, 2006, p 1)

This extract indicates the extent to which overweight and obesity is widespread among the worldwide population Furthermore, it highlights various health implications that may be experienced by those who are affected by the disease In addition, it suggests that the cause of obesity is linked to a combination of excessive amounts of energy dense foods and low levels of physical activity

Initially, the researcher decided to embark upon exploring literature concerning obesity It became evident that the topic is quite a broad issue, so it was decided to examine literature in relation to childhood obesity According to the International Obesity Task Force (IOTF) and the European Association for the Study of Obesity (EASO) (2002) the significant rise m the proportion of people who are overweight or

obese results from a more sedentary lifestyle which is influenced by environmental factors including: the abundance of energy dense foods which promote excessive calorie consumption; the advertising and marketing of such foods; the rise in sedentary entertainment such as television viewing and playing computer games; the promotion of fast food and eating meals outside of the home; combined with reductions in physical activity. Moreover, a cross-national study has been conducted in the form of the Health Behaviour in School-aged Children (HBSC) survey over the last ten years. It has been carried out in Ireland in 1998, 2002 and 2006 and is conducted in collaboration with the WHO with 41 participating countries (HBSC, 2007, p. 7). This survey collects information on a wide range of issues so as to gain an insight into the health and well-being and health behaviours of young people aged 10 to 18 years, with its most recent study including nine olds too. As a result, the notion to explore the lifestyle of children at a more local level was conceptualised, hence prompting the researcher to focus on children aged 10 to 12 years, in the North-West region of Ireland. In addition, from the review of literature it became obvious to the researcher that childhood obesity is becoming a public health priority in Ireland and in other countries. For instance, in Ireland the report of the National Taskforce on Obesity, entitled *Obesity – The Policy Challenges* was published in 2005. This report includes an extensive list of recommendations to address the obesity issue. On the basis of these developments, the researcher decided to focus on environmental factors that influence the lifestyle of children in the North-West region; and to explore existing government policies that have been introduced in Ireland to address the issue.

Therefore this research seeks to explore the health and well-being of children in the North-West region of Ireland (Counties Donegal, Sligo and Leitrim), in the context of childhood obesity and to examine existing government policies and initiatives in Ireland in relation to the issue. The objective of this study includes evaluating government policies and initiatives that have been implemented to improve the health, diet and physical activity levels of primary school-aged children in Ireland. This will carried out by exploring the perceptions of parents/guardians with regards to their children's health, diet and physical activity levels in the North-West region. The following research questions operationalised from the literature review, including: To what extent are parents/guardians aware of environmental factors that influence the health and well-being of children in the North-West region? Is there a need for

government intervention? Are school-based policies and initiatives developed by government effective in reducing and managing childhood obesity? What other responses are necessary? In order to explore these issues, this thesis is structured as follows

Chapter two consists of an extensive and in-depth review of literature that explores the environmental factors that may contribute to childhood obesity It focuses on the diet and eating habits of children, fast food and eating out, television viewing and computer playing, the effects of advertising on the diet of children, and children's participation in Physical Education (PE) and physical activity In addition it focuses on existing government policies m Ireland and elsewhere to explore the need for government intervention and it also examines various school-based initiatives that have been implemented in Ireland and a range of other countries as a means to reduce and manage the growing trends of overweight and obesity among children

Chapter three provides a detailed account of the research methodology employed as a means to firstly, explore the perceptions of parents/guardians towards the lifestyle of their children in the North-West region of Ireland in the context of childhood obesity, and secondly to assess and evaluate existing government policy and initiatives that have been introduced to address this issue For the purpose of this study a triangulation of methods were used consisting of a literature review, quantitative and qualitative research To begin with, it outlines the strengths and weaknesses of using quantitative research It then provides the reader with an insight into the qualitative methods chosen for the purpose of this research, namely focus groups and questionnaires Furthermore, it justifies why the researcher chose these methods and includes the advantages and disadvantages of using these tools in research It then provides the reader with a detailed account of the research process that was followed in order to glean and analyse the quantitative data Following on, it outlines the strengths and weaknesses that are associated with qualitative research It then proceeds to inform the reader of the various types of interviews that were employed by the researcher, outlining the advantages and disadvantages of using these methods In addition, it provides an informative account on the sampling technique that was deployed in the selection of interviewees for the purpose of the interviews Following on, it outlines how the data from the interviews was gleaned and analysed Finally, the

chapter reveals any ethical issues and limitations that that were experienced during the course of the research process

Chapter four presents the findings that emerged from the primary research that was conducted by employing research tools including focus group discussions, questionnaires and interviews To begin with, it presents the findings of the initial exploratory data collection phase that emerged from a number of focus group discussions with parents/guardians of primary school-aged children in Counties Donegal and Sligo The insights gained from the focus groups were used to construct the content design of the questionnaire that was distributed to parents/guardians of fifth class pupils in a sample of primary schools in Counties Donegal, Sligo and Leitrim The findings that emerged from this questionnaire and its analysis are presented in detail Lastly, this chapter presents the findings of a number of face-to-face, telephone and electronically conducted interviews with a sample of expert interviewees, where interviews were designed by the findings that were gleaned from the initial primary research findings

Chapter five discusses the main findings that emerged from this research in correlation with the secondary research outlined in chapter two It provides an overview of the key findings that were revealed in relation to the following research questions To what extent are parents/guardians aware of environmental factors that influence the health and well-being of children in the North-West region? Is there a need for government intervention? Are school-based policies and initiatives developed by government effective in reducing and managing childhood obesity? What further action needs to be taken by government to address the issue of childhood obesity?

Chapter six offers an overall conclusion to the research and it outlines a number of recommendations that need to be considered by policy-makers to effectively reduce and manage the issue of overweight and obesity among children

2.0 Literature Review

2.1 Introduction

The purpose of this chapter is to explore literature relating to overweight and obesity among children, by way of examining how societal change has led to such a significant increase in this medical health concern This chapter will also focus on policy development in Ireland and elsewhere, so as to explore the extent to which governments play a role in addressing this issue

Obesity is a phenomenon that has been growing in many countries in the last number of years The emergence of obesity has received much media coverage in recent times and countries are grappling with the health implications of what some authors have termed 'globesity' Obesity is now one of the principle causes of illness and death after smoking (Schmidt, 2003) It can be linked to genetic factors but this is only true for a small percentage of cases, it is believed that the ever increasing prevalence of overweight and obesity is associated with environmental factors (Livingstone, 2001, Ebbeling *et al*, 2002) Children all over the world are becoming heavier but reaching an agreement on the causes of this is proving to be difficult It is feared that if the issue of overweight and obesity is not resolved, this generation of children will be outlived by their parents (Houston, 2002) Governments are coming to terms with the fact that a significant number of children worldwide have poor eating habits and are not physically active (World Health Organization (WHO) and the International Diabetes Federation (IDF), 2005) Therefore, many governments have developed policies and initiatives as measures to address the growth of overweight and obesity among children

The literature review is outlined as follows To begin with, section 2 2 provides a definition of obesity and outlines how it can be classified Section 2 3 outlines a number of health implications that may be experienced by overweight and obese children Section 2 4 explores the prevalence of overweight and obesity among children in Ireland, the UK, and in the US Following on, section 2 5 examines a number of environmental factors that may be contributing to childhood obesity

Section 2.6 examines existing government policies that have been introduced in an Irish context as a means of reducing and managing childhood obesity in this country. Furthermore, it identifies policies that have been implemented elsewhere, such as the UK, Europe and the US so as to gain a comparative insight into measures proposed by other governments to tackle the issue. Section 2.7 examines the effectiveness of school-based initiatives in addressing childhood obesity. In addition, it outlines a number of school-based initiatives that have been implemented in Ireland, Scotland, the Netherlands and Canada as an exploration of measures used by a range of countries geared towards reducing the incidence of overweight and obesity among children and young people through the school setting.

2.2 Definition of Obesity

The WHO defines overweight and obesity as 'abnormal or excessive fat accumulation that may impair health' (WHO, 2006a, p.1). In simpler terms, when more calories are consumed than are expended, this results in the accumulation of fat in the body (WHO, 2006a). It is now one of the most common childhood disorders in Europe, affecting one in every four children worldwide (IOTF & EASO, 2002).

The Body Mass Index (BMI) is the medical standard that is most commonly used by the majority of doctors, government officials and health organisations to measure overweight and obesity in adults (Oliver, 2006). According to the WHO (2006a, p. 1) it can be defined as the weight in kilogrammes divided by the square of the height in metres. This formula BMI = kg/m^2, was originally developed by Belgian astronomer Adolpe Quetelet in the early 19^{th} century (Oliver, 2006).

2.2.1 Classification of Overweight and Obesity

The following table defines BMI status for adults as adopted by the World Health Organization. A normal range BMI is greater than 18.5kg/m^2 and less than 25kg/m^2. A BMI between 25 and 29.9 indicates overweight while a BMI of 30 or above indicates obesity (WHO, 2000). Obesity can be divided into three categories: Class I, II and III, where Class I is a BMI between 30-34.9, Class II is a BMI between 35-39.9 and Class III is a BMI greater or equal to 40 (WHO, 2000).

Table 1 Classification of Overweight and Obesity According to BMI

Classification	BMI (kg/m²)
Underweight	< 18 5
Normal Range	18 5 – 24 9
Overweight	25 0 – 29 9
Obese	> 30 0
Class I (moderately obese)	30 0 – 34 9
Class II (severely obese)	35 0 -39 9
Class III (very severe/ morbidly obese)	> 40 0

(Source International Obesity Task Force, 2005, p 2)

However, Oliver (2006, p 21) argues that this method is inaccurate as the BMI measures proportionate body weight and not body fat

> This is why many professional athletes are technically "overweight" or "obese" even though they have little body fat If we think of obesity as an excess of body fat (which most people do), then BMI is an inaccurate gauge

Therefore, there are some exceptions to this method of calculation as high muscle density and low body fat evident in athletes may nevertheless result in a high BMI despite the fact that they would not be obese (European Commission's Health and Consumer Protection DG, 2005) At a conference entitled *'Expanding the Obesity Debate A One-day Forum'*, at the University of Limerick in January 2006, sociologist Dr Lee Monaghan questioned the accuracy of BMI, his views being similar to those of Oliver During his presentation he pointed out that film stars such as Brad Pitt and George Clooney are overweight and obese according to their respective BMI Nevertheless, the Irish Heart Foundation (IHF) and the Irish Nutrition and Dietetic Institute (INDI) stated that using BMI as a measuring tool may have limitations, but that it is a valuable method in evaluating weight (Hunter, 2006) According to Gard (2007, p 7) many practitioners use the BMI method cautiously as they are aware that results may be slightly exaggerated However, the BMI method is considered to be very useful when measuring large proportions of people as it can be done quickly with little specialised equipment

It is more difficult to classify children as overweight or obese as age and gender need to be considered along with height and weight (Report of the National Taskforce on

Obesity, 2005) In Ireland, there is no standard definition of childhood overweight and obesity (Health Service Executive, 2006) However, the National Nutrition Surveillance Centre (NNSC) is currently developing a database to monitor height and weight trends among children (NNSC, 2006) The fixed standards used for measuring adult BMI are not considered to be appropriate to measure overweight and obesity in children, as their BMI is constantly changing from birth to late teenage years (Fahey *et al*, 2005, p 68) A series of growth charts were issued by the Centers for Disease Control and Prevention (CDC) in the year 2000, to assess the body weight of children by age and gender These growth charts are often referred to as BMI-for-age charts and can be used to assess the body weight of children from the age of 2 to 20 years From these charts, a BMI-for-age below the 5th percentile can be classified as underweight while weight is considered to be normal if it is above the 5th but below the 85th percentile Children are at risk of overweight if the BMI-for-age is between the 85th and 95th percentile and they are considered to be overweight if the BMI-for-age is greater or equal to the 95th percentile (CDC, 2000)

Table 2 CDC BMI-for-age Percentile Cut-Off Points

Underweight	BMI-for-age < 5th percentile
Normal	BMI-for-age 5th percentile to < 85th percentile
At risk of overweight	BMI-for-age 85th percentile to < 95th percentile
Overweight	BMI-for-age ≥= 95th percentile

(Source CDC, 2000, p 1)

Cole *et al* (2000), gathered data from six large national population studies including Brazil, Great Britain, Hong Kong, the Netherlands, Singapore and the United States to establish a standard for the identification of overweight and obesity in children Centile curves were developed for each survey so that at 18 years they pass through the cut-off points of 25 and 30kg/m² that identify overweight and obesity in adults An average was then obtained from the curves to provide age and sex specific cut-off points from age 2 up to 18 years These cut-off points offer a more international based standard for comparing prevalence rates of overweight and obesity in children More recently in 2006, the WHO launched the new Child Growth Standards to assess the growth of children during early childhood from birth to five years (WHO, 2006b)

Furthermore, the WHO is also developing growth standards for school-aged children and teenagers (WHO, 2006a) Although there are different methods used to measure obesity in children they all show that the level of obesity occurring in childhood is increasing (Report of the National Taskforce on Obesity, 2005, p 15) Section 2 3 provides an overview of the health implications that may be experienced by children who are overweight and obese

2.3 Health Implications for Overweight and Obese Children

Obesity is the main health issue facing children and young people today (Dietz, 1998, Strauss and Knight, 1999) It is now one of the leading causes of illness and death after smoking (Schmidt, 2003) In 2005, obesity was linked to around 2,000 premature deaths in Ireland (Report of the National Taskforce on Obesity, 2005) and accounts for at least 9,000 premature deaths in England each year (Dept of Health, 2002) In 2004, the *Journal of the American Medical Association (JAMA)*, reported that obesity was the cause of death of 400,000 Americans per year (Mokdad *et al*, 2004, as cited in Oliver, 2006, p 3) This figure was challenged as these results were based on estimations and were not a true picture of the link between obesity and mortality (Oliver, 2006) A later report in 2005, by the same journal, reported that less than 26,000 deaths in America were linked to overweight and obesity (Flegal *et al*, 2006, as cited in Oliver, 2006, p 4) According to the WHO (2006) the number of global deaths associated with obesity will rise from three million to five million annually if no action is taken

There is a growing concern that children and young people who are overweight and obese will remain so for the duration of their adult lives (Dietz, 1998a, Field *et al*, 2005, IOTF & EASO, 2005) An estimated 30% of adult obesity originates from childhood (Roche, 2003) and according to Eckstein *et al* (2006) it is common for parents not to recognise their children as being overweight or being at risk for overweight According to Dietz (1998, p 523) 'as severely overweight children and adolescents become more common, the risks of weight-related complications in adulthood will increase' The risk of premature death and disability during adulthood are much higher in those who were obese as children (WHO, 2006) Young people who are overweight or obese are now much more susceptible to health risks such as

type 2 diabetes and hypertension that were originally associated with older persons (IOTF & EASO, 2005) Overweight and obesity are also linked with other serious long-term health risks such as cardiovascular disease and metabolic syndrome (Roche, 2003), along with strokes and some cancers (WHO and IDF, 2005) It is associated with sleep apnoea, gall bladder disease, osteoarthritis and other endocrine disorders (Lobstem *et al*, 2004) It has been estimated that 58% of type 2 diabetes and 21% of heart disease are linked to overweight and obesity (World Health Report, 2002 as cited in WHO, 2006) Sub-sections 2 3 1 and 2 3 2 examine the extent of type 2 diabetes, hypertension and cardiovascular disease in children

2.3.1 Type 2 Diabetes

Type 2 diabetes occurs 'when the body becomes resistant to the action of insulin' (North Western Health Board (NWHB), 2004, p 3) It causes high blood glucose and is linked with high blood pressure and abnormal blood fats (NWHB, 2004) It is estimated that of those who have diabetes, 90% have type 2 diabetes and the majority are overweight or obese (WHO and IDF, 2005) Among young people in Ireland, there is evidence of impaired glucose tolerance, insulin resistance and type 2 diabetes because of the increase in the prevalence of obesity (Roche, 2003) The onset of type 2 diabetes is usually diagnosed in children between the age of ten and during puberty (Reinehr, 2005) But if childhood obesity continues to rise, it is possible that type 2 diabetes may occur in younger pre-pubertal children (American Diabetes Association, (ADA), 2000) as high insulin levels have been found in children of only four years of age (Davis, 2003, as cited in Rowley and Bezold, 2005, p 8) Pinhas-Hamiel *et al* (1996) conducted a hospital based study and found that type 2 diabetes had increased ten-fold among adolescents between the years 1982 and 1994 (Pinhas-Hamiel *et al*, as 1996 cited in Sorof and Daniels, 2002) As it stands, diabetes is becoming an epidemic in America, in that more than 1 5 million new cases occurred in 2005 (CDC, 2005, cited in Rowley and Bezold, 2005) According to the WHO (2006), there will be an increase by more than 50% of diabetes related deaths globally within the next ten years

2.3.2 Hypertension and Cardiovascular Disease

Primary hypertension has now become common in young people due to the increasing prevalence of obesity and is not as rare as it once was (Sorof and Daniels, 2002). According to Field *et al* (2005) a greater BMI during childhood is a risk factor for hypertension during young adulthood. Hypertension and obesity contribute to the development of cardiovascular disease (Report of the National Taskforce on Obesity, 2005, p. 63). In Western societies, cardiovascular disease is the most common cause of death. While its onset lies in early childhood (Burke *et al*, 2005), symptoms of the disease may not become noticeable until later on in life (Frogberg and Andersen, 2005). The Bogalusa Heart Study found that overweight children and young people are more likely to experience harmful levels of various cardiovascular disease risk factors (Freedman *et al*, 1999). According to Margot Brennan from the INDI, 'It's also possible now to look at the arteries of a nine-year-old child and see changes indicating the start of coronary heart disease' (Kelly, 2006). Section 2.3.3 highlights the cost of treating obesity.

2.3.3 Impact of Obesity on the Economy

According to the Report of the National Taskforce on Obesity, the direct cost of treating obesity was approximately €70 million for the year 2002 (Report of the National Taskforce on Obesity, 2005). In the UK, a report by the National Audit Office (2001), estimated that obesity cost the health care system in the region of £500 million for the year 1998. In the same year, obesity in England was the cause of 18 million sick days and was associated with 30,000 deaths (National Audit Office, 2001). In 2006, the direct cost of obesity to the National Health Service (NHS) has estimated at £1 billion per year. In addition, it costs the UK economy between £2.3 and £2.6 billion in indirect costs. Furthermore, if trends continue to increase, the annual cost by the year 2010 could be in the region of £3.6 billion per year (National Audit Office, 2006). It has been estimated that circa 7% of the national health budgets within the European Union is spent on obesity and obesity related illnesses on an annual basis (WHO, 1998 as cited in European Commission, 2005, p. 4). In the US, figures show that the annual health care costs of an obese individual were 37% higher than those of a person of normal weight (Finkelstein *et al*, 2004, as cited in European

Commission, 2005, p 4) Treatment of diseases caused by overweight and obesity account for an estimated 9 1% of the total medical expenses in the US (Schneider, 2006) In 2004, health care expenditure relating to overweight and obese adults ranged from $98 billion to $129 billion dollars (Koplan *et al*, 2005) Section 2 4 highlights the prevalence of overweight and obesity among adults in Ireland and then continues to examine its prevalence among children in Ireland

2.4 Prevalence of Obesity

There has been a substantial increase in the number of overweight and obese people worldwide over the last number of years While the presence of overweight and obesity is significantly higher in economically developed countries, it is also evident in countries that are not as prosperous (Lobstein *et al*, 2004) In 1995, it was estimated that there were 200 million adults with obesity around the world By the year 2000, these figure increased to more than 300 million obese adults (WHO, 2003) and in 2005, it was estimated that at least 400 million adults were obese (WHO, 2006) The WHO has predicted that by the year 2015, circa 2 3 billion adults will be overweight and 700 million will be obese (WHO, 2006) Similarly, overweight and obesity is common among children worldwide (Wang and Lobstein, 2006) According to Jackson-Leach and Lobstem (2006) an estimated 22 million children in the EU are overweight and of these, five million are obese It is predicted that these figures will rise to 26 million and six million respectively for overweight and obese children by the year 2010, if present trends do not change (Jackson-Leach and Lobstein, 2006) Following on, sub-section 2 4 1 provides an overview of the prevalence of overweight and obesity among adults in Ireland

2.4.1 Prevalence of Obesity among Adults in Ireland

Statistics show that the prevalence of overweight and obesity among men and women in Ireland are quite high The prevalence among Irish men is the fourth highest in the EU and it is the seventh highest among Irish women (IOTF and EASO, 2002) Results from the SLÁN (2002) survey, *Dietary Habits of the Irish Population,* show that the prevalence of overweight and obesity among adults in Ireland has increased significantly in the last number of years In 1998, 40% of adult males and 25% of

adult females were overweight, while 11% of adult males and 14% of adult females were described as obese. Results from 2002 indicated that 42% of men and 27% of women were overweight, while 14% of men and 12% of women were obese (SLÁN, 2003). More recently, the SLÁN 2007 results reported that 45% of men and 33% of women are overweight while a further 24% of men and 26% of women are obese in Ireland. From previous research it is evident that the figures for overweight and obesity among the adult population have risen significantly (SLÁN, 2007). Moving on, sub-section 2.4.2 outlines the prevalence of overweight and obesity among Irish children.

2.4.2 Prevalence of Obesity among Children in Ireland

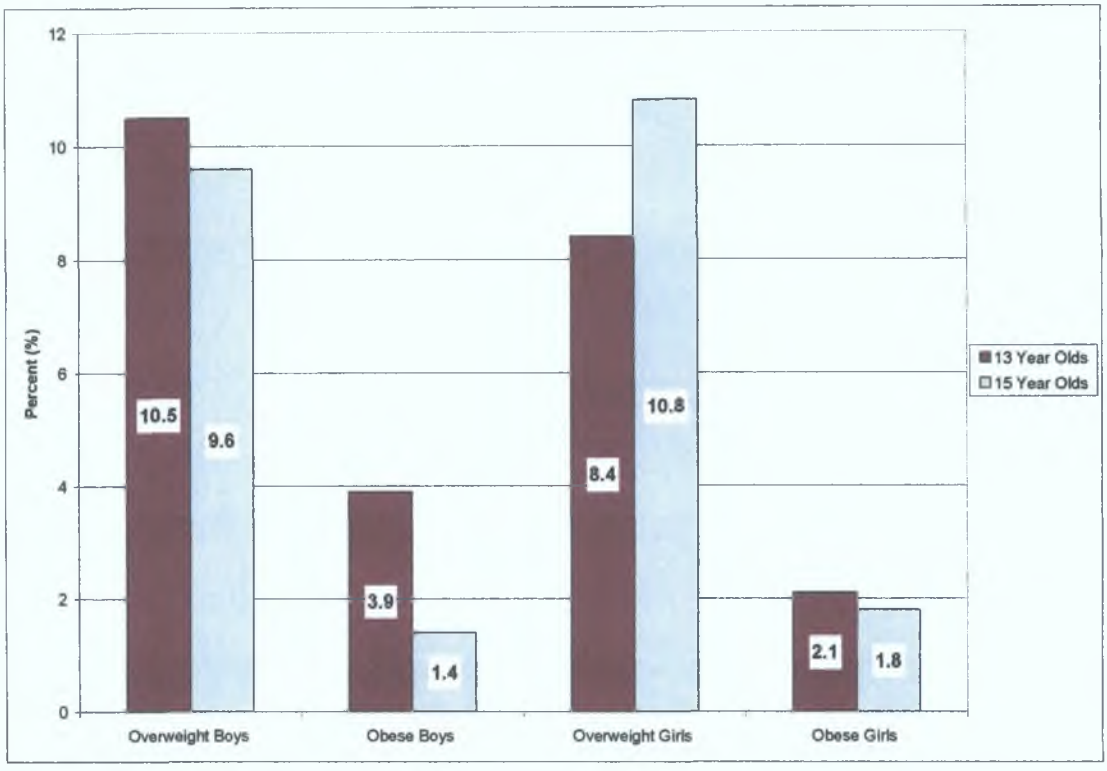
According to the report of the National Taskforce on Obesity (2005), it is estimated that there are more than 300,000 overweight and obese children in Ireland. Griffin *et al* (2004) carried out a study among inner-city Dublin schoolchildren and compared results for the prevalence of overweight with those from the Irish National Nutrition Survey in 1990. Evidence showed that that the percentage of overweight school children had increased from 1.9% in 1990 to 6% in the year 2000. This indicates that that the prevalence of overweight had trebled within ten years (Griffin *et al*, 2004). Moreover, McMaster *et al* (2005) found that 18% of senior infant girls and 16% of senior infant boys were overweight with a further 8% of girls and 9% of boys classified as obese.

A study by Yarnell *et al* (2001) showed that 16% of teenagers aged between 13 and 14 years in Northern Ireland were classed as overweight using IOTF cut-off points. Results for boys showed that 15.7% were overweight of which 3.5% were obese. Among girls, 16% were considered overweight while 2.2% of these were obese. Therefore the prevalence of overweight among 13-14 year old boys and girls is only slightly higher among girls, while the prevalence of obesity is greater among 13-14 year old boys in Northern Ireland.

Between 2001 and 2002, the HBSC survey collected self-reported data regarding the height and weight of students from a range of countries across the globe. The prevalence of overweight and obesity was calculated using age and gender-specific

BMI international cut-off points (HBSC (2002) survey, 2004). The following graph presents the percentage of overweight and obese 13 year old and 15 year old boy and girls in Ireland.

Graph 1: Percentage of overweight and obese 13 year old and 15 year old boys and girls in Ireland



(Source: HSBC (2002) survey, 2004, p. 125).

Results from the survey indicate that 10.5% of 13 year old boys and almost 10% of 13 year old are overweight. In addition, almost 4% of 13 year old boys are obese compared to less than 2% of 13 year old girls. However, being overweight is more common among 15 year old girls than boys as the results reveal that almost 11% of 15 year old girls are overweight compared to fewer than 9% of 15 year old boys. The prevalence of obesity among 15 year old boys and girls are similar at circa 2% for each gender (HBSC (2002) survey, 2004). Following on, sub-section 2.4.3 explores the prevalence of overweight and obesity among children in the UK.

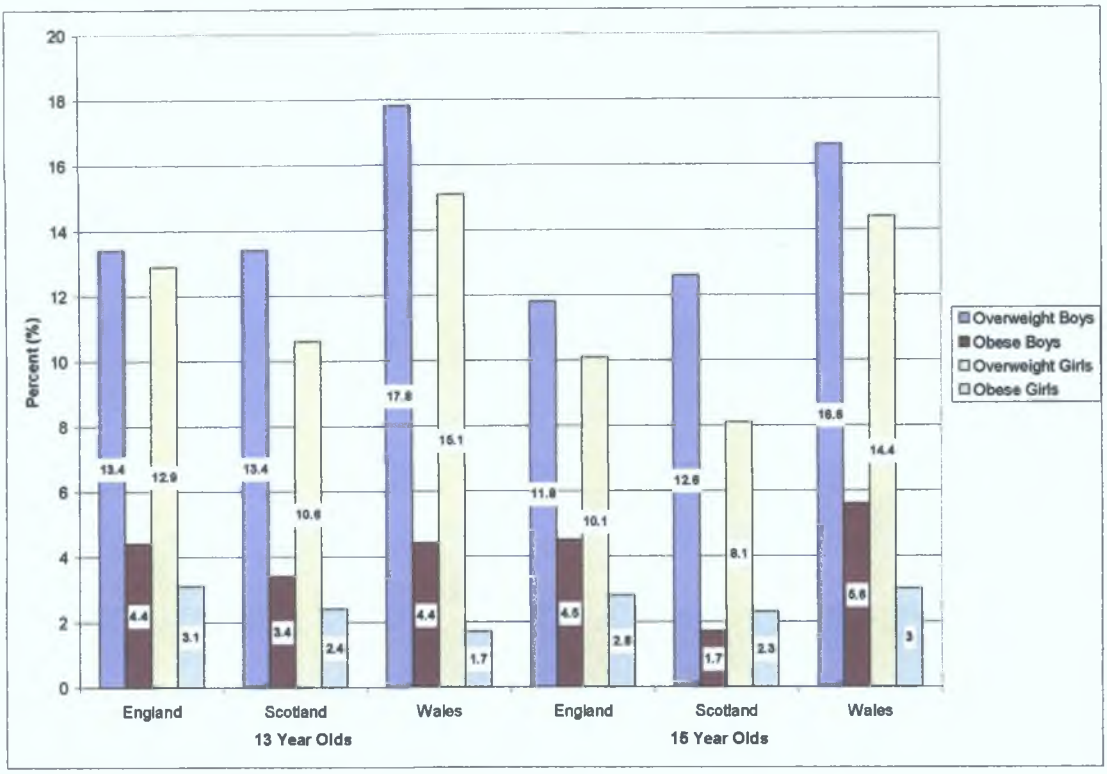
2.4.3 Prevalence of Obesity among Children in the UK

Chinn and Rona (2001) carried out a study to report trends in overweight and obesity in school-aged children aged 4 to 11 years in primary schools in England and Scotland using the IOTF cut-off points. Results showed that there were changes in the prevalence of overweight and obesity from 1974 to 1994 for both sexes and for both countries. From 1974 to 1984 there was very little change found in the prevalence of overweight and obesity but there was a substantial increase from 1984 to 1994. Among English boys there was an increase in overweight from 5.4% to 9.0% from 1984 to 1994. Similarly, overweight among Scottish boys increased from 6.4% to 10% during the same period. There was an increase from 9.3% to 13.5% among English girls and from 10.4% to 15.8% in Scottish girls. It was evident from the study, that between 1974 and 1984, there were small decreases in the prevalence of obesity among English and Scottish boys and girls but from 1984 to 1994 results showed the opposite. Among English and Scottish boys, obesity rose from 0.6% to 1.7% and 1.3% to 2.6% respectively from 1984 to 1994 while among English and Scottish girls there were increases from 0.9% to 2.1% and 1.8% to 3.2% during this period.

Overweight and obesity are also issues among school-aged children in Wales. The height and weight of five year old children has been recorded and monitored over a sixteen year period as part of an entry medical to primary school, during their first year at three localities in Wales. Data gathered through this system shows that in 1986-87, 11.3% of boys were overweight and 2.5% were obese according to IOTF cut off points. In 2001-02, 13.7% of boys were overweight and 4.6% were obese. Similarly, in 1986-87, 13.5% of girls were overweight and 3.6% were obese with results for 2001-02 standing at 19.5% and 6.9% respectively. The estimation for the total increase in the proportion of overweight or obesity in five year old school children was from 14% to 17% for boys and 19% to 26% for girls over the sixteen year period (Jones *et al*, 2005).

Similar to Ireland, children and young people from England, Scotland and Wales were also surveyed as part of the international HBSC (2002) survey. The findings are presented in the following graph.

Graph 2: Percentage of overweight and obese 13 year old and 15 year old boys and girls in England, Scotland and Wales



(Source: HBSC (2002) survey, 2004, p. 125)

Among 13 year old boys the prevalence of overweight is highest in Wales at 17.8% compared to 13.4% for both England and Scotland. The prevalence of overweight is highest among 13 year old girls from Scotland at 15.1% compared to almost 13% and 11% for 13 year old English and Scottish girls. The prevalence of obesity among 13 year old boys is highest for England and Wales, both at 4.4% compared to 3.4 % for 13 year old Scottish boys. Among 13 year old girls, obesity is more common among those from England but only decreases slightly to 2.4% and 1.7% respectively for 13 year old girls from Scotland and Wales. It is interesting to note that the prevalence of overweight and obesity in each country is higher in 13 year old boys than in girls (HBSC (2002) survey, 2004).

From the graph it is evident that the prevalence of overweight is more common among 15 year old boys from Wales which is a similar finding to that of 13 year old boys. Likewise, the prevalence of obesity is highest among boys from Wales. The prevalence of overweight and obesity is also more common among 15 year old girls from Wales at 14.4% and 3% respectively. These figures are somewhat higher than

those for 15 year old girls from England and Scotland. Therefore overall, the prevalence of overweight and obesity is highest among 15 year old boys and girls from Wales. Moreover, there appears to be a higher prevalence of overweight and obesity among 15 year old boys, than among girls, in each country.

2.4.4 Prevalence of Obesity among Children in the United States

In the US, the prevalence of obesity has increased considerably over the last number of decades (Baskin *et al*, 2005). During the 1960s, around 9% of children aged between 6 and 19 years, were overweight. According to the NHANES (National Health and Nutrition Examination Survey) III survey, conducted between 1988 and 1994, this percentage had increased to 22% (National Center for Health Statistics, 2005). Results from the NHANES 1999-2000 survey showed that more than 10% of 2-5 year olds were overweight, while a further 15.3% of 6-11 year olds and 15.5% of 12-19 year olds are overweight. There was no significant difference in the prevalence of overweight among males when compared to females, where the sample included the weight and height measurements of 4722 children and adolescents aged from birth to nineteen years (Ogden *et al*, 2002). More recently, results from the NHANES 2003-2004 survey revealed that overweight and obesity has further increased to almost 14% in 2-5 year old children, 18.8% in 6-11 year old children and over 17% in 12-19 year olds. These findings indicate that overweight and obesity among children and young people are continually increasing in the US (Ogden *et al*, 2006). Following on, section 2.5 provides a detailed account on environmental factors that contribute to overweight and obesity among children.

2.5 Environmental Factors Contributing to Childhood Obesity

This research seeks to explore the extent to which environmental factors influence the lifestyle of children thereby causing obesity. Evidently studies have shown that the cause of obesity may be linked to genetic factors, where genes are linked to a predisposition of excess body fat. A number of single-gene mutations that cause obesity during childhood have been identified, but these mutations are rare and are associated with severe obesity from a very early age (Batch and Baur, 2005). More recently a study conducted by researchers from Kings College, London, compared the

eating habits of more than 3,000 sets of female twins aged between 18 and 79 years Research was carried out on their food preferences using five different dietary groups Results suggest that between 41% and 48% of a person's tendency towards one of the food groups was genetically influenced It was concluded from the findings that genetics play a 'moderate' part in the development of preferred foods (*BBC News*, 2007)

While there is evidence to suggest that genetic factors are linked to obesity, many experts are of the opinion that the causes of obesity are due to environmental factors (Jain, 2004) This supports the view of Kumanyika *et al* (2002) who reported that changes in society are associated with the increase in obesity as there have been no major changes in human genetics

> The rapid rises in obesity rates around the world have occurred in too short a time for there to have been any evolutionary genetic changes within population
> (Kumanyika *et al*, 2002, p 429)

Moreover, according to the Health Service Executive (HSE) (2006) in many cases, children are not obese because of a medical issue, but as a result of their lifestyle This is the view taken by the researcher and this section explores a number of these factors in detail It has been suggested that our existing environment promotes behaviours that cause obesity Obesity occurs when there is an energy imbalance (Waters and Baur, 2003) or in other words where energy intake exceeds energy expenditure (Hill and Peters, 1998) These behaviours are represented by dietary intake and physical activity (Troiano and Flegal, 1998) Currently we live in an environment where convenient food is plentiful, affordable, and is energy dense and where only minimal physical activity is required (Hill and Peters, 1998) It is also an environment where homes have labour-saving gadgets, less people work in jobs where physical labour is required and car ownership has risen resulting in a lifestyle that is more sedentary (Lobstein *et al*, 2004) Consequently, as technology has advanced steadily over the last number of years, many reasons for physical activity have been abandoned (Hill, 2004) This lifestyle encourages a diet that is high in energy and low energy expenditure As a result of this situation, obesity occurs more frequently (Hill and Peters, 1998) Some of the key factors that are thought to be associated with obesity include the consumption of energy dense foods and soft drinks, fast food and eating

out; the influence of advertising of food products to children; too much time watching television and playing computers combined with little or no physical activity (IOTF and EASO, 2002). The following sub-sections take a look at these factors that are considered to be linked to obesity and overweight. Sub-section 2.5.1 examines the diet and eating habits of children.

2.5.1 Diet and Eating Habits

According to (Bradley, 2005, p. 1), 'We no longer eat to live, but rather we live to eat' and we have become a society that is fixated with food. Every year in the US, new food products are available on the market and over time our craving for new food products has increased (Gallo, 1996). In recent times, people tend to buy prepared foods and are doing much less cooking in the home than was previously done (Putnam, 1999). Societal change has led to faster-paced lifestyles, where people have little time for preparing meals and demand for ready-made foods is increasing (Schluter & Lee, 1999). The change in consumption patterns are associated with the introduction of these new food products, particularly convenience foods; increases in disposable income; growth in eating away from home and expansion in food marketing and advertising (Putnam, 1999). Therefore, in today's society it is not uncommon for children to consume more calories than they expend during physical activity, resulting in an imbalance which may be due these significant environmental changes in lifestyle at home and at school (Nestle, 2006). As a result, the eating behaviours of young people can lead to numerous health problems including obesity (Story *et al*, 2002). In addition, these eating habits that are developed during childhood tend to persist into adulthood (Mikkilä *et al*, 2005)

It is recommended by the Food Pyramid, issued by the Health Promotion Unit (HPU), Department of Health and Children, that energy dense foods or fatty and sugary foods should be used sparingly (DoHC, 2003). Children today consume large amounts of energy dense foods (IOTF and EASO, 2002). Moreover, results from the National Children's Nutrition Survey conducted by the IUNA, revealed that almost 20% of calories in the diets of Irish children, stem from treat foods such as chocolate, crisps, sweets, cakes, biscuits and pastries (Mc Carthy and Hannon, 2005, as cited in HSE, 2008). According to the Institute of Medicine (IOM) study (2005), *Food Marketing to*

Children and Youth Threat or Opportunity, no less than 30% of the calories in the diet of the average American child stem from unhealthy foods such as sweets, fast food, salty snacks and soft drinks (Mc Ginnis *et al* 2006, as cited in Nestle 2006) In Northern Ireland, 18% of 5-17 year old boys and girls consume chips on most days of the week or more often In addition, 73% consume biscuits, 52% consume savoury snacks such as crisps, 47% consume confectionery and 38% consume fizzy drinks or squashes once a day or more often (Health Promotion Agency (HPA), 2001) Results from the HBSC (2002) survey, showed that among Irish children, 51% consume sweets once a day, with more than 56% of 15 year old boys doing so From the HBSC (2006) survey it was revealed that 39% of children (10-17 years) consume sweets daily or more frequently, 26% consume fizzy drinks daily or more with more boys doing so than girls (HBSC (2006) survey, 2007)

These findings support the view of Kennedy (2004) who reported that it is possible that energy dense foods may contribute to overweight and obesity However, Phillips *et al* (2004) conducted research to examine the longitudinal relationship between the consumption of energy-dense foods (candy, chips, baked goods, ice-cream and sugar sweetened soda) and weight change in adolescence but no significant relationship was found It was concluded that weight gain during adolescence was not associated with increased consumption of energy dense foods Therefore, it is unclear as to whether the consumption of energy-dense foods is a major factor in the rise of childhood obesity

Moreover, the according to the WHO (2003a), at least five portions of fruit and vegetables should be consumed daily as part of a balanced diet This is further reiterated by the DoHC (2003) Despite this, various surveys show that many children do not consume this recommended amount In Northern Ireland, only 11% of 5-17 year old boys and girls consume five portions or more of fruit and vegetables each day (HPA, 2001) In Ireland, data from the HBSC (2006) survey reported that 22% of 10-11 year olds eat fruit more frequently than daily while only 15% of 15-17 year olds do so Overall it was reported that 19% of children aged 10-17 years, eat fruit and 18% eat vegetables more than once than once a day The consumption of fruit and vegetables was found to be higher among girls than boys (HBSC (2006) survey, 2007) In the US, the food choices of young people are inconsistent with the Dietary

Guidelines for Americans, in that foods consumed by adolescents tend to be low in fruits and vegetables and high in fats. Results show that 51% of children and adolescents eat less than one portion of fruit per day and 29% eat less than one portion of vegetables per day that are not fried (CDC, 1999 as cited in AOA, 2005). These findings suggest that many children do not consume the recommended daily allowance of fruit and vegetables.

Moreover, there has been a reduction in the amount of milk consumed by children over the last three decades due to the rising popularity of soft drinks. It appears that children drink 16% less milk than they did in the late 1970s, while the number of fizzy drinks consumed has increased by 16% (US Dept of Agriculture, cited in AOA, 2005). The frequent consumption of soft drinks may also be having an effect as it is highly possible that the empty calories contained in soft drinks are linked to health problems such as overweight and obesity, and can also contribute to dental problems, kidney stones and heart disease (Jacobson, 2005). In the US, according to the IOM study, ten percent of calories of the average child's diet are obtained from soft drinks (Mc Ginnis *et al*, 2006, as cited in Nestle, 2006). Moreover, according to James *et al* (2004) when children reduced the number of fizzy drinks consumed as part of their diet, it led to a reduction in the number of overweight and obese children. Therefore, it was concluded that there may be an association between overweight and obesity and fizzy drinks. Moving on, sub-section 2.5.2 seeks to explore children's consumption of fast food and eating out habits in relation to overweight and obesity.

2.5.2 Fast Food and Eating Out

There have been repeated suggestions that fast-food consumption is another environmental factor that is contributing to the obesity epidemic (Bowman *et al*, 2004). Fast food has become more popular due to today's hectic lifestyle. Once upon a time, fast food was deemed to be a novelty but more recently it has increasingly become part of the diet in the US (Jekanowski, 1999) and in other countries. Consumers now depend on fast food because it is quick and convenient, compared to spending time preparing meals or waiting for meals in table service restaurants. The rise in away-from-home foods is due to longer working days, larger incomes and growing trends for both parents to be employed in full-time jobs, leaving less time to

prepare meals (Jekanowski, 1999) There was a remarkable increase in the consumption of fast food by children from the 1970s to the mid 1990s, due to the fact that the number of fast food outlets more than doubled during this period (Center for Health and Health Care in Schools, 2004) Moreover, adolescents consider lack of time and busy lifestyles as obstacles that prevent them from eating more healthily (Story *et al,* 2002)

In the US the number of meals consumed away from home has been increasing over time and consequently the number of fast food outlets has risen (Jekanowski, 1999, Adair & Popkin, 2005) In 1977, the average American consumed 9 6% of meals from restaurants and fast-food outlets This percentage rose to 23 5% by 1996 (Nielsen *et al,* 2002) According to a study carried out by Amárach Consulting (2005), Irish people now spend more money on food eaten outside of the home than food eaten at home It has been estimated that €6-€7 billion is spent on food consumed outside the home The survey showed that 95% of the Irish population eat away from the home, with restaurants, fast food outlets and pubs being the favoured places to eat out in (Amárach Consulting, 2005) Similar findings were reported in a further study conducted in 2007 (Amárach Consulting, 2007)

According to the National Institutes of Health (2004) a single meal from a fast food outlet often contains the calorie requirement for a whole day, therefore this is one explanation for weight gain if people consume this type of food on a regular basis Data from the US Department of Agriculture (USDA) food intake surveys, suggest that people tend to eat more or consume higher calorie foods when they eat out (USDA, 1999, as cited in Putnam, 1999) Similarly Zoumas-Morse *et al* (2001) found that children and young people consumed significantly more calories from fat and saturated fat when eating out The findings revealed that the energy content of a restaurant meal was 55% higher than that of a home-based meal Furthermore, children consume more calories when they eat from restaurants as portions tend to be larger and more energy dense (Zoumas-Morse *et al,* 2001)

Bowman *et al* (2004) examined whether fast-food consumption adversely affected dietary factors associated with obesity This study included 6212 children and young people aged between 4 and 19 years in the United States From the results it was

evident that 30 3% of the total sample consumed fast food on a typical day Children who consumed fast food, consumed more total energy (187kcal), more energy per gramme of food (0 29kcal/g), more total fat (9g), more total carbohydrate (24g), more added sugars (26g), more sugar-sweetened beverages (228g), less fibre (1 1g), less milk (-65g) and fewer fruits and non-starchy vegetables (-45g) compared to those who did not Furthermore, according to Jeffrey *et al* (2006), food consumption at fast food outlets is positively associated with a high-fat diet and a high BMI These findings further support the view of Prentice and Jebb (2003) who reported that the regular consumption of fast food may promote weight gain Following on, sub-section 2 5 3 examines the relationship between sedentary entertainment such as television viewing and computer playing, and its association with overweight and obesity in children

2.5.3 Television Viewing and Playing Computer Games

Television viewing is thought to be an important risk factor linked to the cause of overweight and obesity but the extent to which it contributes to the problem is controversial (Hancox and Poulton, 2005, Powell *et al,* 2007) Television viewing has received much attention as it can be associated with early exposure to the marketing of foods with little or no nutritional value and it increases the probability of snacking and physical inactivity (Robinson, 1999, IOTF and EASO, 2002) According to Gortmaker *et al* (1996) children spend more time watching television than they spend at school The HBSC (2002) survey reported that 16% of 11 year old girls and 20% of 11 year old boys watch four hours or more television on weekdays, increasing to 29% and 32 6% respectively on weekend days (HBSC (2002) survey, 2004) Moreover, according to the Broadcasting Commissioners of Ireland (BCI), children watched between two and two and a half hours of television per day in 2003 and 2005 (BCI, 2006) A further Irish study reported that 22% of first class pupils viewed three or more hours of television per day during the week and 50% watched three hours or more of television on weekend days It was also noted that 32% of first class children had a television in their bedrooms and 40% of households have more than three television sets (O' Sullivan and Kelly, 2005) Therefore it is hardly surprising that children watch so much television

While rather dated, Dietz and Gortmaker (1985) reported that children's television viewing may be related to their body weight Data collected from the National Health Examination Survey (NHES) was examined for associations of the time spent watching television and the prevalence of obesity Results showed that among 12-17 year olds, the prevalence of obesity increased by 2% for each additional hour of television viewed, therefore suggesting that television viewing may cause obesity in some children and young people Furthermore, Gortmaker *et al* (1996) examined the relationship between hours of television viewing and the prevalence of overweight among young people aged 10-15 years from 1986 to 1990 Results from the survey showed that the odds of being overweight were 4 6 times greater for those who watched more than five hours of television a day, compared to those who only watched two hours or less a day It was estimated that around 33% of young people watched more than five hours of television a day, while 11% watched less than two hours of television daily The prevalence of overweight increased among youth who watched more than two hours of television per day Therefore, it was concluded that television viewing time is positively associated with the prevalence of overweight among children

In addition over 4,000 children aged between 8 and 16 years were examined as part of the National Health and Nutrition Examination Survey III (NHANES III) from the period 1988-1994 From the survey it was evident that 23% girls and 29% of boys in the US, watched four or more hours of television on a daily basis Moreover, the children with the highest BMI's were those who watched four or more hours of television per day Conversely, those who watched less than one hour of television daily, had the lowest BMI scores (Andersen *et al,* 1998) Statistics from the 1999 CDC 'Youth Risk Behavior Survey' reported that adolescents were less likely to be classified as overweight if they watched one hour or less of television per day compared to those who reported watching four hours or more of television per day It was estimated that around 25% of US high school students spent four or more hours viewing television per day It was concluded that television viewing was associated with an increased BMI (Eisenmann *et al,* 2002)

The Framingham Children's Study, a six year longitudinal study which began in 1987, involving 106 children, examined the relation between television watching and

body fat change in children from preschool to early adolescence. When the children taking part in the study reached early adolescence, it was evident that those who watched the most television during childhood had higher BMI's than those who watched the least. Hence there was a greater increase in body fat over time among children who watched the most television during childhood. It was concluded that the results from the Framingham Children's Study confirmed that the number of hours spent viewing television is a one of the main risk factors for weight gain during childhood (Proctor *et al,* 2003).

Hancox and Poulton (2005) carried out a study to evaluate the effects of television viewing on the BMI of children. Results showed that at age 13 and 15 years, young people watched 10.5 hours of television per week. There was a difference in the findings for young males and females at age 15 years. The results indicated that the relationship between television viewing and BMI was inclined to be stronger among adolescent girls. It was concluded that television viewing in childhood is linked with an increased BMI but was more significant in girls. Reasons for this were unclear but it may be associated with lifestyle differences of adolescent males and females. Hancox and Poulton (2005) concluded that television viewing plays a significant role in the recent childhood obesity epidemic. Therefore these studies suggest that increased television viewing is positively associated with overweight and obesity among children. Moreover, on the basis of these findings, the American Academy of Pediatrics (2005) recommends that children should watch no more than two hours of television per day.

In addition, playing computer games is thought to be linked to the rise in overweight and obesity. From a study conducted by Tremblay and Willms (2003) examining the relationship between sedentary behaviours, physical activity and BMI, it was concluded that viewing television for more than three hours per day and playing computer games for more than two hours per day, were risk factors for overweight. Similarly, a cross-sectional study was carried out to test the hypothesis that different types of sedentary activities -such as the use of electronic games- are associated with obesity in children. Likewise, the results showed that obesity was positively associated with the time children spent playing electronic games and viewing television (Stettler *et al*, 2004).

However, Marshall *et al* (2004) conducted a study to review the empirical evidence of associations between television viewing, video and computer game use and body fatness It was concluded that a statistically significant relationship exists between television viewing and body fatness among children and young people but the finding was not substantial enough to be of clinical relevance Moreover, it was suggested that possible relationships may be confounded by other factors such as snacking on energy dense foods whilst viewing television or playing video and computer games

Therefore, it may be questionable as whether or not excessive television viewing may cause obesity? According to Oliver (2006, p 150), children do not gain weight from actually viewing television but it occurs because of the 'snacking' that they do in front of the television Many children passively consume foods while watching television, leading to the consumption of excess calories, which in turn can lead to weight gain (Ebbeling *et al* 2002) A study found that obesity among children and television watching were linked due to their snacking behaviour while viewing television Results showed that those who watched television during mealtimes and while snacking, were more likely to consume snack foods high in refined sugar and fat In addition, watching more than two hours of television per day increased the risk factor for a higher weight (Saelens *et al*, 2002) An Irish study has demonstrated that more than one third of families with an eight year old child eat week day meals while watching television (Foley-Nolan and Millar, 2005) In addition several authors have suggested that advertising of foods to children may be associated with childhood obesity Sub-section 2 5 4 seeks to explore the effects of advertising on the diet of children

2.5.4 The Effects of Advertising on the Diet of Children

It is evident from research that the advertising of foods on television may play a role in childhood obesity (Halford *et al*, 2004, Lobstein and Dibb 2005) It appears that as the prevalence of obesity has increased the number of advertisements that children are exposed to has also increased, particularly since the introduction of cable channels (Henry J Kaiser Family Foundation, 2004) In addition, huge amounts of money are spent on the advertising of food each year In 1991 food marketing firms spent US

$8 4 billion on advertising, increasing to $10 2 billion in 1995 Approximately $2 4 billion of this was spent on advertising by restaurants, mainly fast-food chains (Gallo, 1996) In 2001, fast food restaurants such as Mc Donald's and Burger King, spent $635 million and $298 million respectively on advertising (Advertising Age, as cited in Story and French, 2004) Soft drink companies are considered to be among the most aggressive marketers worldwide (Jacobson, 2005) According to Deogun (1997, p 1) Coca-Cola is available at 'almost every nook and cranny in the U S ' It can be purchased from two million stores, almost half a million restaurants and fast food outlets, and from 1 4 million vending machines and coolers (Deogun, 1997) The Coca-Cola company spent more than $200 million on advertising during the year 2000 (Chura, 2001, cited in Jacobson, 2005) and in 2004, $2 2 billion was spent on promotions all over the world In the same year, the company sold $22 billion worth of soft drinks (Jacobson, 2005) In Ireland for the year 2003, it was estimated that more than €132 million was spent on the advertising of food and beverages (Baum and Ford, 2004, as cited in the Report of the National Taskforce on Obesity, 2005, p 74) Moreover, consumers spend €115 million on Coca-Cola per year which is more than is spent on the school transport system (Central Statistics Office, 2005, as cited in Mc Williams, 2005) In the US, Americans spent $65 9 billion on soft drinks for the year 2004 (Beverage Digest, 2005) It is no surprise therefore that soft drinks companies often associate their brands with movies and music groups that are popular among children and young people (Jacobson, 2005) For instance, in 2001, Coca-Cola was linked to the marketing of the movie 'Harry Potter and the Sorcerer's Stone' (Edwards, 2001, as cited in Jacobson 2005) Furthermore, famous singers have been paid huge amounts of money to promote soft drinks, notably Britney Spears and Christina Aguilera (Jacobson, 2005)

It is evident that the foods that are least recommended for consumption, are the very foods that are promoted the most through advertising (Story and French, 2004, Report of the National Taskforce on Obesity, 2005) The International Association of Consumer Food Organizations (IACFO) revealed that fatty and sugary foods such as chocolates, pre-sugared breakfast cereals, crisps and fast-food meals were advertised more often than fruit and vegetables or dairy products (Dalmeny *et al*, 2003) The Children's Advertising Code of the BCI states that, children's advertising 'should not encourage an unhealthy lifestyle or unhealthy eating or drinking habits' (BCI, 2005,

p 14) In addition, advertisements in relation to fast food products or outlets must be accompanied by a message declaring that such foods 'should be eaten in moderation and as part of a balanced diet' (BCI, 2005, p 14) However, a survey conducted in the Southern region of Ireland reported that 73% of parents are of the opinion that their children are being exposed to too much advertising and 75% of parents take the view that television food advertising to children promoted 'unhealthy' foods (foods containing high amounts of fat, salt and sugar) In addition, parents reported that fast food and soft drinks were more likely to be promoted during children's television The study also revealed, that one third of parents were of the opinion that their children's eating habits were influenced by television food advertisements (O'Sullivan and Kelly, 2005)

A study carried out by Neville *et al* (2005) showed that confectionery and fast food restaurants were the most advertised food categories during Australian children's television viewing hours Results showed that advertisements for confectionery were three times more likely to be shown during children's programmes than adult programmes It also found that advertisements for fast food restaurants were twice as likely to be broadcast during children's television viewing hours, than that of adults Therefore, it was concluded that foods most advertised during children's TV viewing hours were not foods that are associated with a healthy diet

In addition, Powell *et al* (2007) carried out a study to investigate the distribution of food advertising exposure on television among young people aged 12-17 years The results showed that that one-fifth of advertising exposure consisted of food-related products It was found that when television promotions and public service announcements were excluded, 26% of advertised products viewed by young people were food-related Typically, fast food was the most frequently advertised product of all food-related advertisements among adolescent television viewing at 23%, followed by sweets (22%), beverages (17%) and cereal (11%) The most frequently advertised fast food outlets were Burger King and Mc Donald's at 22 3% and 22% respectively, followed by Taco Bell (11%), Subway (10 8%), Wendy's (8 7%) and KFC (8%) (Powell *et al* 2007) Moreover, these results support the findings reported by O' Sullivan and Kelly (2005)

Borzekowski and Robinson (2001) investigated the influence of television food advertisements on the food preferences of preschoolers by exposing them to a videotape of a popular children's cartoon embedded with advertisements From the experiment, it was concluded that television food advertisements have an immediate effect on the short-term food preferences of children The findings suggested that exposure to one or two, 10-30 second long food advertisements was sufficient to influence the short-term preferences for food products of 2-6 year old children Hence, this reiterates the view that children can be easily persuaded by food advertisements Furthermore, Halford *et al* (2004) determined that overweight and obese children recognised more advertisements for food products than did lean children Moreover, during televison viewing, they consumed significantly more than their lean counterparts Therefore, the study suggests that exposure to advertisements for food products, promotes food consumption Similarly, Lobstein and Dibb (2005) found an association between exposure to advertisements during children's television and the prevalence of overweight among children In addition, the advertisement of energy dense foods, were linked with excess body weight

In contrast to these findings, Young (2003) examined the influence of advertising on the diets of children and concluded that the food preferences and habits of children have already been established before they can actually understand the concept of advertising He also argues that while many studies claim to have found a link between food advertising and children's subsequent food choices, they are not methodologically sound This view was further supported by Barnabè *et al* (2008) who reported that there was no direct evidence to support the view that food marketing to children causes overweight and obesity Following on, section 2 5 5 examines children's participation in PE at school and physical activity outside of school

2.5.5 Physical Education in School and Physical Activity Outside of School

Many studies have shown that physical activity levels are decreasing among children and young people due to the new sedentary lifestyle and changing environment (IOTF & EASO, 2002) as the current environment tends to discourage physical activity (Livingstone, 2001) Therefore the reduction in daily physical exercise is another

factor contributing to the recent obesity epidemic (Saris *et al*, 2003; Jurg *et al*, 2006) and in recent years the relationship between reduced physical exercise and obesity has become a concern due to the increase in the number of obese children and adults (Fahey *et al*, 2005). Involvement in regular physical activity is significant for quality of life, for both the physical and psychological components (US Dept of Health and Human Services, 2002). According to the WHO (2003b) it provides opportunities for young people to gain self-confidence through social interaction and integration and it lowers the risk of becoming obese. In addition the WHO recommends that children and young people should be involved in physical activity of moderate intensity for 60 minutes per day. Moreover, children who are active during childhood are more likely to be active throughout their lifespan (WHO, 2003b). For most children physical activity can be achieved through participation in PE at school and involvement in sports or activities outside of school. Nevertheless, there appears to be a worldwide decline in physical activity and physical education programmes in schools (WHO, 2003b).

PE is a compulsory subject in Irish primary schools and it is recommended that one hour per week should be assigned to PE classes (Dept. of Education and Science, 1999). However, the INTO reported that many primary schools in Ireland do not have purpose built rooms or halls to accommodate PE classes (INTO, 2007) and therefore for the majority of these schools, PE classes are weather dependent (INTO, 2008). According to John Carr, General Secretary of the INTO, due to the shortage of proper facilities, Irish children receive less physical activity at school compared to other European countries. In primary schools across the EU, the average time spent doing PE is 109 minutes, but the average time spent in Ireland is only 54 minutes (INTO, 2007). Therefore, many Irish primary school children do not receive the recommended amount of PE of one hour per week. Carr stated that:

> On paper, the time recommended for physical education in our schools is the lowest in Europe. In practice it is far worse than that because in too many of our schools bad weather prevents physical education being taught. This is because too many of our schools lack an indoor facility for PE. In Ireland PE is weather dependent
> (INTO, 2008, p. 2).

A survey carried out on a random sample of 62 Irish primary schools showed that 81.3% of fifth and sixth class pupils are provided with PE on a weekly basis.

However, 7 1% depend on weather conditions for PE classes while a further 11 5% have no structured PE classes (O'Sullivan, 2002) Moreover, Fahey *et al* (2005) carried out a study to investigate the levels of participation of children in PE classes at school, extra-curricular sport in school and their involvement in organised sport outside school Data for this study was collected from 5th and 6th class in 137 primary schools The findings from the study showed that the majority of primary schools provide PE classes, where 62% of primary schools held timetabled PE classes once a week and 31% provided PE classes 2-3 times a week Similar to the INTO survey, results showed that availability of facilities to conduct PE classes can also be a constraint on the amount of time spent providing physical activity in schools Two thirds of the principals from primary schools said that facilities were 'not at all adequate' (Fahey *et al*, 2005, p 61) Others reported that they did not have adequate indoor facilities to provide PE classes and were therefore dependent on weather conditions, as only a small minority of primary schools (23%), have their own indoor floor for physical activity (Fahey *et al*, 2005) A further study conducted in the South East region of Ireland found that 90% of primary schools had access to indoor facilities for PE classes, although 12% described them as 'inadequate' (Murray and Millar, 2005, p 29)

As stated earlier, children can also obtain physical exercise through participation in activities outside of school According to Fahey *et al* (2005) results showed that 88% of children are involved in sports with clubs outside of school Furthermore, it was evident that boys participate in sport outside of school more often than girls, where 21% of boys partake four or more days a week compared to 16% of girls (Fahey *et al*, 2005) These findings are supported by results from the study conducted in the South-East region of Ireland which found that 78% of children participated in sports outside of school, but there was no significant difference between the sexes, with 79% of boys and 76% of girls doing so (Murray and Millar, 2005)

While the above studies suggest that the majority of children participate in physical activity outside of school, results from the HBSC (2002) survey reveal that only 48% of children exercise four or more times per week and a further 12% exercise less than weekly In addition, gender differences were noted in the study with 59% of boys and 38% of girls participating in exercise four or more times per week It was also

apparent that involvement in regular physical activity decreased with age, particularly among girls (HBSC (2002) survey, 2004) Moreover, the HBSC (2006) survey reported that 53% of children exercise four or more times per week, of which, 63% are boys and 43% are girls Similar, to 2002 results, it was also evident that there was a decrease in exercise as children got older, particularly among girls (HBSC (2006) survey, 2007) While this result is a slight increase on results from 2002, it still supports the notion that many children are not obtaining the recommended amount of exercise thus supporting the view of Saris *et al* (2003) and Jurg *et al* (2006) that reductions in physical activity are contributing to the increase in obesity This is further reinforced by Trembley and Willms (2003) who found that participation in unorganised sport among Canadian children was negatively associated with overweight Nevertheless, Livingstone (2001) states that much of the research on the relation between physical activity and overweight may be 'methodologically diverse,' hence this area may warrant more in-depth study

While there is much evidence to support the notion that overweight and obesity is associated with environmental factors, it raises the question as to whether the problem is an individual one, or whether government intervention is necessary According to Campbell (2004) there is an element of both personal and governmental responsibility to addressing the issue of childhood obesity In addition, the WHO recommends that at an individual level, overweight and obesity can be prevented by limiting the energy intake from fats and sugars, increasing fruit and vegetable consumption and increasing physical activity levels (WHO, 2006a) However, to implement these recommendations, according to the WHO (2006a) there is a need for government intervention

> sustained political commitment and the collaboration of many stakeholders, public and private Governments, international partners, civil society and nongovernmental organizations and the private sector have vital roles to play in shaping healthy environments and making healthier diet options affordable and easily accessible
> (WHO, 2006a, p 2)

Following on, section 2 6 gives an overview of government policies that have been introduced in Ireland, the UK, US and at a European level so as to gain a comparative insight into measures proposed by various governments to grapple with the issue

2.6 Review of Existing Policy: Ireland in a Comparative Context

In recent times, the governments of many countries are realising that something needs to be done to try and reduce the high prevalence of overweight and obesity Governments are facing up to the fact that significant numbers of children all over the world have poor eating habits and are not getting enough exercise (WHO and IDF, 2005) Up until recently, measures to tackle obesity have focused on changing the behaviour of people through diet and exercise, but many of these interventions have had little or no effect on the growing prevalence of overweight and obesity (Jam, 2004) According to the WHO (2007) an integrated multi-stranded approach which incorporates long-term policy measures is needed to combat obesity

> Effective obesity management requires the existence of an integrated multisectoral approach including comprehensive long-term policy measures Nutritional interventions in the school, workplace and community have proved moderately effective in the prevention of obesity
> (WHO, 2007, p 2)

This type of approach has been adopted by countries such as Ireland The researcher was compelled to take the view that government intervention is necessary to address obesity among children, from the literature that was reviewed as part of this research To begin with, the Ottawa Charter outlines how health promotion encourages healthy lifestyles to reduce the risk of illness This can be achieved through health promotion action which incorporates building healthy public policy, creating supportive environments, strengthening community actions, developing personal skills and reorienting health services (WHO, 1986) According to Ryan *et al*, the Ottawa Charter has been the predominant influence on health promotion activity and one of the main functions of health promotion is developing healthy public policy (Ryan *et al*, 2006) Furthermore, the *WHO European Charter on Counteracting Obesity* was adopted in 2006 and it outlines actions that need to be taken by governments to address the issue of obesity (WHO, 2006c)

In Ireland, the government has launched a number of policy documents which focus on the health and well-being of its population The following outlines various strategies that have been introduced by promoting health through initiatives that encourage our children to lead healthier lifestyles at home and at school The first national health-promotion strategy in Ireland, *Making the Healthier Choice the Easier*

Choice, was published in 1995 and consequently led to the establishment of a Health Promotion Unit within the Department of Health and Children (DoHC, 2000) This approach was reiterated in the *National Health Promotion Strategy 2000-2005*, which was later published in 2000 (DoHC, 2000) This document sets out various strategies to promote the health and well-being of the different population groups under different settings The objectives for children include developing and implementing health promotion programmes that may be school based (DoHC, 2000, p 40) Similarly, it proposed to develop health promotion initiatives for young people that will support them to develop healthy lifestyles (DoHC, 2000, p 41) Furthermore, the National Health Strategy *Quality and Fairness* was published in 2001 It includes 'better health for everyone' as one of its main goals and to achieve this goal it proposed that 'the promotion of health and well-being is intensified' (DoHC, 2001, p 59) In relation to this objective, a supportive environment should be put in place to assist people in making healthier choices that are going to improve their overall health status (DoHC, 2001, p 60) Under this objective, it proposed that 'initiatives to promote healthy lifestyles in children will be extended' which led to the introduction of the Social, Personal and Health Education (SPHE) programme in schools (DoHC, 2001, p 64) The aim of the SPHE programme is to teach children about themselves and how to make decisions about their health and social development It consists of a variety of strands and strand units, where one such strand unit focuses on health promotion by exploring topics such as healthy eating habits, food and nutrition and the need for regular exercise (Dept of Education and Science, 1999)

More recently, the National Taskforce on Obesity was set up by the Minister for Health and Children, in 2004 in response to the increasing public health crisis of obesity in the country The vision of the taskforce is stated as – 'An Irish society that enables people through health promotion, prevention and care to achieve and maintain healthy eating and active living throughout their lifespan' (The Report of the National Taskforce on Obesity, 2005, p 86) According to the report, people have the right to choose the foods they want to consume and to participate in physical activity if they so wish However, the task force takes into account 'that many forces are actively impeding change for those well aware of the potential health and well-being consequences to themselves of overweight and obesity' (Report of the National Taskforce on Obesity, 2005, p 7) The taskforce has laid out high-level goals to

address the issue of overweight and obesity It also includes 93 recommendations to tackle the problem involving the different sectors – high level government, the education sector, social and community sectors, the health sector, food, commodities, production and supply, and lastly the physical environment (Report of the National Taskforce on Obesity, 2005, pp 87-96)

Following the publication of the National Task Force on Obesity, the *National Guidelines for Community Based Practitioners on Prevention and Management of Childhood Overweight and Obesity* document was introduced in 2006 The purpose of this document is to complement recommendations of the task force 'with a specific focus on the information needs of health professionals working with children and their families in the context of community child health services' (HSE, 2006, p 10) Included in the document are measures for the prevention, referral and management of childhood obesity (HSE, 2006)

More recently, in June 2008, the HSE and Safefood in conjunction with the HPA, Northern Ireland, launched a major campaign to address the obesity issue The aim of this campaign is create awareness among the public and to inform them of the benefits of healthy eating and regular physical activity (HSE, 2008)

Furthermore a *National Play Policy* was launched in Ireland in 2004 The objective of this policy 'is to plan for an increase in public play facilities and improve the quality of life of children living in Ireland by providing them with more play opportunities' (DoHC, 2004, p 8) It is important that children adopt a healthy lifestyle due to the increasing prevalence of childhood obesity Therefore, the provision of safe public play facilities are needed as physical activity is an important feature of healthy living (DoHC, 2004) In addition, the *National Recreation Policy for Young People* was published in September 2007 This policy document focuses on the importance of recreation, sport and physical activity for the health and well-being of young people aged between 12 and 18 years It aims to 'encompass both organised activities for young people as well as the more casual activities that young people engage in during their free time' (DoHC, 2007, p 2) Following on, sub-section 2 6 1 provides an overview of various policies that have been introduced to address overweight and obesity in the UK

2.6.1 Policy Responses in the United Kingdom

The government in the UK takes a similar view to that of the Irish government, in that it recognises the rights of individuals to make decisions with regards to their own health and lifestyle and that the government is there to support decisions made by its people (Dept of Health, 1999) However, in 2004, a report by the UK House of Commons Health Committee, highlighted the lack of focus on policy intervention on obesity and was critical of the government's lack of response to addressing the issue The report described a comprehensive and integrated approach to solving the issue of childhood obesity (Jain, 2004) It stated that solutions to the problem of obesity must be multi-faceted involving joined-up policy-making and must address environmental and individual causes to bring about long-term change (House of Commons Health Committee, 2004)

The following year, the Department of Health published *Choosing Health Making healthy choices easier,* whereby obesity was identified as one of the main health priorities (DH, 2004) Subsequently two supporting action plans which, focus on activities to reduce obesity were introduced *Choosing a Better Diet a food and health action plan* and *Choosing Activity a physical activity action plan* (National Audit Office, 2006)

A further report was compiled by the Comptroller and Auditor General, *Tackling Child Obesity-First Steps*, and was later published in 2006 as a means to address the issue of childhood obesity in the UK (National Audit Office, 2006) Due to the growing concern of childhood obesity, ways of reducing its prevalence was made a Public Service Agreement (PSA) target in the 2004 Treasury Spending Review Three government departments jointly own the target, namely the Department of Health (DH), the Department for Education and Skills (DfES) and the Department for Culture, Media and Sport (DCMS) These specific departments plan to deal with childhood obesity by using approaches aimed at prevention and treatment through encouraging healthy eating and physical activity, media campaigns, antenatal nutrition and provisions for children who are overweight or obese (National Audit Office, 2006) The report outlines a number of school-based programmes that will contribute to the delivery of the childhood obesity PSA target For instance, the

School Meals programme, involves a revision of the nutritional standards applied to school meals The aim is to increase fruit and vegetable consumption and reduce the fat, salt and sugar content of foods available in schools The *School Sport Strategy* aims to increase participation rates in PE and school sport with the provision of sports facilities *The Healthy Schools Programme* aims to assist in the promotion of good health in school activities and throughout the school community The role of the *Play programme* is to increase levels of physical activity among children through improving and developing play provisions for children The *Obesity Campaign* will partially focus on children aged 0 to 11 years and their influencers, particularly parents (National Audit Office, 2006, p 10) Moreover, a range of policies have been produced at a European level to address the obesity issue A number of these are outlined in sub-section 2 6 2

2.6.2 Policy Responses at a European Level

The *Nutrition and Physical Activity (NPA) Network* was set up by the Commission in 2003 The main purpose of the network is to discuss views on public health nutrition and how physical exercise can contribute to improving and maintaining a healthy lifestyle (NPA Network, 2003) Its role is to advise the Commission on how to establish a strategy against obesity The network members have to explore possibilities of common actions for the promotion of physical activity and the reduction of diet-related diseases (European Commission, 2005) In addition, it must evaluate what can be recommended as 'best practice' as a means to tackle the issue of obesity (NPA Network, 2003)

Moreover in 2004, the European Heart Network (EHN) began a project which focuses on children, obesity and avoidable chronic diseases, to address obesity among children and young people Part of the project consisted of a Europe-wide stakeholder consultation on policy options to recognise which options should receive priority, within participating European countries and at a European level (Lobstein *et al*, 2006) Those that scored highest in the consultation included food and health education, controlling sales of foods in public institutions, controls on food and drink advertising, subsidies on healthy foods, change planning and transport policies,

improving communal sports facilities, improving training for health professionals, improving health education, common Agricultural Policy reform and mandatory nutritional information labelling (Lobstein *et al*, 2006, p 7)

Additionally, the *European Platform for Action on Diet, Physical Activity and Health*, was launched in March 2005, in order to establish a common forum for action (European Commission, 2005a) The platform combines members from twelve different groups representing 'the food, retail, catering and advertising sectors, consumer and health organizations, Member State governments and health professionals at EU level' (EC's Health and Consumer Protection DG, 2005, p 2) Its purpose is to take action and allocate more resources to combat obesity by promoting healthy diets and physical activity and by circulating best practice throughout Europe The identified areas for action development include consumer information including labelling, education, the marketing and advertising of food products, composition of foods, availability of healthy food options, portion sizes, and physical activity promotion (European Commission, 2005a, p 2) The aim of the platform is to catalyse existing initiatives in the fight against obesity along with encouraging the expansion of existing effective initiatives (EC's Health and Consumer Protection DG, 2005)

Furthermore, as a direct response to the EU Platform, the *SHAPE UP* project was developed as a means to address childhood obesity This is a three year school-community project to be conducted in 26 cities of the 25 member states of the EU Its aim is to 'develop, test and evaluate a new approach to influence the determinants of a healthy and balanced growing up' It will include pre-school, primary and secondary school children from the age of four to sixteen years (Schumann and Simovska, 2006, p 1)

The aim of the European Commission's Green Paper – *Promoting healthy diets and physical activity A European dimension for the prevention of overweight, obesity and chronic diseases'*, is to conduct consultation with member states, industry, NGO's, health organizations and members of the public as a means to gather information in order to reduce the rising levels of obesity and in doing so, support measures that exist at a national level (European Commission, 2005) According to the Green Paper,

overweight and obesity must be tackled in terms of public health issues, but it must also be done to reduce the long-term costs that are experienced by health services and in order to stabilise economies (European Commission, 2005)

The Commission's green Paper led to the development of the *PorGrow* Project, which is an EC funded project and compares policy options and stakeholder views on how to effectively address the obesity issue around Europe It involved interviewing stakeholders from nine EU member states using Multi-Criteria Mapping (MCM) to provide structured, reproducible and transparent information on their opinions and perceptions From the results it was concluded that a wide range of measures are needed to halt the growing trend in the incidence of obesity Such measures include educational options focusing on school children, where healthier foods are accessible and opportunities for physical activity are available Improved nutrition labelling, controls and on marketing terms and advertising were also considered to be effective Options also included taxes on 'unhealthy' foods or subsidies on 'healthy' foods While transport and planning policies were considered, it was felt that the implementation of these may prove difficult, but the provision of sports and recreational facilities were highly regarded (Lobstem and Millstone, 2006) Sub-section 2 6 3 outlines a number of responses that have been introduced in the US

2.6.3 Policy Responses in the United States

The Surgeon General's *Call to Action to Prevent and Decrease Overweight and Obesity* was introduced in 2001 This report proposed to develop a national plan to 'promote healthy eating habits and adequate physical activity, beginning in childhood and continuing across the lifespan' (US Dept of Health and Human Services, 2001, p xv) It also highlighted the responsibility of parents, serving as good role models to their children, by practicing healthy eating and physical activity (US Dept of Health and Human Services, 2001) The following year, the Institute of Medicine (IOM) was charged by Congress to develop an action plan focusing on reducing obesity among children and young people As a result, a report entitled *Preventing Childhood Obesity Health in the Balance* was published in 2004 (IOM, 2008) This report includes a number of recommendations that need to be considered by all segments of society in order to address the obesity issue (Koplan *et al*, 2005)

In 2003, Arkansas governor Mick Huckabee was diagnosed with type 2 diabetes at the age of 47 years (Sizing, 2005) He described himself as 'a poster child for everything that was wrong' with the American lifestyle (Oliver, 2006) At this time, Huckabee himself was overweight, but after he was diagnosed with diabetes he decided to make some changes by participating in a weight-loss programme at the University of Arkansas Having made dramatic changes to his own lifestyle, the governor now wanted the people of Arkansas to change their lifestyles also (Oliver, 2006) Huckabee is conscious of the fact that by preventing disease, Americans will live longer and governments will save money that would otherwise be spent on the treatment of obesity related illnesses such as diabetes and heart disease (Sizing, 2005) As a result he launched the *Healthy Arkansas* initiative to motivate people to lose their title as being one of the obese states in the US (Oliver, 2006)

Soon after, Huckabee signed BMI legislation in Act 1220 into law in 2003 It was one of the states most ambitious efforts to reduce the level of overweight and obesity among children Components of the Act included measuring the BMI of each student on an annual basis, providing parents with information on nutrition and physical activity, provision of healthy foods in school cafeterias, banning vending machines in grade schools and compulsory physical activity for 30 minutes on a daily basis (Act 1220, as cited in Arkansas Center for Health Improvement (ACHI), 2006) Moreover, Arkansas was the first state to enact BMI legislation which required annual BMI screenings for all public school students (National Conference of State Legislatures, 2007) In August 2006, it was announced that that the level of overweight among school children in Arkansas had decreased and that there had been an increase in the number of children at a healthy weight (ACHI, 2006) Having achieved such success, Huckabee stated 'we stopped the locomotive tram of childhood obesity in its tracks, now it's time to turn the train around and move full speed ahead to healthier living' (Drosjack, 2006, as cited in Lavizzio-Mourey, 2007, p 15)

In 2007, legislation was enacted to change student BMI screenings from once a year to every alternate year, beginning from kindergarten It also allows parents to refuse to have their child's BMI assessed by submitting a written refusal to the school (National Conference of State Legislatures, 2007) Additional states have since introduced student BMI reporting requirements For instance, in California, individual

student BMI reports are forwarded to parents as part of a diabetes screening pilot programme The state of Delaware is piloting a new law which involves the physical fitness testing of students and measuring BMI as part of the assessment In Florida and Pennsylvania, annual BMI measurements -as part of student growth screenings- are required by the individual state health departments (National Conference of State Legislatures, 2007)

Moreover, school nutrition legislation was considered by at least 23 states in the US in 2006 In the same year, eleven of these states enacted policies that would facilitate the provision of healthier food and drink options in schools for students For example, in California, the Department of Education was required to develop and maintain nutrition guidelines on food and beverages sold in public schools In addition, from July 2007, schools were prohibited from serving deep fried foods In Colorado, legislation requiring the provision of free fruit and vegetables to students attending public schools was introduced In Indiana, the Department of Education was required to provide information on health, nutrition and physical activity At least 50% of food items sold in schools had to qualify as 'better food choices" and daily physical activity for elementary school students attending public schools was introduced (National Conference of State Legislatures, 2007)

In recent years, a number of states have enacted laws requiring some form of nutrition education as part of the school health curriculum as a means to prevent childhood obesity The state of New Hampshire proposed to establish a wellness programme, combining nutrition and physical education In Pennsylvania, the Pennsylvania Child Wellness Plan included recommendations on the teaching of nutrition and obesity to students (National Conference of State Legislatures, 2007)

Legislation regarding physical activity or physical education was also enacted in a number of states For instance, in Connecticut, programmes to address the physical, mental, social and emotional needs of students were proposed, including plans for the participation of students in daily physical activity before, during and after school In Florida it was proposed that school district education programmes should be reviewed by a qualified physical education instructor and that the duration of PE classes should have a specific amount of time In the state of Indiana, it was proposed that students in

elementary schools should be provided with daily physical activity that is consistent with the curriculum Similarly, in Kansas, it was proposed that all classes from kindergarten to grade 12, should be provided with regular PE classes, while the state of Tennessee proposed that a minimum of 90 minutes of PE per week should be integrated into both elementary and secondary schools (National Conference of State Legislatures, 2007)

Having outlined various policies implemented in Ireland, the UK, at a European level and in the US, the reader decided to explore the effectiveness of school-based initiatives in addressing childhood obesity Section 2 7 firstly outlines a number of studies that demonstrate the effectiveness of school-based initiatives It then provides an overview of various school-based initiatives that have been introduced in Ireland, Scotland, the Netherlands and Canada

2.7 School-based Initiatives

The school setting is regarded as a suitable environment for targeting children in relation to promoting healthy lifestyles (Warren *et al*, 2003, Carter and Swinburn, 2004) According to Raine (2004, p 44) school-based interventions are considered to be an effective approach in reducing childhood obesity, 'as children spend a great percentage of their time at school, schools present an environmental opportunity for prevention and management of childhood and adolescent obesity' For this reason, the researcher decided to examine school-based initiatives as part of this review

To support the view of the above authors, the following studies demonstrate that school-based initiatives are an effective measure in reducing overweight and obesity among children One of the first examples of a comprehensive school intervention is the Kiel Obesity Prevention Study (KOPS), which began in Germany in 1996 This programme includes measures which encourage healthy eating, increased physical activity and decreased television viewing Subsequently after the first year, considerable changes in health behaviour were observed (Muller *et al*, 2001) A further study conducted by Veugelers and Fitzgerald (2005), investigated the effectiveness of school based programmes and their success in preventing overweight and obesity, improving dietary quality and increasing physical activity Participants

included 5,200 grade five students from the Canadian province of Nova Scotia Subsequently, results showed that the students from schools where healthy eating programmes were in place had lower levels of overweight and obesity, had healthier diets and were more physically active than students from schools without such initiatives (Veugelers and Fitzgerald, 2005) Moreover, a school-based intervention, *JUMP-in*, involving 510 children from schools in Amsterdam, began in 2002 It is a systematically developed primary school-based intervention that concentrates on 'the use of theory, environmental changes, parental influences and cooperation with multi-level parties in intervention development' (Jurg *et al*, 2006, p 321) It was evident that the *JUMP-in* programme succeeded in the promotion of physical activity among children in primary schools and an evaluation showed that it was effective in influencing physical activity (Jurg *et al*, 2006) These examples of school-based interventions demonstrate how such initiatives are successful in reducing childhood obesity However, despite the achievements of such school based interventions, it is unlikely that they would be successful on their own (Muller *et al*, 2005)

Furthermore, this review seeks to explores school-based initiatives in a comparative context by examining initiatives in Ireland, Scotland, the Netherlands and Canada as these particular countries are English speaking, have cultural similarities and information on the topic was accessible Sub-section 2 7 1 provides an overview of a number of school-based initiatives in Irish primary schools which promote healthy eating and physical activity Sub-section 2 7 2 outlines various school-based initiatives in Scotland, while sub-section 2 7 3 provides an account of initiatives in the Netherlands Finally, sub-section 2 7 4 outlines a number of initiatives that have been implemented in Canada

2.7.1 Initiatives in Ireland

The Department of Health and Children introduced the *Food and Nutrition Guidelines for Primary Schools* in 2003 The aims of these guidelines are to promote the awareness of nutrition and to encourage healthy eating among school children In addition, these guidelines were produced to assist in the development of healthy school food policies within primary schools (DoHC, 2003) One such example of a healthy school food policy is the *Munch and Crunch Healthy Lunch Project* which

was initiated by the South Eastern Health Promotion Department (Higgins *et al*, 2005) This healthy lunch policy was piloted in 1999, targeting 257 primary schools in the South East region of Ireland The aim of the project was to encourage and support primary schools in the area to implement a health lunch policy An evaluation was later carried out in 2003 to assess the effectiveness of the project Results indicated that 84% of the primary schools in the study had a healthy lunch policy in situ and 72% of principals reported that the development of a healthy lunch policy within their schools had been influenced by the *Munch and Crunch Healthy Lunch Project* It was concluded that that the project had increased awareness with regards to health promotion and healthy eating in schools (Higgins *et al*, 2005)

In addition, the *Food Dudes Healthy Eating Programme* was piloted by Bord Bia in 2002/ 2003 This programme was developed by the University of Wales, Bangor and its aim is to encourage children to consume more fruit and vegetables in school as well as at home (Food Dudes 2006) A further pilot scheme was launched in Ireland in 2005, where 150 primary schools participated in the programme (Food Dudes, 2006a) An evaluation of the programme has shown that there has been a long-lasting increase in the consumption of fruit and vegetables among boys and girls from the age of two to eleven years (Food Dudes, 2006) It was officially launched in Ireland in 2007, and all Irish primary schools will be participating in the programme over the next seven years (Food Dudes, 2006a) Moreover, the programme won a WHO Counteracting Obesity Award 2006 and was praised by EU Commissioner Kyprianou as 'an innovative approach to promoting a healthy and balanced diet among children' (Food Dudes, 2006b) In addition, a similar programme is under development to promote physical activity among children in primary schools (Food Dudes, 2006a)

The *Buntús* programme which is nationally co-ordinated by the Irish Sports Council has been developed to support primary school teachers in delivering the Physical Education curriculum It encourages children to participate in sport for fun and to play as part of a team The aims of the programme include raising awareness of physical education and sport, providing support for teachers, assisting governing bodies of sport, providing activities for children and supporting the delivery of the national curriculum (Active Donegal, 2006)

2.7.2 Initiatives in Scotland

The *Scottish Community Diet Action Plan* was introduced in 1996, at a time when Scotland had a poor record for diet related ill-health. Its aim was to reduce diet related mortality and morbidity relating to heart disease, diabetes and obesity. Since its introduction, its progress has been evaluated and some progress has been reported with regards to health promotion in schools, the provision of free fruit in schools, the development of nutritional standards for school meals and the development of health education campaigns. However, it was also reported that dietary targets that were set for 2005, had not been achieved (Lang *et al*, 2006).

Promoting healthy eating in primary schools in Scotland was further developed with the introduction of the *Hungry for Success* programme. The aim of the programme is to improve the nutritional quality and uptake of school meals, but also 'connecting school meals with the curriculum as a key aspect of health education and health promotion' (Expert Panel on School Meals, 2002, p. 4). Following a number of progress reports in 2005 and 2007, results show that the *Hungry for Success* initiative has been successful in achieving many of its aims in improving the quality of school meals and promoting healthy eating in schools (Scottish Government, 2008).

Furthermore, the *Healthy Living* initiative has been implemented and its main aim is to improve the diet of people in Scotland by increasing fruit and vegetable consumption and reducing the consumption of fatty foods. It also includes a physical activity component by encouraging the Scottish population to be more active by introducing small changes into their lifestyle, such as walking to work. In addition, messages from this campaign are being introduced into various health promoting schools (Health Promoting Schools, 2008).

Programmes to promote physical activity have also been introduced in primary schools in Scotland. The *Active Schools* programme was introduced under the *National Physical Activity Taskforce* which was established in 2001. This programme ensures that children have access to facilities for physical activity purposes (Scottish Government, 2005). As part of the programme, active school managers and co-ordinators have been introduced to schools to encourage the participation of children

in formal and informal sports, active travel to school and active play (Health Promoting Schools, 2008)

Other innovative measures to increase physical activity among children have been introduced For instance, a *Walking Bus* initiative has been established by Bellsquarry Primary School, Livingston, which encourages children to walk to school in a safe and enjoyable manner A *Bike Loan Scheme* was introduced by Glasgow City Council in 2005, to increase the numbers of children cycling to school and to improve physical activity levels (Health Promoting Schools, 2008)

In addition, in May 2008, the Scottish Government announced that PE classes in schools will have to be a minimum of two hours per week under the new *Curriculum for Excellence* Facilities for physical activity, sport and play during break times will also be provided as part of this new curriculum to promote healthy lifestyles (Scottish Government, 2008a)

2.7.3 Initiatives in the Netherlands

In the Netherlands, in 2004, the Ministry of Health, Welfare and Sport established a Covenant on Overweight and Obesity Its aim is to cease the growing number of overweight adults and to reduce the number of overweight children by the year 2010 The Covenant consists of a number of parties whose individual plans have resulted in an action plan entitled *'Striking the Right Energy Balance'* (Covenant on Overweight and Obesity, 2005) Similar to other countries, the Netherlands have also implemented various school-based initiatives to promote healthy eating and physical activity in the school setting

For instance, the Netherlands have also introduced a fruit and vegetable initiative to increase fruit and vegetable consumption among children The *Fruitables at School Campaign* was launched in 2003, where 75,000 pupils and 7,000 teachers receive a portion of fruit and vegetables twice a week This project is to create awareness on the importance of fruit and vegetables in the diet and encourage children to consume fruit and vegetables as tasty, healthy snacks In addition, it offers schools and parents opportunities for teaching children about healthy eating (Voedingscentrum, 2008) It

has been piloted in seven cities throughout the Netherlands and will continue to be extended to other areas (Covenant on Overweight and Obesity, 2005).

In addition, *'Together for Sport'* was implemented in 2006 and its aim is to increase physical activity to 65% among the population by the year 2010. *Sport-active* schools were also established to promote involvement in sports and physical education in schools (Covenant on Overweight and Obesity, 2005).

'Don't Get Fat' is a mass media campaign which began in 2003 to promote healthy eating and exercise (Covenant on Overweight and Obesity, 2005). Consequently, this campaign has proved successful in raising awareness among consumers of the issue of obesity. The Netherlands Nutrition Centre also issued a magazine entitled *Smak*, which informs parents on how to raise children on a healthy energy balance and it is distributed through the primary healthcare sector (WHO, 2006)

2.7.4 Initiatives in Canada

Comprehensive School Health is an integrated approach that allows young people to learn positive health attitudes and behaviours. It includes a wide range of programmes and activities to encourage young people to live healthy lifestyles. Services involved in the programme include, young people, families, schools, agencies and other organisations. Elements of this approach include health and physical education to promote healthy choices and behaviours; health and community services that focus on health promotion; and environments that promote behaviours that improve the health of young people, their families and school personnel (Alberta Learning, 2002).

The *Canadian Association for Health, Physical Education, Recreation and Dance* (CAHPERD) promotes the healthy development of children and young people through school based programmes involving physical and health education. The *Quality Daily Physical Education* (QDPE) initiative was launched by CAHPERD in 1998. This is a well-planned programme of compulsory physical activity daily for 30 minutes to students from kindergarten to grade 12. It includes a wide range of activities with emphasis on fun, success and personal health and is delivered by qualified teachers. Children can benefit from the programme as it provides them with

opportunities to develop active lives, it has a positive effect on lifestyles and it can help reduce the levels of overweight and obesity (Canadian Association for Health, Physical Education, Recreation and Dance (CAHPERD), 2008)

The *Ever Active Schools* programme is a comprehensive initiative to promote active living and is available to all Alberta schools communities It supports physical and health education to ensure children and young people understand and experience the meaning of a healthy active lifestyle (Ever Active Schools, 2007)

Despite these various policy responses and school-based initiatives, some authors have questioned whether or not schools should be used to implement health policies For instance, Oliver (2006) suggests that anti-obesity policies focus on the wrong goal of losing weight and should instead be addressing the real source of health problems He believes that policies to address the issue of obesity 'will promise much, but deliver little and some might even cause great harm' (Oliver, 2006 160) He states that while various programmes have been introduced since the Surgeon General released the *Call to Action to Prevent and Decrease Overweight and Obesity,* in the US many of them will not be successful in decreasing weight or improving health because of the approach used He argues that while schools are the most obvious target for government intervention in America, many schools are not meeting goals to promote health among their students Furthermore, he states that 'schools, however, are not weight-loss centers nor should they be treated as such' (Oliver, 2006, p 164) He believes that there is no 'clear evidence' to support the notion that school lunches and physical education are factors linked to the rise in childhood obesity (Oliver, 2006, p 165) In his view, governments should

> Stop making weight a central policy concern Instead of convening task forces to figure out ways to combat obesity, state and federal government should simply be telling health agencies to find better measures of health than weight In short, they should work on changing all the harmful perceptions we have about weight This would do far more to improve the health and well-being of the American population than making us so worried about our weight
> (Oliver, 2006, p 180)

Furthermore, Gard (2007) argues that,

> increased public anxiety about obesity presents policy-makers with a wide range of opportunities to affect people's health and quality of life However, balanced against these opportunities is the risk of diverting resources into

> policies and initiatives that may be counter-productive, stand little chance of success and, in some cases, have a history of failure behind them
> (Gard, 2007, p 6)

Gard suggests that while the introduction of school-based anti-obesity policies are increasing in Western society, caution should be paid to how they are actually implemented He claims that policies addressing physical activity and healthy eating in school, risk side-effects such as children acquiring injuries and eating disorders, therefore leaving teachers at risk of litigation Similar to Oliver, he too maintains that while making policies, the focus should not solely be on body weight but it should be directed towards people's health and quality of life (Gard, 2007)

2.8 Conclusion

The main focus of this chapter was to explore and examine literature in relation to childhood obesity by particularly focusing on contributing environmental factors that are considered to be the cause of the issue In addition, it also examined government policies in Ireland and elsewhere to explore the need for government intervention and also to examine existing policies and initiatives that have been implemented in Ireland and elsewhere as a means to address overweight and obesity among children

From the review of literature, it is evident that childhood obesity has become a major health concern in many countries worldwide Moreover, it has a number of health implications for children and young people including diseases such as type 2 diabetes, hypertension and cardiovascular disease These illnesses were originally associated with adults but now they are beginning to present themselves in children who are overweight and obese In addition, childhood obesity is a risk factor for premature death and it has been reported that obese children may be outlived by their parents Furthermore, the prevalence of obesity is constantly growing and estimations reveal that there are 22 million overweight and obese children in the EU alone

While there is some evidence to suggest that obesity can be linked to genetic factors, other evidence suggests that the cause of childhood obesity is associated with environmental factors It appears that the huge increase in childhood obesity has occurred in too short a time for there to have been any changes in human genetics

This chapter has explored a number of these environmental factors in detail and the evidence would suggest that childhood obesity can be linked to a combination of these factors For instance, studies show that overweight and obesity can be associated with a combination of the following factors high consumption of energy dense foods and low consumption of fruit and vegetables, the consumption of fast food and eating away from the home, increases in time spent involved in sedentary entertainment such as television viewing and playing computer games, the effects of television food advertising on the diet and food choices of children, and reductions in physical activity

Due to the growing rates of childhood obesity, governments are aware that they need to respond to the issue They are facing up to the fact that children all over the world are consuming unhealthy diets and are not engaging in sufficient physical activity, resulting in high rates of overweight and obesity While it has been suggested that that overweight and obesity can be prevented at an individual level, the WHO has advised that an integrated multi-stranded approach including long-term measures is needed to address the issue

The review explores the existing policies that have been implemented in Ireland and it also examines policy responses in the UK, at a European level and in the US Many authors are of the opinion that school-based initiatives are an effective measure in tackling childhood obesity as children spend a great deal of their time at school From the literature it is evident that various countries have school-based initiatives in place, that focus on promoting healthy eating and increasing physical activity among children While school-based initiatives have shown some success in reducing childhood obesity, they will not work alone and must therefore be adopted as part of a multi-stranded approach in order to prevent and manage growing trends in childhood obesity

3.0 Methodology and Conceptual Framework

3.1 Introduction

The purpose of this chapter is to present the research process followed during this study. The primary methods of research employ both quantitative and qualitative approaches, including focus groups, questionnaires and interviews. In addition it justifies the employment of such approaches in conducting the research and discusses each procedure in detail. For the purpose of this study, a combination of methods was used for data collection, in the form of a literature review, quantitative and qualitative research. The combination of such methods is called triangulation (Sarantakos, 1998, p. 168). According to Bryman (2004, p. 275), triangulation involves 'using more than one method or source of data in the study of social phenomena'. This method was chosen as this technique results in a greater confidence in findings and it can be used to cross-check findings deriving from both qualitative and quantitative research (Bryman, 2004). The quantitative research tools employed consisted of focus groups discussions and questionnaires. These were conducted with parents/guardians of primary school-aged children. The qualitative research was carried out by conducting a number of interviews with relevant experts in the areas of health, health promotion, education and policy-making. The secondary research, as presented in chapter two, was conducted in the form of an in-depth and extensive literature review. To begin with section 3.2 outlines the research questions.

3.2 Research Questions

The aim of the study is to explore the health and well-being of children in the North-West region (Counties Donegal, Sligo and Leitrim), in the context of childhood obesity and to examine the effectiveness of existing government policies and initiatives in Ireland in relation to the issue. The objective of this study is to evaluate existing government policies and initiatives that have been implemented to improve the health, diet and physical activity levels of primary school-aged children in Ireland. This will be carried out by exploring the perceptions of parents/guardians of their children's health and lifestyle levels in the North-West region. As revealed in chapter

two, the following research questions emerged from the review of literature To what extent are parents/guardians aware of environmental factors that influence the health and well-being of children in the North-West region? Is there a need for government intervention? Are school-based policies and initiatives developed by government effective in reducing and managing childhood obesity? What further government responses are necessary? Following on, section 3 3 outlines the research design and conceptual framework

3.3 Research Design and Conceptual Framework

The initial research phase involved reviewing literature on the topic of childhood obesity - this is highlighted in chapter two - and from this it became apparent that some experts are of the opinion that the increasing levels in overweight and obesity among children are influenced by environmental factors This led to the notion to explore the health and well-being of 10-12 year old children in the North-West of Ireland in the context of childhood obesity Furthermore, an examination of policy development and initiatives in Ireland was included to uncover research currently being carried out on the issue of childhood obesity

To gain an insight into the health and well-being of children in the North-West region, the researcher conducted two focus groups with parents/guardians of primary school-aged children in Co Donegal and Co Sligo The findings from the focus groups led to the content design of a questionnaire It was distributed to parents/guardians of fifth class pupils from a sample of primary schools in Counties Donegal, Sligo and Leitrim so as to further explore the perceptions of parents/guardians towards their children's health and weight, diet and eating habits including fast food and eating out, sedentary activities, and involvement in physical activity The interviews were conducted with experts in the areas of health, health promotion, education and policy-making This multi-purpose strategy enabled the researcher to gather information from parent/guardians with regards to the health and well-being of their children through the focus groups and the questionnaires, while the interviews were conducted as a means to gather information in relation to the topic from a practitioner point of view and also to obtain critiques of related initiatives and policies Section 3 4 informs the

reader on the quantitative research process employed and provides a detailed account of how participants were selected and how the data was collected and analysed

3.4 Quantitative Research

Quantitative research is based on the methodological principles of positivism and neopositivism and must obey research design standards that are developed before commencement of research (Sarantakos, 1998) 'Positivism is an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality and beyond' (Bryman, 2004, p 11) The most popular methods of quantitative research include surveys, documentary methods, observation, and experiments (Sarantakos, 1998)

According to Bryman (2004), there are a number of criticisms of quantitative research He argues that it possesses a false sense of precision and accuracy, the connection between research and everyday life may be thwarted through dependency on instruments and procedures and that the analysis of relationships between variables creates a sense of a static social world that is separate from the lives of people In addition, it involves little or no contact with people or the 'field' (Silverman, 2003)

The researcher chose to administer questionnaires to the parents of fifth class pupils in a sample of primary schools in the North-West region (The employment of questionnaires in this research will be discussed further in sub-sections 3 4 2 to 3 4 8) Fifth class pupils were chosen as children at this stage of primary education are more independent and autonomous and their levels of personal responsibility are increasing (Dept of Education and Science, 1999) According to Sarantakos (1998) focus groups can be used as a form of both quantitative and qualitative research For the purpose of this study they were deemed necessary as a quantitative method to assist in the design and development of the questionnaire Sub-section 3 4 1 provides a detailed account on the purpose of focus group discussions in research and it outlines the advantages and disadvantages of using this research tool In addition, it outlines how the researcher selected participants and conducted the focus group sessions for the purpose of this research

3.4.1 Focus Groups

A focus group interview entails the organised discussion of a particular topic among a selected group of individuals. This method assists the researcher in retrieving information from the group about their views and experiences on the given topic (Gibbs, 1997). According to Kitzinger (1995, p.299) 'focus groups are a form of group interview that capitalises on communication between research participants in order to generate data'. This method specifically uses group interaction, meaning that rather than the researcher asking each individual to respond to a question in turn, the group is encouraged to talk to one another, asking questions, sharing information and commenting on each others points of view and experiences (Kitzinger, 1994, as cited in Kitzinger, 1995, p. 299). They allow the researcher to experience different forms of communication that are used in day to day interaction such as jokes, teasing, anecdotes and arguing (Kitzinger, 1995). This method allows the researcher to understand why people feel a certain way about a particular topic. In addition, it gives people the opportunity to probe each other's reasons for holding a specific view. Therefore, this method can be a more interesting way of collecting information than the question-followed-by-answer approach of the normal interview. The focus group gives the researcher the opportunity to examine the ways in which individuals collectively make sense of a phenomenon through interaction and discussion with other people. According to Bryman (2004, p. 348) information collected can be deemed more naturalistic than that of an individual interview. Discussions should last between one and two hours and group discussions should be tape recorded and transcribed (Kitzinger, 1995). Group sizes may vary but an ideal size is between four and eight people (Knight, 2002).

Focus groups have advantages in that they do not discriminate against people who cannot read or write, and they encourage participation from individuals who may otherwise dislike being interviewed on their own. In addition, they encourage participation from those who may feel that they have nothing to say but engage in discussion generated by others in the group (Kitzinger, 1995). One of the main disadvantages of focus groups is people not attending the group session after agreeing to do so, therefore it is sometimes recommended to over-recruit (Bryman, 2004). According to Sarantakos (1998) there is also the risk that real opinions may not be

expressed during the process or that some members may not participate in the discussion Furthermore, the outcome may be affected if the discussion is dominated by one or more persons Additionally, difficulties with recording the data may be experienced and the transcription of recordings can be time-consuming (Bryman, 2004)

The main purpose of the focus groups undertaken in this study was to gain an insight into the lifestyle of children and to assist in the design and the development of the questionnaire It was decided to hold focus groups with parents/guardians of primary school-aged children, as they would have the knowledge and experience of the issues that warranted discussion This method allowed the researcher to gain an insight into the typical lifestyle of children on topics such as health, eating habits including fast food and eating out, time spent viewing television and playing computer games, effects of advertising on children's food choices, children's involvement in PE at school and participation in alternative physical activity, and parental knowledge on policy regarding healthy lifestyles in children These issues were included on the topic guide, which was distributed to parents/guardians prior to the event (See Appendix A)

Parents/guardians were selected by using the snowballing technique where one parent/guardian was asked to participate and asked to name others who may be interested in taking part in the research According to Oppenheim (2003, p 43) the snowballing technique entails locating a number of appropriate individuals and then asking for names of others who would suit the sampling requirements Two focus groups were conducted to assist in the construction of the questionnaire design In total, seven parents/guardians of primary school-aged children agreed to participate in the first discussion and six agreed to the second Suitable dates, times and venues were organised that were convenient to participants However, only five parents/guardians attended the first focus group session in Co Donegal and four parents/guardians attended the second focus group discussion in Co Sligo on the given dates Three days before the events, each parent/guardian received a topic guide to aid them in the discussion They also received a volunteer form to sign and bring with them to the event and they were notified that any information given during the

focus group discussion would be used anonymously and in confidence (See Appendix B)

The researcher began the discussion by thanking those present for attending and by introducing herself The aims of the research were briefly outlined and the topics for discussion were read out It was explained to participants that the discussion was going to be recorded using a digital voice recorder and that it would be appreciated if people spoke one at a time Each participant was given the opportunity to introduce themselves to the group Following on from this, respondents discussed the topics that were outlined on the topic guide At certain times when the conversation came to a standstill, the researcher used prompts and probes to encourage interaction Participants were given an opportunity to express any other views or comment on any other issues that they felt were significant to the discussion The information obtained from the focus group data on the health and well-being of children provided the basis for developing the questionnaire Sub-section 3 4 2 identifies various advantages and disadvantages that are associated with the use of questionnaires as a research tool

3.4.2 Questionnaires

For the purpose of this research, self-administered questionnaires were decided upon as this method of data collection ensures a higher response rate than other methods (Oppenheim, 2003) According to Sarantakos (1998) questionnaires are not as costly as other methods and results can be produced promptly In addition, questionnaires can be completed at the respondent's convenience They can be given to a large number of people to complete (Kane and O'Reilly-De Brun, 2001) and where the anonymity of the respondents can be assured (Sarantakos, 1998) Nevertheless, there are also associated disadvantages of questionnaires There are risks that the response rate may be low or that they may only be partially completed (Bryman, 2004) In addition, this method does not allow for prompting or probing, the researcher is unable to check if question order was followed and is unable to gather any additional information (Sarantakos, 2005) Sub-section 3 4 3 briefly outlines the questionnaire design

3.4.3 Questionnaire Design

According to Ryan *et al* (2006) questions used in a survey must hold a specific purpose and must be related to the actual aim of the study The content design of the questionnaire was guided by the SLÁN National Health and Lifestyle Survey (2002) and the Health Behaviour in School-aged Children Survey (2002) questionnaires It consisted of eight different sections, designed to explore specific areas relevant to the research Sections were labelled as follows Details of child, parental details, diet and eating habits, fast food and eating out, television viewing and computer playing, effects of advertising, PE and physical activity and finally policy awareness (See Appendix C) The questionnaire mainly consisted of closed questions where respondents were asked to select an answer from a number of multiple choice questions but open-ended questions were included in a number of sections to extract the opinion of parents/guardians in certain areas In the case of closed questions, the choice is limited to a number of pre-determined options, while open-ended questions allow the respondent to answer whatever they choose (Ryan *et al,* 2006) A closed question is one that offers the respondent a choice of alternative answers and they may be asked to tick or circle their chosen reply (Oppenheim, 2003) For example,

How many portions of fruit and vegetables does your child eat on any given day? Please tick one of the following

One portion	*[ ]*	*Four portions*	*[ ]*
Two portions	*[ ]*	*Five portions*	*[ ]*
Three portions	*[ ]*	*More than five portions*	*[ ]*

Open questions are not followed by a choice and answers must be recorded in full (Oppenheim, 2003) For instance,

What are the effects of television food advertisements on your child's diet?

Therefore in a written questionnaire, the length of the space provided will determine the length and fullness of the response given By using open questions, the reply of the respondent is not restricted in the same way as it is with the use of closed questions (Oppenheim, 2003) The respondents were also given the opportunity to

present any other information in a final commentary section Following on, sub-section 3 4 4 provides an overview of the pilot study

3.4.4 Pilot Study

Prior to the main study, the questionnaire was piloted in the South Donegal region as this area was convenient to the researcher Two primary schools were contacted, one urban and one rural school to pilot the questionnaire The nature of the study was explained to both school principals and participation in my study was requested A date was agreed for the researcher to visit the two schools and distribute the questionnaires It was explained to the fifth class pupils that the questionnaires had to be completed by parents or guardians and returned to the school in the envelope provided within four days In total, 40 questionnaires were distributed in the pilot study There were 24 completed questionnaires returned and after analysing the data from these any subsequent changes deemed necessary were made Sub-section 3 4 5 provides an overview of the sampling technique that was employed to select the population group for the completion of questionnaires

3.4.5 Sampling Technique

Cluster sampling was the sampling technique employed to select a population group to complete the questionnaires According to Sarantakos (2005, p 160) 'cluster sampling is a procedure in which the researcher chooses the study units progressively, beginning with clusters and moving to smaller groups within them, before the final sampling units are considered' The names of all the primary schools in the above counties were identified from the Department of Education and Science website, where there are approximately 291 primary schools in this specific region From the list of primary schools a sample of schools were selected Overall, 15 schools were selected m Co Donegal, 11 national schools were selected in Co Sligo and there were seven schools selected m Co Leitrim, as Co Donegal had the largest number of primary schools, followed by Co Sligo and Co Leitrim The principal of each school was contacted by telephone explaining the nature of the study and requesting participation Thereafter, principals were posted a copy of the questionnaire prior to its distribution Overall, ten primary schools in Co Donegal, ten in Co Sligo and six

in Co. Leitrim agreed to participate in the study. The parents of fifth class pupils attending primary schools in counties Donegal, Sligo and Leitrim were the chosen population group to complete self-administered questionnaires. A total of 329 questionnaires were distributed to parents through fifth class pupils in national schools throughout counties Donegal, Sligo and Leitrim. Following on, sub-section 3.4.7 outlines the procedure that was followed in order to collect the data.

3.4.6 Data Collection

Dates were agreed for the researcher to visit each school for the distribution of the questionnaires between April and June 2007. On arrival at each school, the researcher was met by the principal or class teacher and introduced to fifth class pupils. A questionnaire, accompanied by a covering letter with an explanation of the research was given to each pupil in fifth class. It was explained to the pupils that the questionnaires had to be completed by parents or guardians at home and be returned to the school in the envelopes provided within three to four days. It was also stressed that any information given on the questionnaire would be used anonymously and in confidence. Completed questionnaires were collected from each school five to seven days after distribution. Of the 329 questionnaires that were distributed, 201 were returned. However, some of these were not completed or were only partially completed resulting in a total of 180 fully completed questionnaires. This produced a response rate of 61%. The questionnaires were analysed by using the software package, Statistical Package for the Social Sciences (SPSS). Sub-section 3.4.8 gives a concise account on the analysis of the data that was generated from the questionnaires.

3.4.7 Data Analysis

Data analysis is the process used for the transformation of raw data into numbers and the application of statistical tools to ascertain information. This process is conducted in three steps, namely, data entry, selection of an analytic task and statistical testing (Sarantakos, 2007). At the initial stage, the raw data was converted into numbers by use of coding (See Appendix D). According to (Sarantakos, 2007, p. 1): 'Coding is the procedure of converting raw data into numbers, with each number representing a

code and a code standing for a value or category' For example, 'male' can be represented by the number '1' and 'female' can be represented by the number '2' Therefore, these numbers represent the values or categories of specific variables In this example, gender is the variable containing the values 'male' and 'female' In addition, variables can be compared and interrelated, thus depending on their position within the relationship they are regarded as either dependent or independent variables 'An independent variable is one that is assumed by the analyst to have an impact on another, the variable that is supposed to be affected by another is the dependent variable' (Sarantakos, 2007, p 2) In addition, any 'missing' information on the questionnaires were coded as '9', '99' or '999', depending on the number of categories within each variable Once the raw data had been coded, the results were entered onto the SPSS programme for analysis SPSS is a comprehensive statistical programme which enables the researcher to analyse quantitative data rather quickly and in a variety of different ways (Bryman and Cramer, 2005) It is one of the most widely used software packages for the statistical analysis of quantitative data (Greasley, 2008) This programme allowed the researcher to construct a number of crosstabs which are tables that contain more than one variable This method was used to compare the results of females to males and also, to compare children from rural schools to those from urban schools Chi-square tests were applied to a number of the crosstabs, as a test of significance, to investigate if there were any significant differences between, firstly, males and females and, secondly, to establish whether differences existed between children from rural and urban schools A number of significant differences were found and are presented in the chapter four

Section 3 5 gives an account on the use of qualitative research, tools and approaches deployed in this study It then proceeds to explain the sampling technique employed for the purpose of this research followed by details on the sample of respondents, data collection and data analysis

3.5 Qualitative Research

Qualitative research is a research method that usually emphasises words in its collection and analysis of data compared to the use of numbers in quantitative methods According to Sarantakos (1998) it displays various characteristic elements

in that it attempts to capture reality as seen and experienced by the respondent, it tries to study reality without any preconceived ideas, it seeks to understand people by using procedures that allow the respondent to share their own views and experiences and the researcher and the researched are seen as two equally important elements of the same situation. Qualitative research can be used for a number of reasons, such as, getting a preliminary picture to ensure that sufficient information is gained to refine strategies and questions, enabling the interpretation of the data collected through quantitative techniques and illustrating and expanding findings from quantitative research (Kane and O'Reilly-De Brun, 2005). According to Sarantakos (2005), qualitative research presents a more realistic view of the world and it allows a more in-depth view of the respondent's world. Despite these strengths, qualitative research can also be associated with weaknesses in that it can be time-consuming, there is a risk of collecting useless information and extreme subjectivity may cause reliability problems. Furthermore, ethical issues may be experienced during the course of the research (Sarantakos, 1998). For the purpose of this study, the researcher chose to conduct interviews with relevant professionals. Sub-section 3.5.1 outlines the purpose of using interviews in research. It also briefly outlines the advantages and disadvantages associated with interviews.

3.5.1 Interviewing in Qualitative Research

Interviewing is one of the main data collection tools in qualitative research (Bryman, 2004; Punch, 2005, p. 168). Interviews are an effective way of understanding others through their perceptions, meanings, definitions of situations and constructions of reality. While carrying out an interview is mainly about asking questions and receiving answers, there is a lot more to it than that (Punch, 2005). Interviewing also involves transcribing interviews and analysing transcripts, which can be time-consuming but this can be organised into the personal life of the researcher more easily than other methods (Bryman, 2004). Interviews use a standard technique of data collection in qualitative research. According to Sarantakos (1998), in qualitative interviews there are differences in structure, length, intensity, order and type of questions and interviewee participation. Some characteristics of qualitative interviews include: the use of open-ended questions only; the question structure is flexible; allowing for change in the question order; or the addition of new questions if

necessary They also allow the interviewer to change the wording and order of the questions and adjust the interview to suit the aims of the research if necessary (Sarantakos, 1998)

According to Sarantakos (2005) interviews have advantages in that they are flexible, they can be easily administered and they are associated with a high response rate The interviewer can control the order of the questions and this method allows for the use of more complex questions There is also the advantage that the identity of the interviewee is known to the researcher In contrast to this, there are also disadvantages in that they can be inconvenient, costly and more time consuming than other methods They can be less effective than other methods where sensitive issues are on the agenda for discussion In addition, anonymity of the respondent is not guaranteed Sub-section 3 5 2 outlines different types of interviews and discusses those used for the purpose of this research

3.5.2 Types of Interviews

For the purpose of this study, a total of nine interviews were conducted of which five were conducted face-to-face, two were conducted by telephone and two were conducted by e-mail Although the researcher had originally planned to use the one method of face-to-face interviews, telephone and e-mail interviews were included as these methods were more convenient to four of interviewees due to busy schedules and time constraints Nevertheless, if the research was being repeated, the researcher would not choose e-mail interviewing as answers to questions tended to be much shorter than those obtained through face-to-face and telephone interviews According to Sarantakos (1998, p 246),

> 'There are many types of interviews, each of which differs from the others in structure, purpose, role of the interviewer, number of respondents involved in each interview, and form and frequency of administration '

A structured interview is similar to a questionnaire (Bell, 1999) where the respondent is asked a series of pre-established questions with specific response categories (Punch, 2005) This method does not allow for adjustments to be made to the content, wording or the order of the questions Therefore there is little room for variation when responding (Punch, 2005) The interviewer acts in a neutral manner using the same

tone of voice, showing no initiative or personal interest in the research topic. This procedure aims to keep interviewer bias to a minimum so that the highest level of uniformity can be achieved (Sarantakos, 1998).

Unstructured interviews do not follow any strict procedures and are flexible. With this method there are no restrictions in the wording of the questions, the order of the questions or the interview schedule. This interview type is mainly used in qualitative research. It allows the researcher to act freely using neutral probes when necessary (Sarantakos, 1998). This type of interview is often used at the beginning of the research in order to get a broad picture or because it informs the researcher about what is important to ask (Kane and O'Reilly-De Brun, 2001).

Semi-structured interviews fall somewhere between both structured and unstructured interviews. This method contains elements of both, although some maybe similar to structured interviews while others are more similar to unstructured interviews. Semi-structured interviews can be both quantitative and qualitative techniques (Sarantakos, 1998). There is no standard interview form in a semi-structured interview, but the researcher has an agenda to ensure that the basic points are covered (Kane and O'Reilly-De Brun, 2001). The level to which interviews are structured may vary, depending on the research topic, purpose, resources, methodological standards and preferences and the information being sought by the researcher (Sarantakos, 1998). This was the method chosen for this research, as it allows the researcher to change the wording and the sequence of questions where necessary.

While interviewing in qualitative research is usually face-to-face, time and money restrictions may mean that you will need to interview people in a less personal context. Therefore, telephone and e-mail interviewing may be necessary (Bryman, 2004). According to Bryman (2004, pp 114-116), the advantages of telephone interviews include; they may be cheaper than face-to-face interviews, they can be administered quickly and a high response rate is usually obtained. In addition, the remoteness of the interviewer in telephone interviewing removes any source of bias. However, telephone interviewing can also be associated with disadvantages, in that it can be costly if interviews are long, this method may not be suitable for complex or

sensitive questions and it does not allow for the use of visual aids. Furthermore, the quality of the data may not be as rich as that of face-to-face interviewing. Similarly the method of e-mail interviewing is associated with advantages and disadvantages. This method is not expensive, information can be acquired relatively fast, it is suitable for sensitive issues and it allows the respondent to consult with others for information. Nevertheless, answers to questions may be short in comparison to those of face-to-face interviews, some questions may result in a non-response, there is no control over the order in which questions are answered and it is difficult to prompt and probe (Bryman, 2004). Following on, sub-section 3.5.3 gives a concise account of the sampling technique used for the purpose of this study.

3.5.3 Sampling Technique

Expert sampling was the sampling technique employed for the selection of interviewees. 'Expert sampling involves the assembling of a sample of persons with known or demonstrable experience and expertise in some area' (Trochim, 2006, p. 2). In other words, it involves interviews with experts who have experience and knowledge in the area, as a means to elicit their views on the chosen topic (Sarantakos, 2005). This method is purposive in nature and is a type of nonprobability sampling (Trochim, 2006). Initially the researcher contacted twelve experts from twelve different organisations which were observed during the course of the literature review and requested their participation in a recorded interview. Subsequently, nine professionals agreed to partake in the research.

Each interviewee was selected purposely because of their position, experience, knowledge and expertise in relation to childhood obesity. The sample includes four dietitians; one working with overweight and obese children in a hospital setting, one working with overweight and obese children in a community setting, a third was chosen because of her involvement in the areas of health promotion, advocacy and policy development and the fourth was chosen because of her experience of working with overweight children with diabetes. The fifth candidate is a representative of primary school teachers in Ireland and in this way the researcher could obtain information with regards to eating habits, physical exercise and associated policies within the school setting. The sixth interviewee was chosen because of her knowledge

on health promotion and involvement in various national studies. A further two interviewees were selected because of their involvement in public health services and policy-making; and the final interviewee was chosen because of his experience in working at a policy level with governments and the WHO. Sub-section 3.5.4 discusses the collection of the data.

3.5.4 Data Collection

Interviewees were contacted by telephone or by e-mail and were given an explanation of the nature of the study and their participation in a recorded interview was requested. Candidates that chose to take part in an interview were given a guide of twenty open-ended questions prior to the interview (See Appendix E). Five of the interviews were conducted face-to-face, two were conducted by telephone and the remaining two were conducted electronically. The method of interviewing employed in each case was chosen to suit the convenience of the respondent. Each interviewee was asked open-ended exploratory questions from the guide of questions. Face-to-face interviews were conducted in an office setting in the place of work of the participant. In the case of face-to-face and telephone interviews, verbal permission was sought from candidates to record the contents of the interviews by use of a digital voice recorder. Sub-section 3.5.5 outlines the method used to analyse the data.

3.5.5 Data Analysis

The interviews were transcribed and the data collected was analysed and evaluated using the content analysis method. According to Bryman (2004, p. 183), content analysis is:

> 'an approach to the analysis of documents and texts that seeks to quantify content in terms of predetermined categories and in a systematic and replicable manner'.

For the purpose of this study, the researcher chose a method of content analysis where the text was coded in terms of themes and similarities. This was deemed as the most appropriate method to employ as similar themes emerged from the contents of the transcripts. However, there are various strengths and weaknesses associated with content analysis. It is a transparent method of research (Bryman, 2004) and it is not

obtrusive and hence does not effect the respondent (Sarantakos, 2005) In addition, it is objective and eliminates any researcher bias (Sarantakos, 1998, Bryman, 2004) Furthermore, it is highly flexible in that it can be applied to a variety of unstructured information (Bryman, 2004) In contrast to this, it is restricted in that it can only study events which have been recorded (Sarantakos, 2005), information may not be representative if obtained from a small proportion of people (Sarantakos, 1998, Bryman, 2004) and it is less suitable for making comparisons than other methods (Sarantakos, 1998) Additionally, it can be accused of being atheoretical (Bryman, 2004) Following on, section 3 6 outlines the ethical issues that were considered during the course of the research

3.6 Ethical Issues

The main ethical issue that was considered was that all information gathered would be used anonymously and in confidence with no identifying information According to Article 1 of the Convention on the Rights of the Child (1990), 'a child means every human being below the age of eighteen years' (Office of the High Commissioner for Human Rights, 1990) For the purpose of this research, 'children' refers to those between the ages of ten and twelve years With regards to choosing respondents for the completion of questionnaires, it was felt that it would be unethical to request the children to participate because they are under the age of eighteen Therefore it was decided to obtain the information from the parents/ guardians of school-aged children The involvement of parents/guardians in the focus group sessions was done on a voluntary basis and a volunteer form was signed by each participant prior to participation Therefore the abundance of information gathered for this research was obtained from consenting adults over the age of eighteen years Section 3 7 outlines the limitations of the study

3.7 Strengths and Limitations

The main strength of this study includes the use of triangulation as it allows for a greater confidence in the findings and additionally it permitted the researcher to cross-check findings deriving from both the quantitative and qualitative research

In addition, the sampling technique employed for the distribution of the questionnaires allows the researcher to estimate a degree of confidence in the findings, whereby these findings may be generalised to fit the population from which the sample was drawn

A number of limitations were also experienced during the course of this study Firstly, the participants in the focus groups were all female As participation was on a voluntary basis, those who chose to take part were accepted and there was no way of ensuring that the discussions would include both mothers and fathers of primary school-aged children

Secondly, a number of schools that were contacted chose not to participate in the study Reasons for this included involvement in other studies and time constraints In addition, a number of principals felt that questions concerning topics such as marital status and income were 'too personal' and therefore parents would not answer these questions honestly Thirdly, some of the respondents may have found questions relating to the eating habits and physical activity of their children as being intrusive For this reason some respondents may not have answered them as honestly as they possibly could have According to Livingstone *et al* (2004) it can be difficult to assess the diet of young children Similarly, Cade *et al* (2006) take the view that reporting involving the diet of children can be inaccurate Therefore, questions regarding the dietary habits of children may not have been answered accurately

Lastly, as the area of childhood obesity is such a broad one, input from other professionals may have enhanced the data collection but due to resources and time allocated to conduct this study, this was not possible Three other organisations were contacted but refused participation for reasons including busy schedules and time constraints From the two interviews that were electronically conducted, it was evident that the responses given were shorter than those obtained through use of face-to-face and telephone interviews However, these limitations do not appear to expose any major defects to the study Section 3 8 offers a conclusion to the chapter

3.8 Conclusion

This chapter has provided a detailed account of the research methodology employed as a means to firstly, explore the perceptions of parents/guardians regarding the lifestyle of their children in the North-West region of Ireland in the context of childhood obesity, and secondly to assess and evaluate existing government policy and initiatives that have been introduced to address this issue This was accomplished by use of triangulation in the form of a literature review and both quantitative and qualitative methods of data collection and analysis In addition, it outlines the strengths and weaknesses of using quantitative research It then provides the reader with an insight into the methods chosen for the purpose of this research, namely focus groups and questionnaires Furthermore, it justifies why the researcher chose these methods, including the advantages and disadvantages of using these tools in research It then provides the reader with a detailed account of the research process that was followed in order to glean and analyse the quantitative data Following on, it outlines the strengths and weaknesses that are associated with qualitative research It then proceeds to inform the reader of the various types of interviews that were employed by the researcher, outlining the advantages and disadvantages of using these methods In addition, it provides an informative account on the sampling technique that was deployed in the selection of interviewees for the purpose of the interviews Following on, it outlines how the data from the interviews was gleaned and analysed Finally, the chapter reveals any ethical issues and limitations that that were experienced during the course of the research process Chapter four provides an in-depth account of the findings that emerged from this study It firstly presents the findings from the focus group discussions, followed by the findings that emerged from the questionnaires and lastly it presents the findings that were revealed from the interviews with expert interviewees

4.0 Presentation of the Findings

4.1 Introduction

The purpose of this chapter is to present and analyse the findings of the primary research phases This chapter begins by presenting the findings of the initial exploratory, scopmg-out data collection phase generated as a consequence of staging a number of focus group sessions in Counties Donegal and Sligo The insights gained from these informed the wider approach and content design of a questionnaire that was subsequently distributed to a wider respondent base involving participants who had children in fifth class attend primary schools in Donegal, Sligo and Leitrim The findings of this questionnaire and its analysis are presented, in detail, below This chapter also seeks to present the findings of a number of face-to-face, telephone and electronically conducted interviews with a number of expert interviewees These interviews were directly shaped by the findings of the initial primary research findings To begin with, section 4 2 provides a review of the main issues that emerged out of the focus groups involving parents of primary school-aged children

4.2 Presentation of the Focus Group Findings

The following section gives an outline of the findings that were the outcome of the focus group discussions While the main purpose of the focus groups was to assist in the development of the questionnaire, the findings that emerged from these are included m this chapter so that the reader can gain some appreciation of the wider issue of parental perceptions regarding their children's health and weight, dietary habits, sedentary activities and exercise habits The findings are presented, chronologically, as per the order in which the participants prioritised these issues during the course of each discussion Responses from participants from the Donegal region are referred to as DP1, DP2, DP3, DP4 and DP5, while responses from participants in the Sligo region are referenced as SP1, SP2, SP3 and SP4 Sub-section 4 2 1 presents the findings on parents/guardians perceptions of their children's health and weight Sub-section 4 2 2 presents the findings with regards to the diet and eating habits of children Sub-section 4 2 3 reveals the findings in relation to fast food and

eating out Sub-section 4 2 4 presents the findings of the issue around of the amount of time children spend viewing television and playing computer games Sub-section 4 2 5 displays the findings with regards to parents/guardians perceptions on the effects of advertising on children's eating habits Sub-section 4 2 6 presents the findings on children's involvement in physical activity and PE in school and, finally, sub-section 4 2 7 outlines the findings in relation to policy awareness To begin with, sub-section 4 2 1 charts the findings of parents/guardians perceptions of their children's health and weight

4.2.1 Children's Health and Weight

Throughout all of the focus groups conducted it became apparent that parents/guardians felt that it is important to be aware of their children's health and weight One parent/guardian was worried that her daughter might be underweight and feared that she may not be getting sufficient vitamins and iron (DP2) while another felt that her son was gaining too much weight as a result of snacking

> 'I know with my fella, he is just piling on the pounds I am cutting out crisps and biscuits because I know that if they are there, he'll eat them We tend to be on the large side and I don't want him at ten years of age to start going in that direction ' (DP3)

In addition, one parent/guardian commented that it is important to be aware of the child's attitude towards themselves

> 'Sometimes there is too much emphasis on it, you do have wee girls wondering 'Am I too fat? They are so impressioned by the media and stuff out there already' (DP1)

In agreement another parent/guardian replied

> 'Especially when they see wee dolls all dressed up in skinny stuff, they expect to be skinny like that with the same clothes and then they get upset when they can't get into them' (DP2)

All parents/guardians have heard of the Body Mass Index (BMI) but very few know how it is actually measured or have never measured their child's BMI

> 'I would be aware of her weight and health but BMI, I wouldn't really know much about' (SP1)

Similarly it was reported

> 'I know what the BMI is I would have measured other kids as part of my own studies, I would know how to measure it, but I've never measured [my son's]' (SP2)

From the foregoing, it can be observed that, generally, parents/guardians of school-going children are concerned about their respective child's wider health and body weight yet are either concerned or are poorly informed or, in some cases, uninformed about their child's BMI

Sub-section 4 2 2 presents the main focus group findings on the perception of parents/guardians in relation to their children's diet and eating habits

4.2.2 Diet and Eating Habits

Throughout the course of all focus groups it became apparent that a typical breakfast that respondents' children consume consists of a bowl of cereal The majority of children were reported to consume a sugar-coated type of breakfast cereal In relation to lunch time meals, focus group participants revealed that their children consume quite healthy meals as all schools, it was reported, have healthy eating policies in place However, it also emerged that some schools are stricter than others in operating this programme It appears that most schools allow some form of 'treat' on Fridays, but in some schools the type of treat that is permitted varies from teacher to teacher demonstrating that healthy eating policies may not be consistent within schools

Another set of insight on this issue emerged during the course of the second focus group conducted with a Sligo audience where one of the participants revealed that her child suffers from severe allergies to certain foods For this reason it is important that she eats a healthy diet Although her mother sends a healthy lunch with her to school, she feels that she gets little or no support from the school concerning her child's allergies She has stressed to the school that her daughter is forbidden to swap food items, as a 'wrong' food may cause an allergic reaction, but this participant feels

> ' that it is not something that is being emphasised by the school ' (SP4)

The Sligo participants also revealed that some schools allocate a certain amount of time for food to be eaten at lunch time and once this time has lapsed children must go

outside to play regardless of whether, or not, their lunch has been consumed. One parent/guardian stated that her daughter:

> '....is an extremely slow eater....and she comes home with her lunch some days because she literally didn't have time....it annoys me for the simple fact, it's not fair that she hasn't eaten properly....it's not her fault entirely' (SP1).

This issue also emerged in the first focus group conducted with Donegal participants. One mother in this group explained how her son was not eating enough at school:

> '....we went through a stage where it was all coming back.... because he did not have enough time at school to eat his lunch (DP5).

This view was reiterated by another parent/guardian who stated that:

> 'If they see everyone else going (to play in the school yard) and they're not finished, they are just going to go. The boys think 'eat as fast as you can' to get out to play football' (DP4).

The majority of parents/guardians who participated in the focus group sessions admitted that their children do not consume the recommended daily amount of five portions of fruit and vegetables. In most cases, children bring one piece of fruit to school and may eat two portions of vegetables as part of the evening meal. One parent/guardian reported that her son dislikes all vegetables and she has to 'disguise' them in his dinner (DP5). Another participant stated that because some parents do not eat five portions of fruit and vegetables daily, it would be difficult for their children to do so:

> 'But sure, it's habit yourself; do we take five portions a day? I would only eat two portions a day' (DP1).

Regarding the issue of parents/guardians perceptions of their child's consumption of sweets, chocolate, crisps and fizzy drinks, most participants agreed that their child would ask for a 'treat' most days of the week. The insights gained on this topic as a consequence of the observations of participants, would seem to suggest that some parents/guardians do allow their child a treat after the evening meal as a reward for eating their dinner. One mother stated that:

> '....because she eats so well, it's hard to refuse her the nice things, they are nearly expected because she has eaten so well. So that's an issue for me, it was a reward but now it's expected....' (SP1).

In addition, a number of parents/guardians agreed that if there are 'treats' in the house, children will automatically want to consume them

> ' that's the way it is they would ask me for a bar or whatever, but if they are there they will be looking for them' (DP1)

Similarly another participant commented

> 'That's true, if you have stuff in the house they will eat it, but if you don't they won't basically It's like ourselves, they are no different' (DP4)

Having provided an overview of the main issues to have arisen during the discussion around parental/guardian perceptions of their children's consumption of 'treats', sub-section 4 2 3 outlines the main parental perceptions and disclosures of children's consumption of fast food and eating out

4.2.3 Fast Food and Eating Out

Focus group participants revealed that some families eat out on regularly i e either once a week or once a fortnight For others, eating out was seen as something that happens as an occasional treat For those who do eat out often, they usually go to a fast food outlet, although a number of parents now prefer to bring their child to a restaurant where there is a variety of healthier foods on offer One parent/guardian stated that

> 'if A had her way, it would be McDonald's every single week, so we have started going to a restaurant so that she can get more healthy food, so that she can get potatoes or rice and not just burger and chips' (SP3)

Another participant reported that the children's menus in a lot of restaurants only offer certain meals for children with chips and she felt that

> ' restaurants should forget about advertising the chips and should provide a healthier option for children, like half an adult meal ' (DP1)

Participants also provided details regarding the frequency with which they and their families consume take-away meals From the insights gained on this issue, the majority of respondents acknowledged that their children eat take-away foods either once per week or at least once per month To this end, the food choices of the children vary from fried foods and pizza to Indian or Chinese dishes

Sub-section 4.2.4 outlines the main issues that confronted focus group participants regarding the amount of time children spend watching television and playing computer games.

4.2.4 Television Viewing and Computer Playing

Throughout the course of the various focus group discussions, participants reported that the amount of time their children spend watching television depends on their involvement in other activities and the age of the child. Participants revealed that older children tend to watch more television than their younger counterparts. The amount of time varied from half an hour per day to three hours per day although this further increased at weekends because children do not go to bed as early as they do on school nights.

> 'At the weekend, it's different because they are allowed to stay up, I would say there is an extra three hours on the weekend or maybe four....' (DP1).

The majority of parents/guardians agreed that they try to limit the amount of time that their children spend watching television. For instance, one participant noted: '....because she (her child) would just watch it all day if you let her....' (SP1). Another participant provided the following insight: '....he (her child) would spend all day watching TV if you let him' (SP2). Similar insights emerged when the discussion shifted to an exploration of parental/guardian observations about the amount of time parents perceived their children to play with computer games. Most parents/guardians indicated that they only allow their children to access their computer games from between half an hour to one hour per day. Participants also revealed that young children are only allowed to play their computer games at weekends.

In relation to a discussion that emerged regarding the contexts in which children ordinarily consume their meals, it emerged that snacking in front of the television is common behaviour among children. As one parent/guardian reported:

> 'My daughter would eat snacks in front of the TV and if she was allowed she would eat her breakfast, dinner and tea in front of it as well.' (SP3).

Eating meals with the television on is also common behaviour. One participant stated that her daughter:

> ' would watch a cartoon in the morning when she is having her breakfast and if she could, she would eat in front of the telly all the time as well' (SP4)

In addition, another mother reported that her son would watch television every morning before going to school but that she has ' tried to stop this as he was never ready on time' (DP5) Two other participants reported that the television would be on in the evening time during dinner but according to one of these 'if they are not eating, it will be turned off' (DP4) Furthermore, insights tendered by participants on this topic reveal that increasingly children have access to a television set in their bedrooms Participants indicated that these are mainly used for watching DVD's and playing computer games Sub-section 4 2 5 moves on to outline the perception of parents/guardians on the effects of television food advertising on the diet of their children

4.2.5 The Effects of Advertising

Participant's perceptions of the possible impact of TV advertising on the eating habits of children and how such exposure might influence their child's consumption of particular foods revealed the following A number of parents/guardians felt that their children would ask for items that they had seen advertised on television but that they would not necessarily buy these items Two of the participants felt that advertising of food had no effect, at all, but that the children were more influenced by toy advertisements Other participants felt very strongly that there were too many advertisements for unhealthy foods directed towards children

> ' there is too much out there, too much advertising there's too many ready made things now, when we were growing up everything was fresher and it was cooked from scratch There were less cans and packets' (DP1)

Furthermore, one participant bemoaned the influence of TV and her 'influence' over her child

> 'you're telling them one thing and the television is telling another' (DP4)

On the other hand, another participant reported

> 'I don't see any more ads for bad food than I do healthy food I don't think kids pass any heed on them' (SP2)

Others felt that their children would be slightly influenced by advertisements For instance, by way of recognising the brand names of certain items but that they were unsure as to whether this would be seen as a positive or negative influence Participants indicated that despite recognising brand names, not all children would necessarily ask for these items to be bought Sub-section 4 2 6 presents parents/guardians perceptions of PE and their children's involvement in physical activity outside of school

4.2.6 PE and Physical Activity Outside of School

The main insights that participants provided on the topic of PE are revealed below Inter alia, these include concerns that participants expressed regarding the actual duration of allocated PE time in schools For instance, one participant at the Sligo focus group event was aware that PE was part of the curriculum in all schools However, four parents/guardians did not know how much time was given to a PE class One mother stated

> 'I don't actually know how much, or how long is spent on PE during the day' (SP1)

Similarly, another participant reported that

> 'She would have PE once a week but I don't know how long it is on for' (SP4)

For those participants who indicated that they were aware of their child's formally assigned PE timetabling arrangements at school, a figure of 20 minutes per week emerged as the amount of time these parents believed that their children undertook PE each week Interestingly, this figure falls short of the recommended one hour per week One parent/guardian commented

> ' if you look at every other subject, how many hours a week do they spend on Maths, Irish, English and everything else and they only get twenty minutes physical education' (DP1)

The focus group insights also revealed that some parents/guardians did not know about the nature and extent of the PE facilities available at their child's school One parent/guardian commented

> 'I don't know if they have indoor facilities at all, because it's not a permanent purpose built school, it's actually a GAA club ' (SP1)

In contrast, another participant reported that her child's school does have a sports hall with PE equipment and that a dance instructor comes to the school once every fortnight to teach the children dancing. Another participant reported that the school did have a hall which was used for PE but at the moment it:

> '....has been taken over by a classroom....because they are short a classroom and they are waiting on an extension' (DP2).

Participants revealed that football and basketball are the most popular sports played during PE classes. One parent/guardian was annoyed at this as her son does not like these sports but yet has to partake in them. She also commented that the PE curriculum contains six strands. These strands include: aquatics, dance and gymnastics but that these sports are never covered at the school:

> 'With the PE curriculum, there are six strands to it that they are supposed to be teaching them, like gymnastics, aquatics and dance, but I don't think many schools teach that at all' (SP2).

Despite this, a number of participants stated that their schools provide swimming and céili dancing as part of the PE curriculum. All the children of those participants who engaged in focus group discussions in the Donegal region go swimming once per week over an eight week period. Céili dancing is also provided once a week. These classes are also delivered over two months. However, these classes must be financed by the parents/guardians in order for their children to be able to partake in them. In comparison, two schools in the Sligo region provide dance classes and only one school makes provisions for swimming classes.

It was also reported that sports and recreation classes are weather dependent for those who do not have indoor facilities. In some cases, the teacher may carry out exercises with the children in the classroom when the weather is not suitable for outdoor activities but this should not have to be the case. One parent/guardian commented that:

> 'Physical Education is supposed to be available in all the schools but whether they do it, maybe that's a thing the government should be looking at, is funding or giving some grant to each school, size of a hall or some kind of an indoor area that they could put up to be able to do PE' (DP1).

Others agreed with this view and it was further commented that:

> 'In a country like this you would need it, with the long winters to get them moving' (DP4).

Parents/guardians discussed the extra-curricular activities that their children participate in and it was clear that the majority feel that their children gain sufficient exercise from activities outside of school All participants indicated that their children attend swimming lessons or go to the pool at least once per week Sub-section 4 2 7 outlines the findings of the focus group discussions regarding parents/guardians awareness of policies associated with healthy lifestyles in children

4.2.7 Policy Awareness

With regards to PE in school, one parent/guardian stated that she was aware that the recommended amount of time is one hour per week In her opinion, this is not being met at her child's school and she further went on to say

> 'It's all very well being aware but trying to do it then they need to be more organised A lot of stuff needs to be organised and done' (SP2)

In agreement with this, another parent/guardian stated that

> 'It seems to be that a lot of money is spent writing up the policy and then there is no money left to implement it' (SP1)

These statements received further agreement from the rest of the group Parents/guardians from the first focus group (Donegal) felt that the recommended amount of time should be allocated to PE classes and furthermore that PE it should be taught by a qualified PE instructor

> 'Every school should have an actual PE teacher because the teachers are doing the PE and all they are doing is running up and down the hall and that is their PE over' (DP3)

In agreement with this, it was commented further that

> 'PE is a big thing now, every school should be provided with a PE teacher or share one between two schools in the area' (DP1)

All parents/guardians were in agreement that a healthy eating policy is necessary regarding school lunches What parents/guardians have difficulty with is the way in which each individual school enforces, or otherwise, this policy Participant insights on this issue indicate that some schools are quite strict while others are more lenient, or sometimes there is a discrepancy between teachers within individual schools as to what is acceptable to bring to school for lunch, for instance

> ' the school has a healthy eating policy but last year they were not allowed cereal bars It is different with every teacher, this year they are allowed plain cereal bars' (SP2)

In agreement another parent/guardian observed that

> 'It's the Committee in *K's* school that decides what's acceptable and what's not I think a few years back they did some sort of survey with the parents as to what the parents thought wasn't acceptable, which there would be again a few things that I would have thought were fine to bring but they have said no to and cereal bars is one of them like' (SP1)

Parents/guardians feel that their children are already very aware of the issue of being healthy and living a healthy lifestyle as they are being taught this at school through the SPHE (Social, Personal and Health Education) programme

> 'Every kid now seems to be aware of what is healthy and what is not, they learn it at school, they know all about the food pyramid' (DP4)

However, one participant commented that it needs to be encouraged by parents in the home

> ' they can rhyme off everything, the message is getting there from baby infants, but it's not actually going into their mouths' (DP1)

Having provided a concise review of the main issues that arose during the course of the initial scoping-out phase of the research process, section 4 3 moves on to provide and in-depth analysis of the key findings that emerged from that data collected through the distribution of questionnaires to parents/guardians of children attending 26 primary schools in the North western counties of Donegal, Leitrim and Sligo

4.3 Presentation of the Questionnaire Findings

This section presents the findings and analysis from the quantitative research that was carried out in the form of a questionnaire Of the 329 questionnaires distributed to parents of fifth class pupils in attendance at a sample of primary schools from Counties Donegal, Leitrim and Sligo, 201 questionnaires were returned Of these, 180 were suitable for analysis using SPSS This represents a response rate of 61% Each of the questionnaires was recorded with an identification number (IDNO) Open-ended questions were analysed using the content analysis method where responses were categorised into similar themes Comments from respondents that are presented in this chapter are referenced by their IDNO

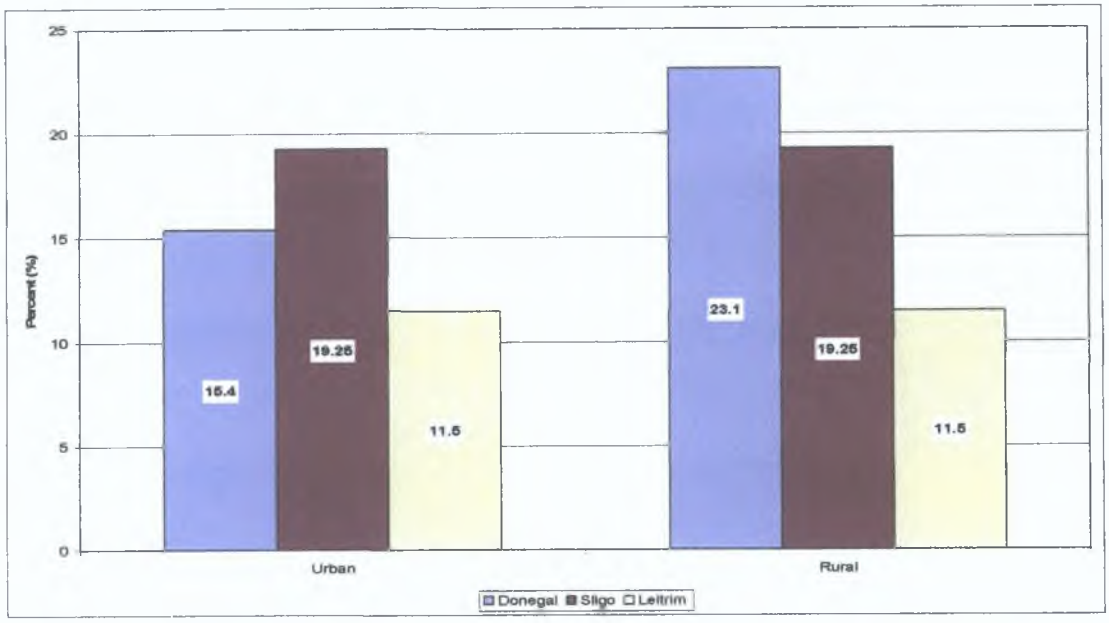
The presentation of the questionnaire findings are outlined as follows Sub-section 4 3 1 provides an overview of the demographic profile of the participating primary schools Sub-section 4 3 2 outlines the demographic profile of the parents/guardians who completed questionnaires Following on, sub-section 4 3 3 provides an overview of parents/guardians perceptions of their children's health and weight Sub-section 4 3 4 presents the findings in relation to children's diet and eating habits Sub-section 4 3 5 outlines the findings m relation to fast food and eating out Sub-section 4 3 6 outlines the amount of time children spent watching television and playing computer games Sub-section 4 3 7 presents the findings of parents/guardians perceptions of television food advertising on the diet of children and sub-section 4 3 8 outlines the findings in relation to children's participation in PE at primary school and physical activity outside of school

4.3.1 Demographic Profile of Primary Schools

A total of 26 primary schools from counties Donegal, Leitrim and Sligo participated in the questionnaire survey The following graph illustrates the distribution of participating urban and rural primary schools within this region Statistically, 38 5% (n=10) of the schools were located in Co Donegal, similarly 38 5% (n=10) of the schools were located in Co Sligo and the remaining 23% (n=6) of the schools were located in Co Leitrim Fifty-four percent (n=14) of the primary schools participating in the survey are located in rural areas, while the remaining 46% (n=12) are situated

in urban areas. Graph 3 illustrates the distribution of urban and rural schools within each county.

Graph 3: Distribution of urban and rural primary schools in counties Donegal, Sligo and Leitrim.



Overall, of the primary schools situated in urban areas, 19% (n=5) were located in Sligo, more than 15% (n=4) were located in Donegal and 11.5% (n=3) were positioned in Leitrim. Of those located in rural areas, 23% (n=6) were situated in Donegal, 19% (n=5) were located in Sligo and 11.5% (n=3) were located in Leitrim. Sub-section 4.3.2 outlines the demographic profile of parents/guardians.

4.3.2 Demographic Profile of Parents/Guardians

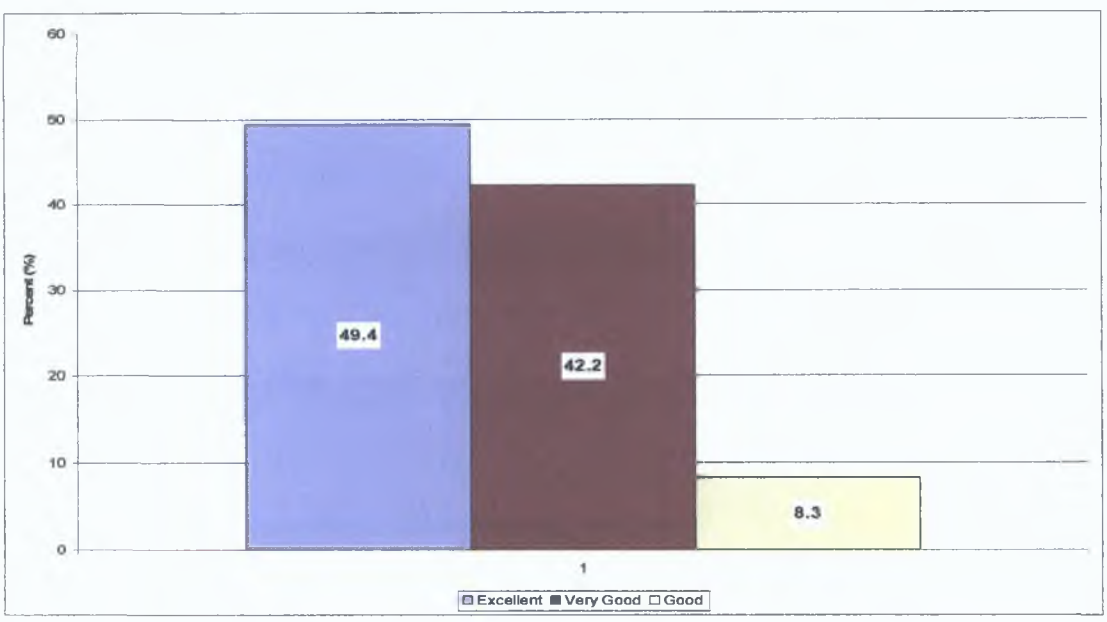
The results show that 55% (n=99) of the parents/guardians surveyed live in Co. Donegal, 24% (n=43) live in Co. Sligo and the remaining 21% (n=37) live in Co. Leitrim. Over one third (36.5%) (n=65) of parents/guardians are aged between 35 and 40 years and a further 31% (n=55) are aged between 41 and 44 years. The majority (84%) (n=150) of parents/guardians are married, 8% (n=15) are single parents and 4% (n=7) are divorced. The data shows that the highest level of education achieved by the parents/guardians of the children, ranges across a broad spectrum. For almost one third of parents/guardians (29%) (n=51) the Leaving Certificate is the highest level of

education achieved. Less than 2% (n=3) have obtained a Masters or PhD at third level, although 13% (n=23) have obtained a diploma and 14% (n=25) have obtained a degree at third level. Results show that for 11% (n=19) of parents/guardians, primary school education is the highest level of education achieved. More than one third of households (36%) (n=47) have a total net income ranging between €21,000 and €40,000 per year. A further 18% (n=24) have a total net income ranging between €41,000 and €50,000 per annum. A small number of households (4%) (n=5) have a yearly income falling between €101,000 and €120,000 and 4.5% (n=6) of households have an income below €10,000. The majority of parents/guardians (92%) (n=164) are of Irish nationality with 8% (n=14) from other European countries including Great Britain and Germany. Following on, sub-section 4.3.3 presents the findings that emerged in relation to parents/guardians perceptions of the health and weight of their children.

4.3.3 Children's Health and Weight

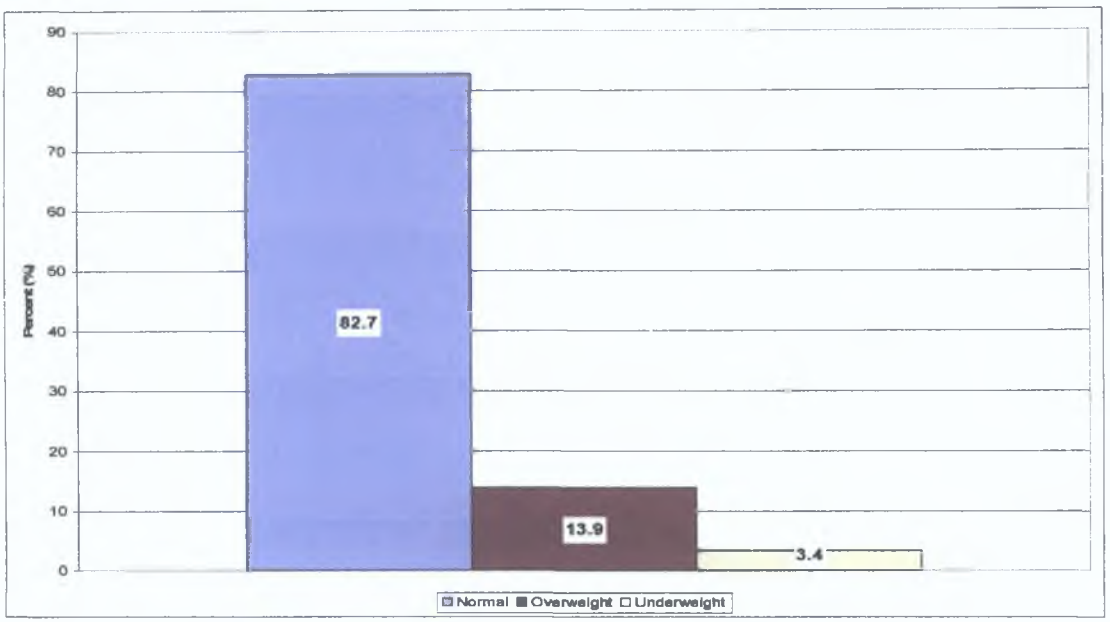
From the data collected, the average age of fifth class pupils is 11 years. Of the 180 respondents, 54% (n=97) of their children are female and 46% (n=83) are male. The following graph presents the perceptions of parents/guardians with regards to their children's health.

Graph 4: How parents/guardians rate the health of their children



The results show that almost 50% (n=89) of parents/guardians rate their child's health as excellent, 42% (n=76) rate their child's health as very good and 8% (n=15) rate their child's health as good. No parent/guardian rated their child's health as being fair or poor. Although 63% (n=111) of parents/guardian know what the Body Mass Index (BMI) is, only 48% (n=85) know how the BMI is measured. Less than two thirds of parents/guardians (59%, n=104) know their child's weight and similarly only 58% (n=101) know their child's height. The following graph presents the findings in relation to how parents/guardians describe their children's weight.

Graph 5: How parents/guardians describe the weight of their children



Eighty three percent (n=148) of parents/guardians describe their child's weight as normal, 14% (n=25) describe their child's weight as overweight and a small minority (3%) (n=6) of parents/guardians describe their child's weight as being underweight. Sub-section 4.3.4 presents an overview of the diet and eating habits of 10-12 year old children in the North-West of Ireland.

4.3.4 Diet and Eating Habits

This sub-section presents the findings in relation to parents/guardians perceptions of their children's dietary habits. Firstly it outlines the main findings that emerged with regards foods consumed by children for breakfast.

The data shows that cereal, toast and breakfast juice constitute a typical breakfast for children of the participants in the study Over 70% (n=127) of children eat plain cereal for breakfast while only 17% (n=31) eat sugar-coated cereal Almost 42% (n=75) of children eat toast as part of a typical breakfast While 38% (n=68) of children consume breakfast juice as part of this meal, only 22% (n=39) drink milk as part of a typical breakfast Following on, the main findings that arose with regards to a typical school lunch are presented

Nearly every respondent (95 5%) (n=171) reported that their child's school has a 'healthy eating' policy in place Just over 70% (n=127) of children bring a packed lunch to school, while lunch is supplied by the school for almost 30% (n=52) of pupils Only one child goes home for lunch Almost 65% (n=116) of children eat bread with filling as part of their school lunch, while 30% (n=54) prefer rolls with filling This shows that 95% (n=170) of 10-12 year olds consume some form of sandwich as part of their school lunch Approximately 62% (n=111) eat fruit and 57% (n=102) eat yoghurt for lunch Fruit juice and water are the most popular drinks consumed as part of a typical school lunch at 56% (n=101) and 45% (n=81) respectively with just over 13% (n=24) choosing to drink milk Foods such as crisps, chocolate and sweets are consumed by a small minority as part of the school lunch at 7% (n=12), 3% (n=5) and 2% (n=3) respectively Moving on, the findings that emerged in relation to evening meals are presented

An overview of the data collected shows that the majority of 10-12 year olds eat meat (62%) (n=109) and poultry (60%) (n=106), as part of their evening meal, 2-4 days per week Forty four percent (n=73) consume fish as part of the evening meal once a week Thirty eight percent (n=66) of children eat vegetables every day and 31% (n=55) eat potatoes every day Additionally, 44% (n=66) consume a rice dish and 42% (n=64) eat a pasta dish at least once a week Thirty five percent (n=54) of the respondents eat fried foods once a week, while only 17% (n=26) consume fried foods two or more days in the week Chips are also more commonly eaten once a week by 45% (n=77), while 21% (n=35) consume chips more than two days in the week as part of the evening meal However, of those who consume chips on most days of the week, 33% (n=6) are from households earning less than €10,000 per year, declining further to 13% (n=3) of those from households earning between €41,000 and €50,000

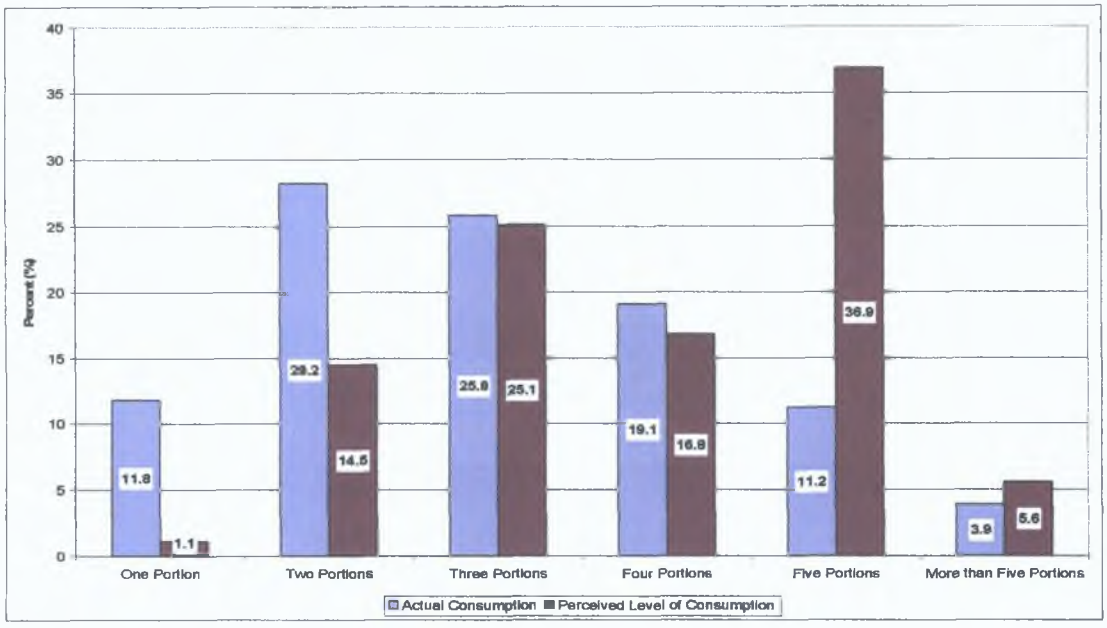
per year. Nevertheless, this increases slightly to 20% (n=3) for those from households earning between €51,000 and €70,000 per year but no children from households earning between €71,000 and €120,000 per year consume chips as part of the evening meal on most days of the week. This data shows that the consumption of chips as part of the evening meal on most days of the week tends to decrease as household income increases.

The results show that 60% (n=3) of children from households earning below €10,000 per year, consume vegetables on most days of the week as part of the evening meal. In addition, 80% (n=20) of children from households earning between €31,000 and €40,000 eat vegetables as part of the evening meals on most days of the week. Of households earning between €91,000 and €120,000 per year, 100% (n=11) of children consume vegetables on most days of the week as part of the evening meal. This shows that the consumption of vegetables as part of the evening meal on most days of the week increases as the level of household income increases. Overall, the data shows that the majority of 10-12 year old children eat a conventional meal consisting of some form of meat, potatoes and vegetables most days of the week, while pasta dishes, rice dishes, chips and fried foods are more commonly consumed once a week.

The findings that emerged with regards to parental/guardian perceptions of their children's consumption of fruit and vegetables are outlined below. In addition it presents the findings in relation to what parents/guardians perceive to be the recommended daily amount of fruit and vegetables.

Only 37% (n=66) of parents/guardians consider five portions of fruit and vegetables to be a healthy intake on any given day. In addition 25% (n=45) consider three portions to be healthy while 15% (n=26) believe that two portions of fruit and vegetables per day is a healthy intake. Consequently, just over 15% (n=27) of children consume the recommended daily allowance of five portions or more of fruit and vegetables on any given day. Twenty eight percent of children (n=50) eat two portions per day, 26% (n=46) eat three portions, 19% (n=34) consume four portions and 12% (n=21) only consume one portion of fruit and vegetables on any given day. These findings are presented in the following graph.

Graph 6: Comparison of children's daily consumption of fruit and vegetables with parents/guardians perceived recommended amount



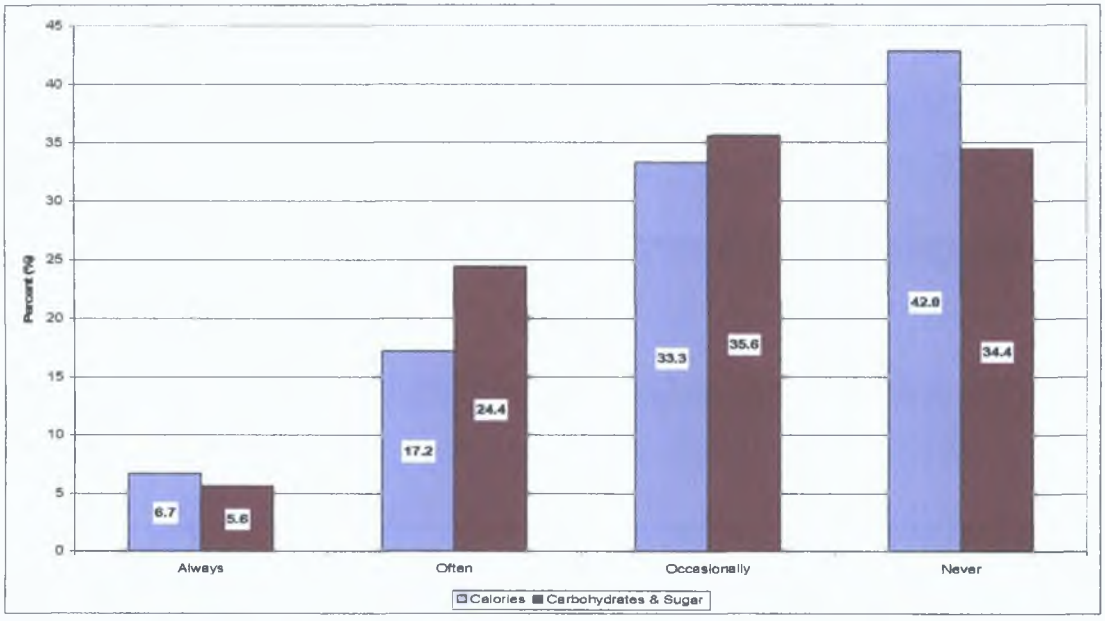
From the data it is evident that the majority of 10-12 year olds do not meet the recommended daily allowance of five portions of fruit and vegetables per day.

A comparison was made between what respondents considered to be a healthy intake of fruit and vegetables for their child on any given day and how many portions of fruit and vegetables their child actually consumed on any given day. An overview of the data collected shows that, of respondents (1.1%) (n=2) who consider one portion of fruit and vegetables daily to be a healthy intake, their children only consume one portion. Of parents/guardians who consider two portions daily to be a healthy intake, 60% (n=15) of children consume two portions and a further 36% (n=9) only consume one portion. While just over a quarter of respondents consider three portions daily to be a healthy intake, only 37.8% (n=17) of their children actually eat three portions, 35.5% (n=16) consume two portions and 8.9% (n=4) only eat one portion on a daily basis. Of parents/guardians who consider four portions to be a healthy intake, only 40% (n=12) of their children consume that amount. Three portions are consumed by 30% (n=90), while only two portions are consumed by 26.7% of children (n=8). Similarly, of respondents who consider five portions of fruit and vegetables, to be a healthy intake, only 22.7% (n=15) of children do so. Just over 21% (n=14) eat four portions, 30.3% (n=20) consume three portions, 13.6% (n=9) eat two and 7.6% (n=5)

consume one portion on a daily basis. Ten respondents consider more than five portions of fruit and vegetables to be a healthy intake, but only 40% (n=4) of their children consume this amount. The remainder eat five portions or less on any given day. Overall, the majority of children do not consume the daily portions of fruit and vegetables that their parents/guardians consider to be a healthy intake.

The findings show that very few parents/guardians always check food items for calorie and carbohydrate or sugar content when shopping. These results are presented in the following graph.

Graph 7: Frequency of parents/guardians checking foods for calorie or carbohydrate and sugar content

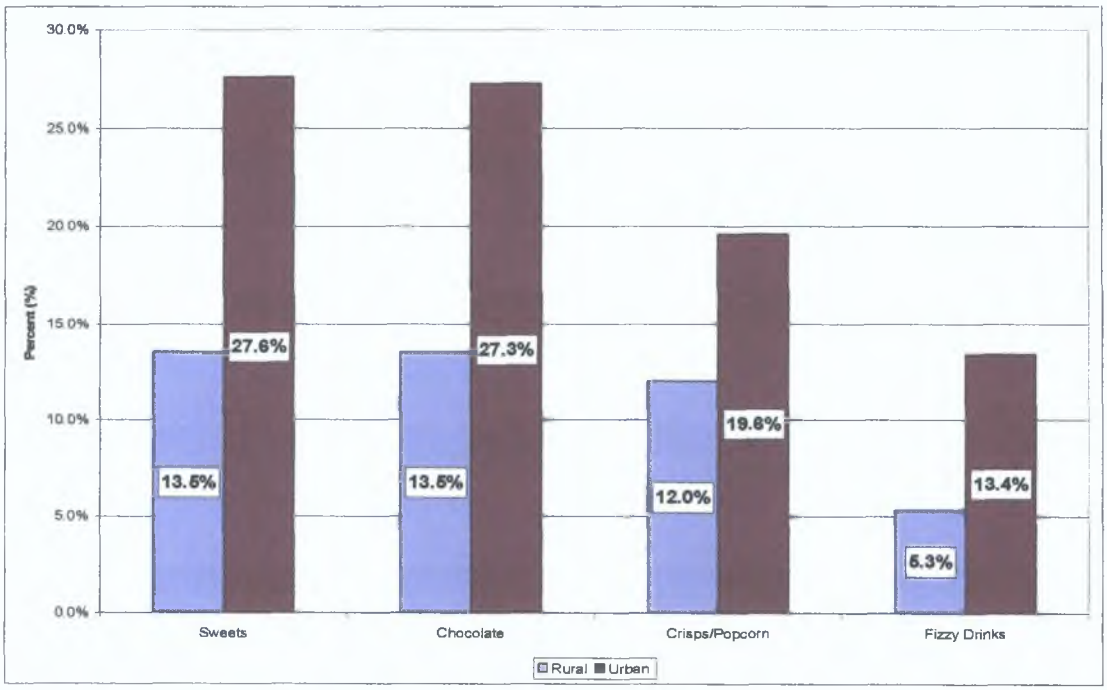


When shopping for food, only 7% (n=12) of respondents reported always checking food items for calorie content. Seventeen percent (n=31) of parents/guardians often check calorie content, one third (33%) (n=60) do so occasionally, while the majority (43%) (n=77) never check foods for calorie content. Similarly, less than 6% (n=10) of respondents always check labels for carbohydrate and sugar content, while more than one third (34%) (n=62) never do so. Following on, the findings in relation to children's consumption of sweets, chocolate, crisps/popcorn and fizzy drinks presented.

Sweets are consumed by 37% (n=66) of children 2-4 days per week. A further 22% (n=39) do so five days or more per week. Similarly, 40% (n=69) of children eat chocolate 2-4 times per week, while more than 21% (n=37) do so five times a week or more. Crisps and popcorn are consumed by 36% (n=63) of children 2-4 days a week, while a more than 16% (n=29) do so five days or more per week. Nineteen percent of children (n=33) consume fizzy drinks 2-4 days a week, while 10% (n=17) do so five days or more per week. In addition, diet fizzy drinks are consumed by a quarter (25%) (n=41) of children once a week or more.

Moreover, a comparison was made between children from urban and rural schools to investigate if there was any difference in the percentage of children who consume sweets, chocolate, crisps and fizzy drinks. The following graph presents the percentage of children from rural and urban primary schools who consume sweets, chocolate, crisps and popcorn on five or more days per week.

Graph 8: The consumption of sweets, chocolate, crisps and fizzy drinks on five days or more per week, by children from rural and urban schools



More than 13% (n=10) of children from rural schools consume sweets on five days or more per week, but this more than doubles to almost 28% (n=29) for the number of

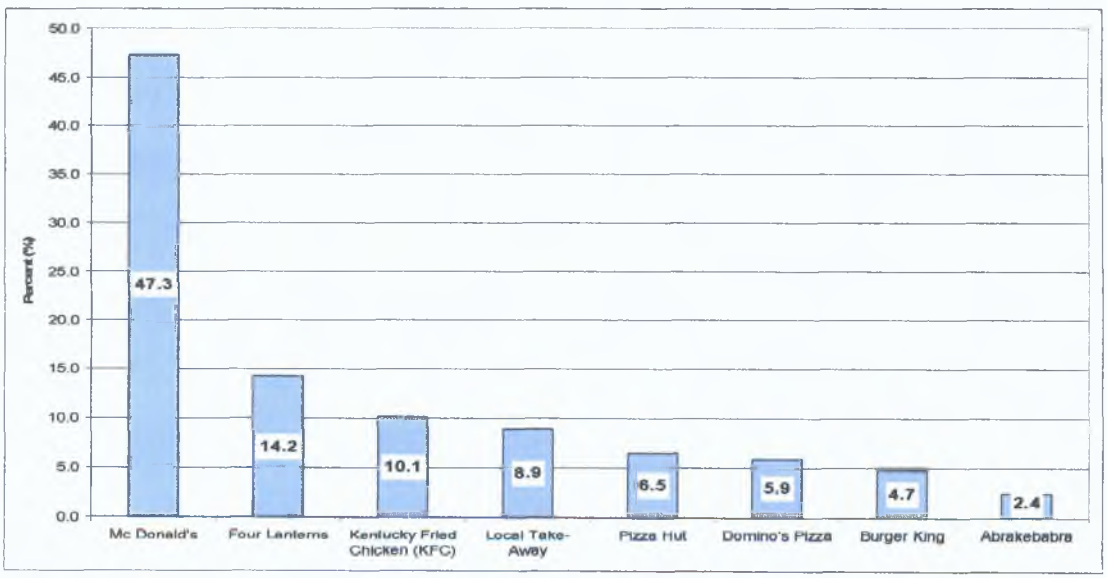
children from urban schools who do so. Similarly, over 27% (n=27) of children from urban schools consume chocolate on five days or more per week, while less than 14% (n=10) of children from rural schools do so. The consumption of crisps, on five days or more per week was also found to be more common among children from urban schools at almost 20% (n=20) whereas only 12% (n=9) of children from rural schools do so. Just over 13% (n=13) of children from urban schools drink fizzy drinks on five days or more per week but less than 6% (n=4) of children from rural schools do so. This suggests that sweets, chocolate, crisps and fizzy drinks are more accessible to children attending schools in urban areas.

Having presented the findings that emerged from this study in relation to parents/guardians perceptions of their children's eating habits; the following sub-section outlines the findings that were collected in relation to fast food and eating out.

4.3.5 Fast Food and Eating Out

Almost half of the respondents (49%) (n=88) reported that their children like to go to a restaurant to eat out. A further 33% (n=59) reported that their children like to eat out in a fast food outlet. A small minority (10%) (n=18) prefer to eat out in a hotel. The following graph presents children's preferred fast food outlets.

Graph 9: Preferred fast food outlets



The most popular fast food outlet to eat out in is McDonald's (47%) (n=80) This is followed by Four Lanterns (14%) (n=24), Kentucky Fried Chicken (10%) (n=17), Pizza Hut (6 5%) (n=11) and Domino's Pizza (6%) (n=10) Nine percent of respondents (n=15) reported their local take-away as their preferred fast food outlet

Almost 32% (n=57) of children eat out once a month, more than 22% (n=40) of children eat out once a week, while 15% (n=27) eat out once a fortnight The following table lists the meals that children are more likely to order when eating out

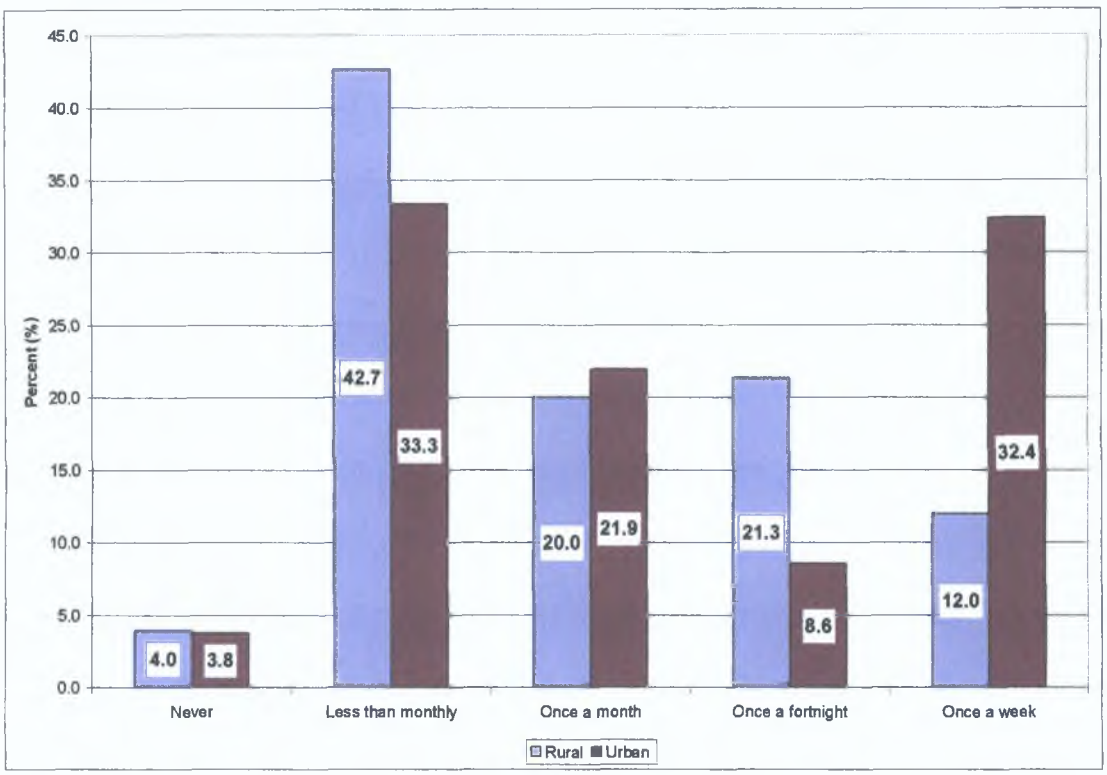
Table 3 Meals most likely to be ordered by children when eating out

Food most likely to be ordered when eating out		
	N	%
Burger & Chips	53	29 4
Meat & Vegetables	51	28 3
Nuggets & Chips	38	21 1
Soup	35	19 4
Pizza	33	18 3
Pasta	26	14 4
Curry Chips	16	8 9
Chicken Box	13	7 2
Chips	12	6 7
Other	12	6 7
Sausage & Chips	9	5 0
Fish & Chips	7	3 9
Salad	5	2 8

The most popular meal to be ordered while eating out is burger and chips (29%) (n=53), followed closely by meat and vegetables (28%) (n=51) This tells us that the conventional dinner is just as popular as the convenient meal The third most popular meal is nuggets and chips (21%) (n=38) followed by pizza (18%) (n=33) Less than 3% (n=5) of children would choose a salad while eating out

Results show that 37% (n=67) of children eat from a take-away less than once each month Almost 24% (n=43) like to eat from a take-away once a week, 21% (n=38%) once a month and 14% (n=25) get a take-away once a fortnight A comparison of rural versus urban schools shows a significant difference in the frequency of eatmg from a take-away The results are presented in the following graph

Graph 10: Frequency of children from rural and urban schools eating from a take-away



More than 32% (n=34) of children from urban schools eat from a take-away once a week compared to only 12% (n=9) of children from rural schools. This suggest that take-away outlets are more accessible to children from urban areas (χ^2= 13.841, df= 4, p<.01). Almost 40% (n=71) of children favoured a Chinese take-away. This is followed by nuggets and chips (21%) (n=37), pizza (17%) (n=31), chips (16%) (n=28) and burger and chips (13%) (n=24).

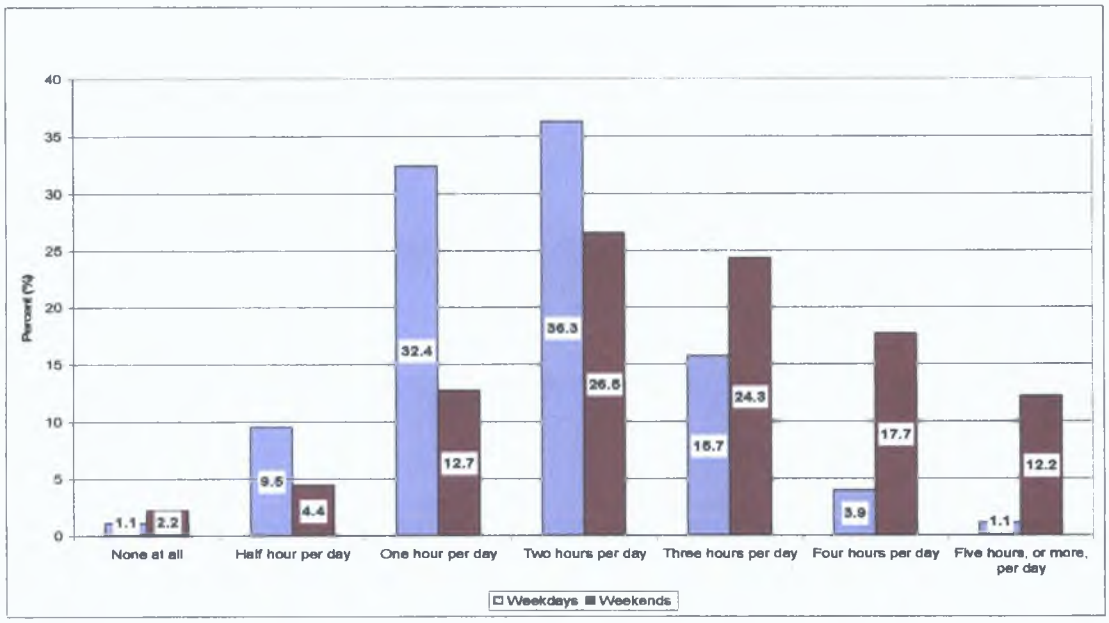
Sub-section 4.3.6 presents the findings in relation to the amount of time 10-12 year old children in the North-West region spend watching television and playing computer games on weekdays and weekend days.

4.3.6 Television Viewing and Computer Playing

This sub-section firstly outlines the amount of time children spend watching television on weekdays and on weekend days. It then proceeds to present the data that was collected with regards to the amount of time children spend playing computer

games on weekdays and on weekend days. Finally, it presents the findings in relation to children's snacking and eating meals while watching television or playing computer games. The following graph presents the findings that emerged in relation to the time 10-12 year children spend watching television.

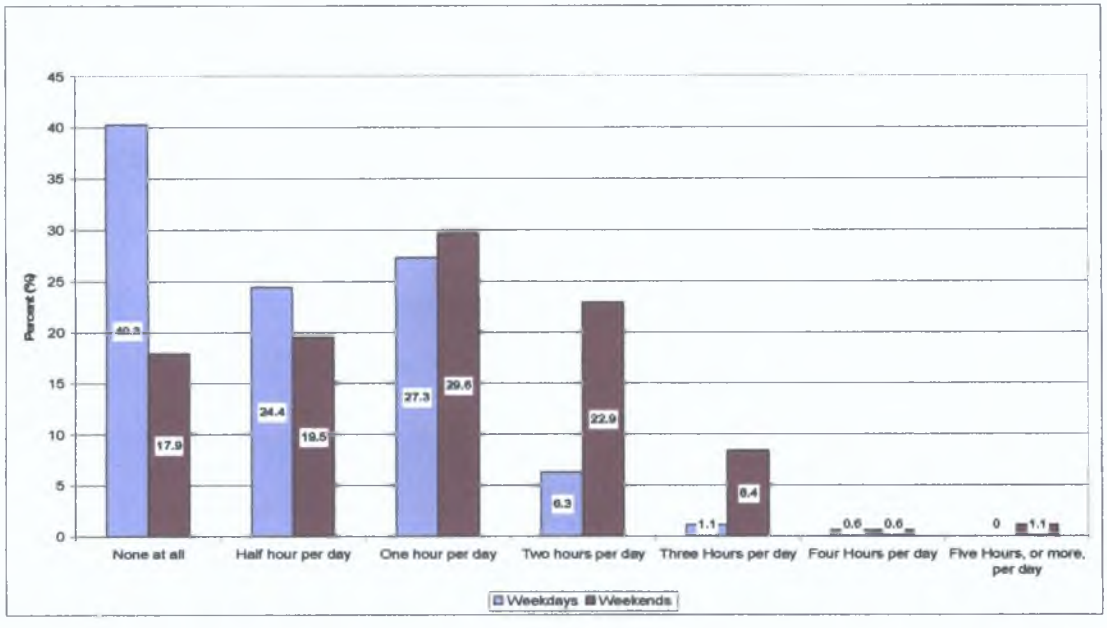
Graph 11: Time spent viewing television on weekdays and on weekend days



The data shows that more than 36% (n=65) of children watch two hours of television per day on weekdays compared to 27% (n=48) on weekend days. The results show that 32% (n=58) watch one hour per day on weekdays compared to only 13% (n=23) at weekends, however this figure increases dramatically for the number of children who spend three and four hours viewing television during the weekend. Sixteen percent of 10-12 year olds (n=28) watch three hours of television per day on weekdays with results increasing to more than 24% (n=44) on weekend days. Moreover only 5% (n=9) of children watch four hours or more of television per day during the week but this figure increases almost six-fold to almost 30% (n=53) on weekend days, showing that children have more free time at the weekend for television viewing. Furthermore, the data also shows that more than 60% (n=109) of 10-12 year olds have a television in their bedrooms. Respondents were asked if they monitor their child's exposure to television, videos and DVD's. Fifty eight percent of parents (n=105) always do, 27% (n=48) do so often and 15% (n=27) only occasionally or never monitor their child's exposure to television.

Similarly, there is a significant increase in the amount of time spent playing computer games on weekdays compared to that on weekend days, which is illustrated in the following graph.

Graph 12: Time spent playing computer games on weekdays and on weekend days



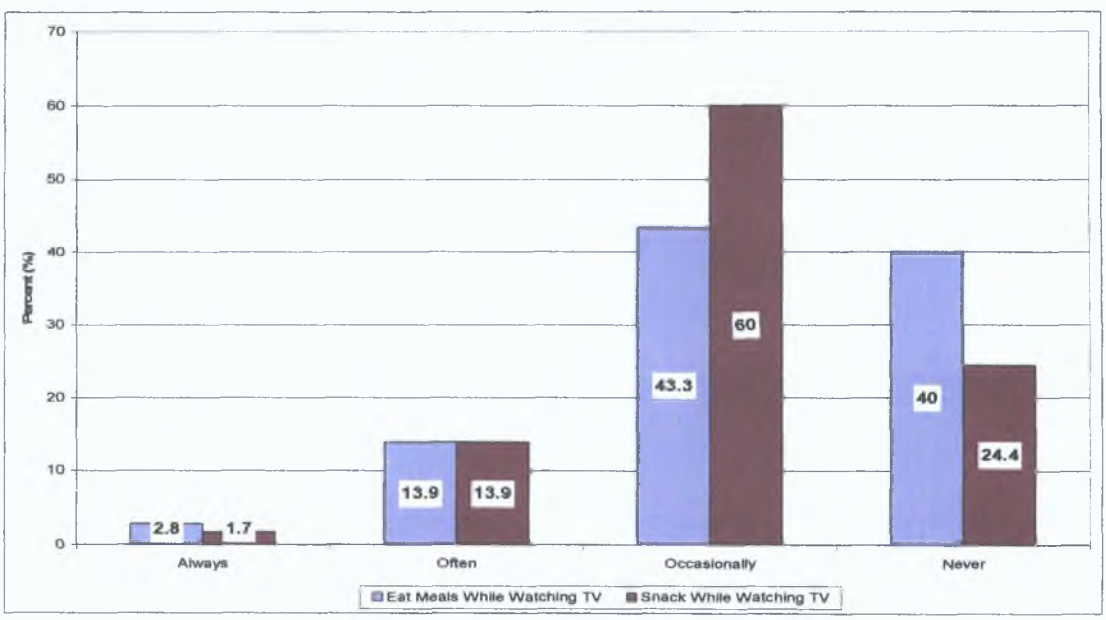
More than 27% (n=48) of children spend one hour per day playing computer games on week days rising slightly to 30% (n=53) on weekend days. Just over 6% (n=11) of children spend two hours per day playing computer games on weekdays compared to 23% (n=41) on weekend days. Similarly, less than 2% (n=3) of children spend three hours or more per day playing computer games on weekdays compared to 10% (n=18) on weekend days. This suggests that children have more free time on weekend days for playing computer games.

A comparison was made between children from rural and urban schools to investigate if there was any significant difference in the time spent playing computer games and consequently a significant difference was found between the two variables. Only 1.3% (n=1) of children from rural schools spend three hours or more per day on weekend days playing computer games compared to 18.1 % (n=19) of children from urban schools (χ^2= 13.634, df=4, p<.01).

The data tells us that there is a significant difference between males and females in the time spent playing computer games on weekdays and on weekend days. Thirty four percent of boys (n=28) spent one hour per day on weekdays playing computer games compared to 21% (n=20) of girls and 13% (n=11) of boys spend two hours per day playing computer games compared to only 7% (n=7) of girls. (χ^2=8.119(a), df=3, p<.05). Similarly, on weekend days, 30% (n=25) of boys spend two hours per day playing computer games compared to 16.5% (n=16) of girls, while 16% (n=13) of boys spend three hours on weekend days playing computer games compared to only 7% (n=7) of girls (χ^2=14.882(a), df=4, p<.01). Therefore boys spend more of their free time playing computer games compared to that of girls on weekdays and on weekend days.

Furthermore, watching television during mealtimes and snacking on foods while watching television and playing computer games, is widespread among 10-12 year old children. From the findings it is evident that 60% (n=108) of the respondents reported that their children watch television at mealtimes. Of these, 43% (n=78) do so occasionally, 14% (n=25) do so often and 3% (n=5) always watch television during meals. These findings are presented in the following graph.

Graph 13: The frequency of eating meals and snacking while watching television



Almost 76% (n=136) of children snack while watching television, with 60% (n=108) doing so occasionally, 14% (n=25) report doing so often and almost 2% (n=3) always snack while viewing television The most popular foods to snack on are crisps (39%) (n=71), followed by fruit (22%) (n=40), yoghurt (19%) (n=34), biscuits (16%) (n=29), sweets (11%) (n=19) and chocolate (8%) (n=15) Fruit, yoghurt, crisps and sweets were the snacks mostly eaten by girls, whereas chocolate and biscuits were mostly consumed by boys while watching television, as outlined in the following table

Table 4 Comparison of the type of snacks consumed by 10-12 year old boys and girls while viewing television and playing computer games

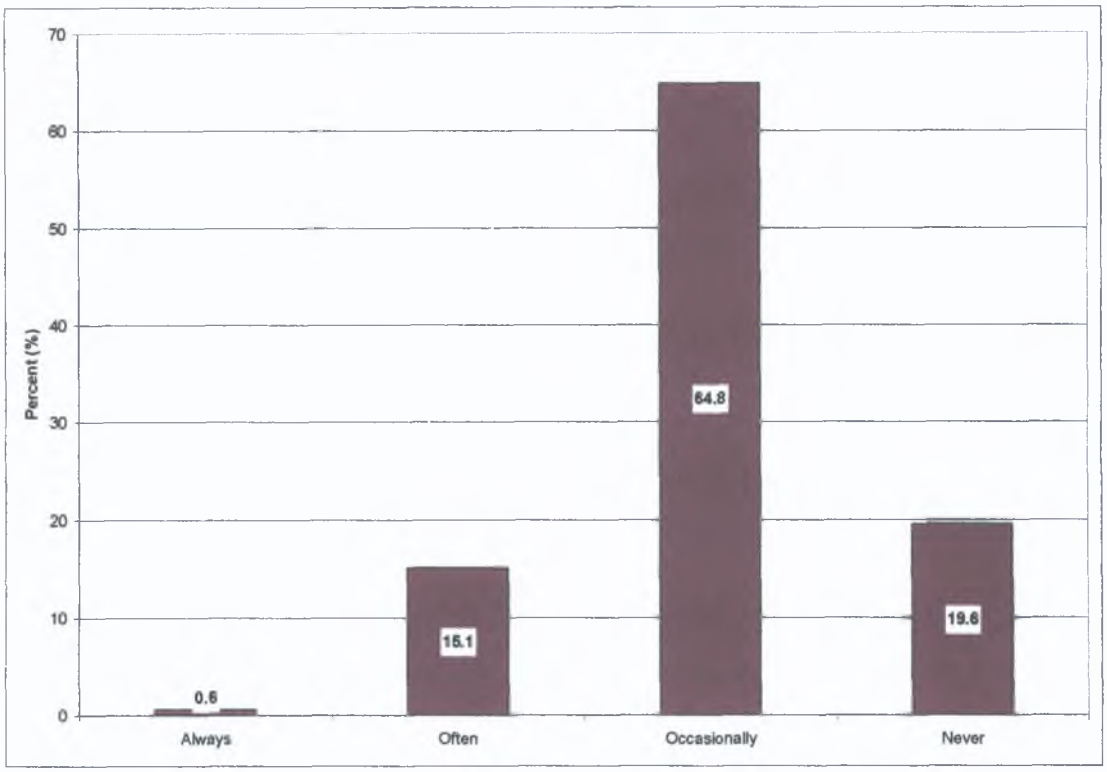
Type of snacks consumed by boys and girls, while watching television and playing computer games			
Type of Snack	**% Boys**	**% Girls**	**N**
Fruit	32	68	38
Yoghurt	39	61	31
Crisps	40	60	70
Chocolate	67	33	15
Sweets	42	58	19
Biscuits	57	43	28

Having presented a detailed account of the findings in relation to television viewing and computer playing, sub-section 4 3 7 presents the findings that emerged in relation to the effects of television food advertising

4.3.7 The Effects of Advertising

Almost three quarters (72%) (n=129) of respondents are of the opinion that the eating habits of children are influenced by advertising In addition respondents were asked 'In your opinion does television food advertising promote healthy eating'? The results are presented in the following graph

Graph 14: Frequency of promotion of healthy eating through television food advertising



Less than 1% (n=1) of respondents think that television food advertising always promotes healthy eating. Only 15% (n=27) think that television food advertising often promotes healthy eating, while 19% (n=35) think that it never promotes healthy eating. Sixty five percent of respondents (n=116) think that healthy eating is only occasionally promoted by television food advertising. This shows that many parents are of the opinion that healthy eating does not receive much promotion through television food advertising.

Participants were asked their opinion on what food or drink items were more commonly advertised on children's television. A total of 132 responses were obtained. Fizzy drinks were thought to be one of the most commonly advertised drinks on children's television by 55% (n=73) of respondents. Of these, 49% (n=36) named Coca-cola as the most popular brand of fizzy drink. Fast food was also considered to be more commonly advertised by 30% (n=40) of respondents. Of these, 27.5% (n=11) named Mc Donald's and 12.5% (n=5) named KFC as the most common brands of fast food advertised. Breakfast cereals were the third most popular item

named as being advertised during children's television at 28% (n=38) These items were followed by chocolate (17%) (n=23), sweets (14%) (n=19) and yoghurts (14%) (n=19) Items such as milk, water and fruit were only thought to be more commonly advertised by a small minority of parents at 3% (n=4), 2% (n=3) and 1 5% (n=2) respectively These findings are outlined in the following table

Table 5 Foods more commonly advertised on children's television

Food most likely to be advertised		
	N	%
Fizzy Drinks	73	55
Fast Food	40	30
Cereals	38	28
Chocolate	23	17
Yoghurt	19	14
Sweets	19	14
Cheese	14	11
Fruit Juice	14	11
Crisps	12	9
Cereal Bars	6	4 5
Milk	4	3
Water	3	2
Fruit	2	1 5

Furthermore, respondents were asked what effects television food advertisements had on their children's diets A total of 113 (63%) responses were obtained, of which 66% (n=75) answered that television food advertisements had little or no effect on their child's diet This is evident in the following responses

> 'It has no real effect My child does not really eat many sweets etc, does not really like them!' (IDNO 56)

> 'It does not have any effect because what is made for them they eat and 80% of it is healthy' (IDNO 74)

Other parents/guardians stated that they did not allow television food advertisements to affect the diet of their children

> 'I buy the foods that I think my children should eat, I'm not swayed by television at all' (IDNO 143)

> 'I do not allow television food ads affect my child's diet However there are times I feel under immense pressure, like when shopping' (IDNO 175)

In contrast to this, some respondents stated that the effect of television food advertisements led to their children requesting the product This is evident in a number of comments from respondents

> 'They see foods that they would like and sometimes I buy them' (IDNO 122)
> 'They want what they see' (IDNO 126)
> 'They ask for more sweets and unhealthy foods' (IDNO 151)

However, a number of parents/guardians felt that television food ads had both a positive and negative effect This finding is evident from the following comments

> 'Can promote healthy eating such as fruit and vegetables Can also be counter productive in fizzy drinks, sweets, ready to go meals/ snacks that may not be as healthy as cooking fresh' (IDNO 50)
>
> 'It can introduce products that are healthy and allow the child to try It can also put pressure on to buy foods which could have a high sugar and calorie intake (IDNO 52)

In addition, parents/guardians were asked if their children put pressure on them to buy certain foods or drinks that are advertised on television More than a quarter (27%) (n=48) of parents/guardians reported that their children do put pressure on them to buy items that have been advertised on television These respondents were then asked to specify items and a total of 41 responses were obtained Cereals (37%), fizzy drinks (32%) and sweets (15%) were the most common requests followed by fast food (10%), cheeses (10%), cereal bars (7%) and yoghurts (7%) Less than 8% (n=12) of parents/guardians always or often 'give in' to pressure from children to buy such items while 54% (n=84) occasionally 'give in' and 38 5% (n=60) never do so

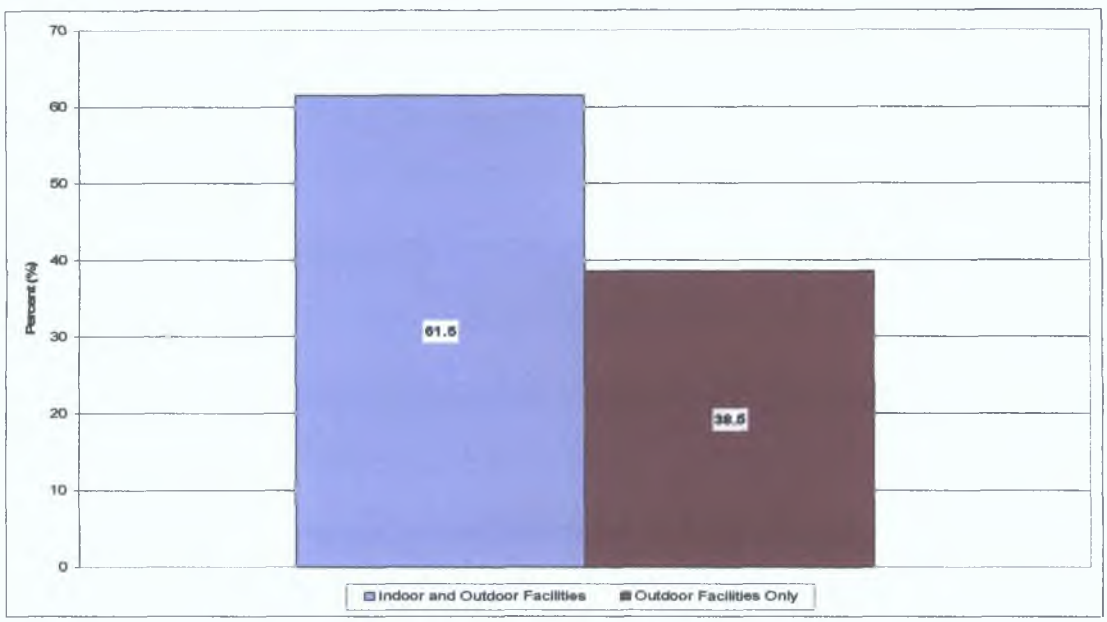
Following on, sub-section 4 3 8 presents the findings that emerged in relation to children's participation in PE at primary school and their engagement in extra-curricular activities outside of school

4.3.8 PE and Physical Activity Outside Of School

This sub-section firstly outlines the main findings of parents/guardians perceptions of their children's primary school PE curriculum and secondly it provides the main findings regarding the physical activity levels of children outside of school hours

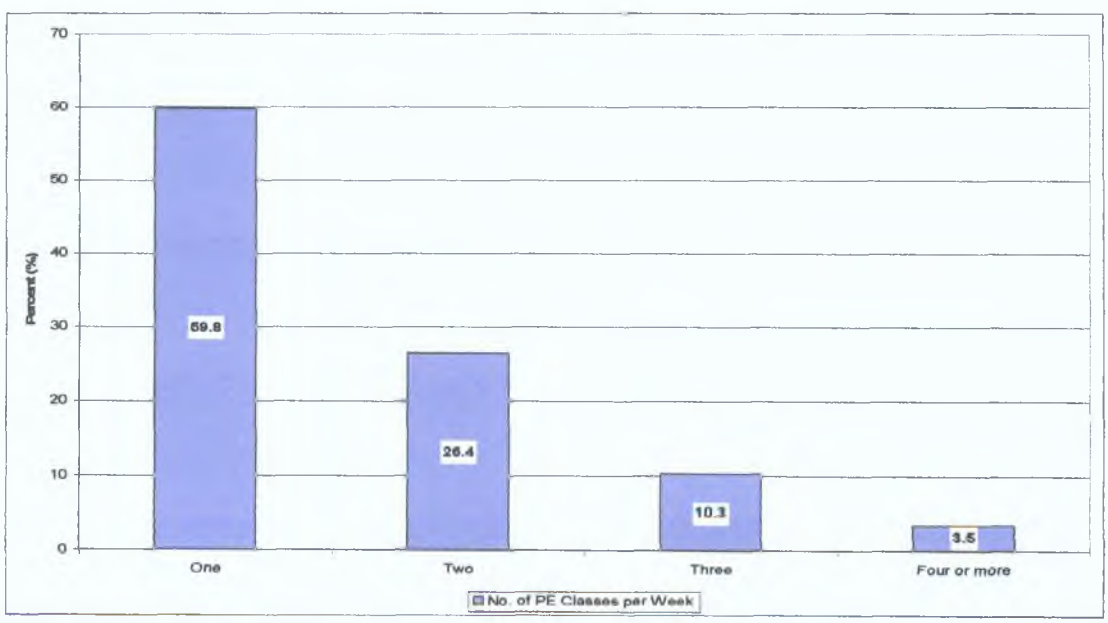
Physical education is part of the school curriculum in the 26 national schools that participated in the survey. Only one child of the 180 respondents does not participate in physical education at school. The data shows that 38.5% (n=69) of children have no indoor facilities for PE classes, as is presented in the following graph.

Graph 15: Indoor and outdoor facilities available in primary schools



The number of PE classes per week varies between the different schools. These findings are outlined in graph 14.

Graph 16: Number of PE classes per week in primary schools



The results show that 60% (n=104) of children have one PE class per week, 26% (n=46) have two classes, 10% (n=18) have three classes and 3% (n=5) have four classes per week The duration of PE classes vary, with 50% lasting between 21 to 40 minutes and 23 5% lasting between 51minutes to 60 minutes and just over 11% lasting between 41 and 50 minutes

Respondents were asked if they had to finance certain activities that were part of the PE curriculum A total of 153 responses were obtained, of which 54% stated that they did have to pay towards PE activities Of these, 65% commented that they had to contribute towards swimming fees as part of the PE curriculum

More than three quarters of respondents (79%) reported that they did not know the recommended amount of PE in primary schools Of the 37 parents/guardians who replied that they did know the recommended amount, only 18 (53%) of them reported the correct amount of one hour per week Furthermore, respondents were also asked if they thought the current sports policy in primary schools was appropriate There were 140 responses to this of which 65% held a negative opinion The lack of proper resources and time to facilitate PE classes was an issue that emerged from the findings The following comments outline the negative views of parents/guardians on this issue

> 'I think that many schools lack proper resources therefore are unable to meet policies Having a policy is fine but having resources to carry it out is what matters' (IDNO 142)

> 'I feel that they don't have enough facilities or equipment' (IDNO 35)

> 'Obviously not enough is being done by way of facilities and time allocation' (IDNO 3)

> 'No, needs to be more time spent on PE, more facilities, -especially indoors and more people paid to teach the various sport during school hours' (IDNO 162)

The lack of varied activities is another issue that emerged from the findings The following comments outline the views of a number of the respondents

> 'They should offer much more varied activities, they concentrate too much on hurling and football' (IDNO 54)

'No in my child's school there is not enough varied activities ' (IDNO 159)

'They don't do enough or have a good enough range of activities to choose from' (IDNO 58)

Moreover, schools without indoor facilities must depend on the weather to facilitate PE classes This issue is expressed in the following comments

'Schools with no indoor facilities have a difficult time conducting PE classes as they are depending on the weather

'The school has no proper facilities to accommodate PE in Irish weather' (IDNO 43)

'The amount of time given in my child's school to sport is in my opinion inappropriate in that it's not always on a regular basis as it's always dependent on weather conditions Overall, too little time given to sport and recreation' (IDNO 9)

'Indoor facilities would benefit the school greatly as PE would not depend on the weather' (IDNO 124)

'The activity can vary from week to week and can also be weather dependent' (IDNO 133)

'No, more time could be set aside for PE and all schools should have a teacher specifically trained in PE' (IDNO 67)

Parents/guardians were asked if the absence of PE was contributing to the child's lack of physical exercise A total of 109 responses were obtained of which 46% were of the opinion that the lack of PE does contribute to their children's lack of physical activity This negative opinion is expressed in the following comments made by a number of parents/guardians

'Yes, I think it plays a part in it because if they were learning to do new things it would in my opinion give them a bit of motivation to do it outside of school hours' (IDNO 58)

'Yes I feel if the school had more space and physical education they would be more confident to join extra-curricular activities' (IDNO 179)

'PE is a highly relevant and important to children's needs for a healthy lifestyle and exercise, however greater need to have physical exercise/ hobbies/ sports outside of the school as well ' (IDNO 177)

However, in contrast to this, 54% did not agree that the lack of PE contributes to their child's lack of physical exercise This opinion is expressed further in the following comments of parents/guardians

> 'No We are a sports orientated family and spend a lot of time at sports and fitness together regardless of PE in school' (IDNO 17)

> 'No, but only because I make sure that they take part in exercise' (IDNO 43)

> 'No, there is enough opportunity outside school, like going for family walks, swimming sessions, a cycling tour, playing frisbee in the garden etc' (IDNO 108)

> 'I have to pay for clubs to ensure my child engages in sufficient physical exercise I would not like to be relying solely on the Dept of Education to ensure our children are active Fortunately I am lucky enough to be able to afford this luxury-not all parents can' (IDNO 6)

In addition, a number of parents/guardians felt that it should be the responsibility of parents to ensure that their children obtain sufficient physical exercise This view is evident in the following responses

> 'Children like to take part in physical exercise outside school Parents have to get involved in their kids activities after school and in the holidays' (IDNO 116)

> 'The onus should be on parents to ensure healthy eating and physical activity ' (IDNO 158)

> 'PE is available in school and it's mainly the responsibility of parents as children spend longer hours out of school than in it' (IDNO 130)

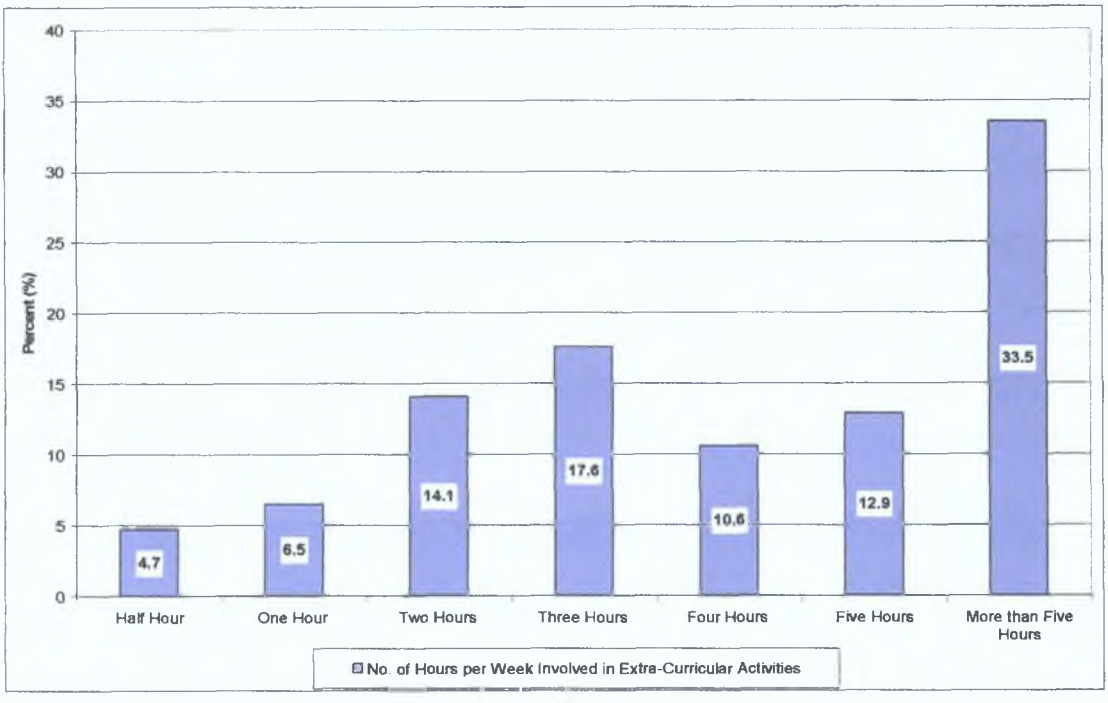
> 'I feel that more PE in school would definitely benefit child's health, however parents must also take responsibility for ensuring child gets exercise' (IDNO 142)

> 'I think most of the responsibility of your child's well-being lies with its parents' (IDNO 141)

In addition to PE, 94% (n=169) of the children participate in extra curricular activities involving physical exercise outside of school The five most popular activities are gaelic football (59%) (n=106), swimming (57%) (n=102), soccer (49%) (n=89), walking (49%) (n=88) and cycling (43%) (n=78) A comparison was made between males and females to see if there was any difference in the number of boys and girls who participated in these activities but no significant difference was found The

following graph outlines the number of hours per week that 10-12 year old children in the North-West participate in extra-curricular activities.

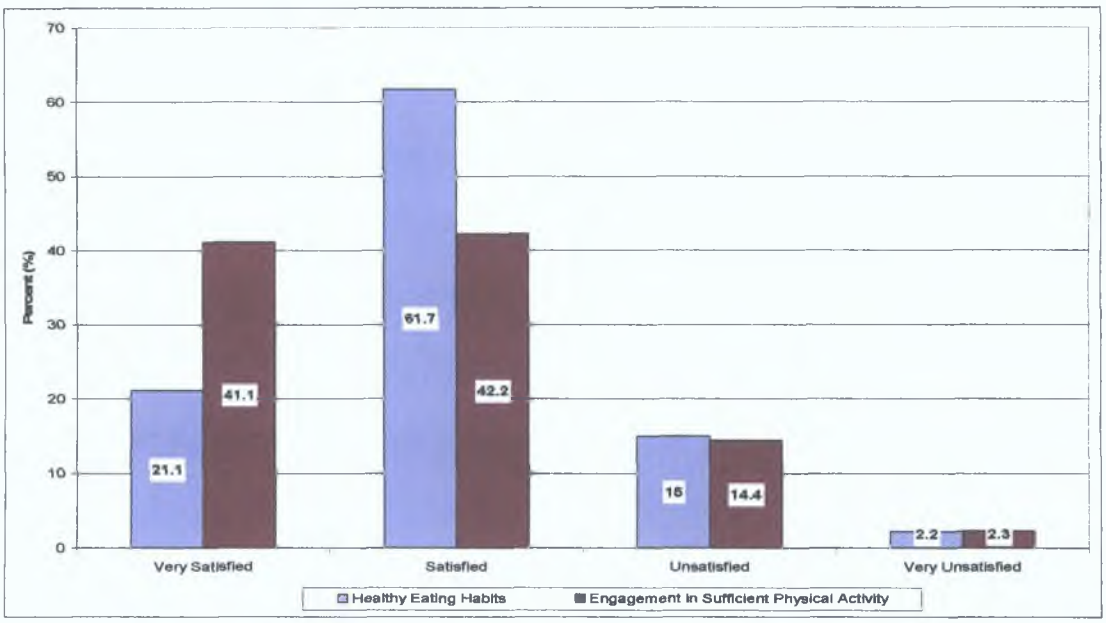
Graph 17: Number of hours per week involved in extra-curricular activities



Just under half of children (46.5%) (n=79) spend five hours or more per week involved in extra curricular activities, while one quarter (25%) (n=43) engage in activities for two hours or less per week. A further 18% (n=30) and 11% (n=18) are active for three and four hours per week respectively.

Parents/guardians were asked how satisfied they were that their children firstly, consumed a healthy diet and secondly, participated in sufficient physical activity. The results are presented in the following graph.

Graph 18: Satisfaction levels of parents/guardians that children consume a healthy diet and engage in sufficient physical activity



Almost 62% (n=111) of parents/guardians are satisfied that their child consumes a healthy diet. In addition, more than 21% (n=38) are very satisfied that their child eats a healthy diet. Fifteen percent of parents/guardians (n=27) are unsatisfied and only 2% (n=4) of respondents are very unsatisfied that their children eat healthily. Parents/guardians were asked how satisfied they were with their children's engagement in physical activity. The majority (83%) (n=150) of respondents are either very satisfied or satisfied that their child participates in adequate physical exercise. Fifteen percent (n=26) are unsatisfied while only 2% (n=4) are very unsatisfied. Overall, this suggests that the majority of parents/guardians are satisfied that their children eat a healthy diet and are adequately physically active.

Section 4.4 presents the findings that emerged from the interview phase of the research process. The findings that generated from the interviews were analysed using the method of content analysis by categorising responses into recurrent themes. The main findings that are presented in this chapter will be further discussed in chapter five. These findings will be linked into wider government policy objectives to address the issue of childhood obesity.

4.4 Presentation of the Findings from Expert Interviewees

This section outlines the main findings that were generated as a consequence of a number of interviews that were undertaken following the analysis of the data collected from the questionnaires The interviews were recorded by use of a digital voice recorder and were subsequently transcribed and analysed using the method of content analysis Questions were designed to draw on the knowledge and experiences of each expert in accordance with their position and expertise The experts have been labelled as Ex A, Ex B, Ex C, Ex D, Ex E, Ex F, Ex G, Ex H and Ex I for the purpose of presenting a legible argument To begin with, section 4 4 1 outlines the views of the experts on the issue of childhood obesity

4.4.1 Views of Experts on Childhood Obesity

The majority of the experts agreed that childhood obesity is a growing concern as numbers appear to be increasing This is evident from the following comments

> ' it is growing in terms of prevalence all the time the figures are quite dramatic at this stage' (Ex D)

> 'teachers are telling us that there are increased levels of children who are either overweight or obese, presenting in our schools year after year and they seem to be saying that the numbers are on the increase' (Ex B)

> 'serious problem of epidemic proportions' (Ex H)

> 'dreadfully serious as the numbers have never been so high ' (Ex I)

On the other hand, Ex C did not agree that there was sufficient evidence to show that obesity among children is increasing

> 'It's a bit hard to tell if it is growing and if it is growing, I don't think there is very good data in relation to the growth of the problem but in terms of the general population the evidence of the growth of the problem isn't overwhelming'

This professional feels that there is too much emphasis put on children who are overweight and obese and not enough on those who suffer from other eating disorders as she stated that

> 'There are many more adolescents in Ireland who are involved in unnecessary dieting, that's dieting and restricting their calorie intake or engaging in excessive exercise or purging or vomiting when they are not overweight, than there are children who are actually obese the girl who is

> unnecessarily dieting is getting thinner and thinner and that's attractive so that's not a problem. The fact that she's fainting or can't concentrate in school is a hidden problem whereas the fat child, who is spilling out over the side of the seats is visible so I think our culture encourages us to respond to what we see rather than taking a more balanced view....' (Ex:C).

Sub-section 4.4.2 provides an overview of the main health implications that are experienced by overweight and obese children and young people.

4.4.2 Main Health Implications

One of the main concerns for children who are overweight is the prospect that they will remain so into adulthood. This was the opinion of Ex:F whose response was that:

> '....the primary concern would be for the child who is overweight as there is a very high likelihood of remaining overweight or obese when they are an adult'.

Similarly, Ex:A stated that:

> '....when children are overweight or obese during childhood, chances are they are more lightly to become overweight or obese as adults so that they carry it through and that's the real concern....you know it's going to effect their whole lives and it is quite difficult to lose weight, you know, once the weight has been gained....'.

The findings indicate that overweight and obesity increases the risk of diseases such as type 2 diabetes, hypertension and cardiovascular disease:

> 'as soon as people become obese or overweight, whether they are children or adults, their risk factor for other diseases goes up and there is probably a three-fold increase in the chances of developing diabetes, high blood pressure, and then as adults, stroke and cardiovascular disease as well' (Ex:D).

Furthermore, while type 2 diabetes used to be associated with adults, evidence suggests that it can be detected in teenagers. Ex:D states that:

> 'Certainly the trend is that yes we are finding people younger and younger developing this type of diabetes. In the past, say twenty, fifteen years ago, typically people would have been over fifty before they developed this type of diabetes but now some of the centres in the acute hospitals are diagnosing it in teenagers. That's very worrying when we see what we would call a disease of an older person, presenting itself in a teenager and it's all down to lifestyle. It's quite frightening really'.

In contrast to this, Ex:F stated that:

> '....when the diabetes explosion happened we were anticipating a big surge in the number of type 2 or the diagnosis in children and we actually didn't see it, I would say that there were only one or two unexpected referrals, or new diagnosis per year....'.

However, Ex F commented that high blood pressure is a common symptom of childhood obesity as

> 'Certainly a lot of the children who are overweight would have higher blood pressure and most of the children that we see who are overweight would be maybe between the ages of eight and thirteen years and many of those have high blood pressure when they come to see us '

In addition, she reported that overweight and obesity increases the risk of early mortality, therefore it is thought that this may be the first generation of children who ' may not outlive their parents' and ' that is quite a big thing that is stuck in people's minds' (Ex F) This was reiterated by Ex B who stated that

> ' we are going to be the first generation that will actually bury its young We will outlive our children which is the most unnatural thing that, you know, that ever happened'

From the findings it was suggested that parents may not be aware that their children are overweight or obese

> ' Irish generally don't know much about their height and weight, they know the least of any children across Europe which is kind of nice in one way but Irish parents don't know either, so they don't know how healthy their children are because of the structure of our health service, for most parents, that wouldn't be a priority to get their children in for check-up ' (Ex C)

Ex A reported that findings from the IUNA survey 2005, showed that

> 'A high percentage of parents didn't recognise the fact that their child was overweight when in fact technically they were '

By way of explanation she concluded that

> 'Parents are possibly concerned about broaching weight or talking about weight loss or diet or anything along those lines ' (Ex A)

A further health concern that emerged was that of the psychological effects of obesity along with the physical effects that it can have on children and young people The majority of the experts are of this opinion which is evident in the following comments

> 'The mental health side of things is not something that we focus initially on much, but in terms of bullying and self-esteem and self-confidence, that it can, you know, effect children in that sense as well' (Ex A)

> ' children who are overweight have more difficulties in terms of fitting in, bullying, finding it difficult to cope with being overweight ' (Ex.D)

> ' children who are overweight or obese are more likely to be bullies and more likely to be bullied ' (Ex C)

Furthermore, the health implications experienced by children and young people have an impact on the health service

> ' if you think of all the chronic diseases that are out there, in terms of any of the cardiovascular diseases, stroke, some of the cancers, osteoporosis related conditions, all of these have a huge implication on our health service ' (Ex D)

Having outlined the main findings that emerged in relation to the health implications for children who are overweight and obese, sub-section 4 4 3 presents the views of the experts on the factors that contribute to childhood obesity

4.4.3 Contributing Environmental Factors

The majority of the experts are of the opinion that overweight and obesity are linked to environmental factors On some occasions it may be linked to hormonal or gland problems or another health issue but

> ' 99 5% of the time it isn't, it is what we call exogenous obesity, i e the child is overweight because they take in more energy than they use up and there are no other medical causes ' (Ex F)

Ex D also suggested that there is a possibility that obesity may be genetically linked but in her estimation

> ' the percentage that can actually be attributed to the disease, the genetic indicator is quite small, it's probably only about 5%' (Ex D)

She also stated that the cause cannot be identified as any one factor that 'it is multi-factorial' (Ex A)

It was suggested that the main cause of childhood overweight and obesity is 'to do with a whole change in lifestyle ' (Ex E) According to Ex F, the main factor contributing to the growth in overweight and obesity is mainly linked to a lack of physical activity, rather than the excessive consumption of calories

> ' in a state of excessive energy balance and it's probably, people don't eat necessarily that much more than they used to, it's a matter of them burning up less there's probably less physical activity in schools and also there is more sedentary activity things like TV and computer games, the way that children spend their time is very different but it's not a case of them taking in more calories, I just think that they are burning up significantly less '

Ex D was of the same opinion in that

> ' I don't think that it's as simple as people are eating too much because in fact when you look over previous studies from SLAN, over the last ten or

> twenty years the total calorie intake hasn't increased dramatically, not enough to explain the dramatic rise in obesity, but what has dramatically decreased is our physical activity levels and I suppose that has come about due to a change in lifestyle...when you have that deficit then of activity levels with a slight increase in calorie intake, that that's enough for weight gain.'.

Ex:C agrees that there is some evidence to show that the lack of exercise and sedentary behaviour are associated with overweight, but that 'it's not always well argued'.

Despite the notion that the rise in obesity is not as simple as consuming more calories, a number of experts are of the opinion that children and young people *do* consume excessive amounts of foods, particularly energy dense foods and convenience foods. According to one expert, one of the main contributing factors to the prevalence of overweight and obesity among children is:

> 'Excessive food consumption for the amount of energy expended. Snacking, sweets and soft drinks are the probable 'extra' calories not eaten so much by children a generation ago. These also tend to be forgotten in dietary surveys where children and parents are asked what was eaten in the last 24 hours' (Ex:I).

Similarly, it was reported that:

> '....almost all children now eat sweets, in fact Irish kids eat more sweets than other kids across Europe and that's a bit of an issue actually and the fizzy drinks particularly' (Ex:C).

Ex:B is concerned with the fact that many children do not obtain a healthy balanced meal for dinner in the home. In his experience children are over-consuming fried and convenience foods and are not eating sufficient fruit and vegetables.

In addition, Ex:F reported that children do not like 'normal' cooked meals, such as meat, potato and vegetables:

> 'because they haven't had it at home....children have had their preferences formed in their home setting or maybe in their childcare setting. It's pretty difficult to undo' (Ex:F).

Ex:G commented that because in today's society, children spend a lot of time in nurseries and crèches and therefore for parents, have very little control over the eating habits of their children.

From the findings it was suggested that fast food and eating out contribute to childhood obesity. Ex:A stated that she believed that eating out and eating fast food particularly is now something that is done on a regular basis compared to twenty years

ago She feels that this is giving the wrong idea to children about healthy eating and health behaviour

> ' are take-aways brought into the family home in replacement of a home cooked meal? What message is that giving the children the home is the key influence on children and their health behaviour, so what message are they being given if there are take-aways coming in for dinner a couple of times a week ' (Ex A)

Similarly, another dietician reported that, parents are not cooking at home as much as they used to As a result children consume unhealthy processed foods more frequently which are high in fat and salt

In addition to the above contributing factors, it was also suggested that sedentary behaviours such as television viewing and computer playing are associated with the rise in childhood obesity According to Ex D, children spend long periods of time involved in sedentary activities such as watching television and playing computer games which means they spend less time involved in physical activity This view was further reiterated by Ex A who stated

> ' not only are they more sedentary, but then also what are they watching? Are they seeing more advertisements for foods or are they eating while watching television, that kind of passive over-consumption or grazing of food I think that there are a number of different angles to television and then of course with computer games, again they are more sedentary ' (Ex A)

This suggests that television food advertisements have an effect on the diet of children According to Ex B, it is very difficult to monitor the amount of advertisements shown to children during children's television time

> ' because a lot of our children are watching programmes, television programmes that are coming from other countries, over which we have no control '

In addition, Ex A reports that certain foods were specifically targeted at children through advertising

> 'I think also that new products marketed are specifically targeted at children and there is this concept that there is children's food and there is adult food '

Ex G feels that there is 'huge pressure from commercial forces' on young people and their families 'to consume things which are not going to be very good in terms of control on their weight '

Similarly Ex:I believes that the 'marketing of these energy-rich, nutrient-poor foods by food companies through every opportunity, including TV, films, shop checkouts, sms texting etc' is having an effect on the diet of children.

Ex:C believes that advertising has a huge effect on the diet of children, but the advertisers do not care as long as they are making money,

> '....the people who work in the industry are quite blasé about it, they are there to do a job,....it's about money, it's all about commercial interest, they have no interest what so ever in children or health, it's completely irrelevant to them, and that's my understanding'.

The Physical Education (PE) curriculum in primary schools is criticised by a number of experts as they take the view that the lack of physical activity is related to the increase of overweight and obesity in children. Many schools have inadequate facilities to offer provisions for PE classes. This is evident in the following comments.

Ex:B states that:

> 'Most of our small primary schools do not have an indoor physical education facility, therefore PE is weather dependent and that is sending the wrong message entirely to young children. PE should be as much a part of the curriculum like Irish, English Maths and it shouldn't be an add on or something that is done when the sun shines which in the midst of Ireland can be seldom enough. We did a survey....and we found that 75% of the schools, 80% in the southwest, did not have indoor or access to any form of indoor facility....' (Ex:B).

> 'There are still a lot of schools that don't have indoor toilets never mind proper gyms or physical activity resources....' (Ex:C).

> '.... in the last number of years there has been for all kinds of reasons a diminished amount of activity going on in schools....schools just don't have a room and the weather is bad....so there are some real barriers to having children active at school....' (Ex:D).

These findings show that the professionals interviewed feel that the lack of PE facilities contribute to the lack of physical activity among children.

Moving on, sub-section 4.4.4 presents an overview of the findings in relation to the role of the government in tackling overweight and obesity among children.

4.4.4 The Role of the Government

The findings suggest that there is a need for government intervention. According to a number of the experts, the main role of the government is to give leadership in addressing the issue of childhood obesity. This is evident in the following comments:

I think the government's job is to give leadership, simply' (Ex C)

' it does need that leadership from the department of the Taoiseach but then it needs to tie in with all other departments as well to really get that whole societal shift to change because you know, better education in relation to nutrition or exercise is not going to solve it on its own ' (Ex A)

Furthermore, the majority of the experts take the view that the government needs to adopt a multi-stranded approach with 'joined up thinking' to address the obesity issue Evidence for this is observed in the following comments

'Joined up writing or joined up thinking in terms of service provision so that GP's and public health nurses and teachers can all work together, can talk the same talk, they are all important and that's about prevention and it's about generic prevention, at a kind of population level rather than high-risk prevention strategies' (Ex C)

'One of the key things from the taskforce was that we, all the different agencies, everyone from the health services to the education services, to county councils to sports councils, they all need to be working together to kind of have a bit of joined up thinking about promoting activity and exercise (Ex D)

Similarly, Ex H agrees with this as she reports that the government needs to adopt a

'multifaceted approach to deal with consequences and ongoing prevention'

She comments further that this should include involvement from the 'Department of Education, Department of Environment, local Co Councils, food producers, Department of Agriculture' and 'communities themselves' should be 'involved in decisions about their community and facilities etc' (Ex H)

However, according to two of the experts, parents also have a responsibility to ensure that their children lead a healthy lifestyle This is suggested in the following comments

'I think maybe making parents more understanding of it being their responsibility it's not the government that needs to do it ' (Ex F)

'People can't blame the higher powers all the time, I think people do have to take responsibility for the choices they make and really everybody needs to be looking quite closely at their lifestyle and eating habits so parents have the responsibility that they are practicing healthy eating practices at home and that they are passing those habits on to their children ' (Ex D)

In addition, she states that

'children who tend to be more sedentary and eat high fat foods tend to come from families where the parents also do that, so there is a huge responsibility on parents to maybe try to practice what they are preaching ' (Ex D)

This suggests that while government intervention is necessary to reduce childhood obesity, parents must also take responsibility for the diet and exercise habits of their children.

Sub-section 4.4.5 gives an overview of the findings that emerged with regards to the opinions of the experts on the effectiveness of the report of the National Taskforce on Obesity.

4.4.5 Views on the Report of the National Taskforce on Obesity

A number of the experts were critical of the report of the National Taskforce on Obesity and the implementation of recommendations. This is evident from the following comment:

> 'We were very critical of the Obesity Taskforce recommendations and I'll just give you one example, the clear recommendation about vending machines in primary schools and we issued a challenge at the time, if anybody could find one primary school out of 3,200 where there was a vending machine but they couldn't. We just took the view that that taskforce, the people who wrote that report, were completely out of touch, completely out of touch... we were disappointed with that report and I suppose even more disappointed with the inactivity that came with it. We are great in this country for writing reports but awful at implementing them' (Ex:B).

In addition, a dietician stated that little had happened with regards to implementing recommendations since the report was published:

> '....the National Taskforce on Obesity report came out in 2005 and very little has happened since and that's something that we would continuously lobby the government on at any opportunity....it's an excellent report in itself but sitting on the shelf, it's not going to change things....' (Ex:A).

Ex:G commented that since the publication of the task force report, there has been 'quite a significant delay' in implementing recommendations. He further reported that this delay was due to the fact that:

> 'the strategy was never really accepted by the cabinet, it was never kind of presented to them and adopted as government policy....so that left the strategy in a sort of unusual place, is it government policy or isn't it?' (Ex:G).

Furthermore, he speculated that one possible reason for this was because the report included:

> '....significant implications for the food industry....' and 'they [the government] probably don't want to take some of those on....' (Ex:G).

However, in defence of this, Ex:D stated:

> '.... I'm not currently working on the taskforce myself but I know that they were recommendations, they weren't actually legislation, so there is no particular requirement to have them fulfilled by any particular time....'.

In addition, two of the experts were of the opinion that the report did have a positive effect in that people are now more aware of the importance of living healthy lifestyles (Ex:F). Similarly, Ex:H reports that its effect has been 'small', but that it has 'probably but people more aware'.

Following on, sub-section 4.4.6 outlines the findings that emerged in relation to school-based initiatives such as healthy lunch policies in primary schools and the SPHE programme.

4.4.6 Views on School-Based Initiatives

Experts were asked their opinions on the effectiveness of healthy eating policies in primary schools. The proceeding comments suggest that healthy lunch policies in primary schools are somewhat effective in promoting healthy eating and that school lunches are now more nutritiously balanced:

> '....Health Promotion Units are trying to engage quite closely with schools to promote healthy lunches...It's amazing how, when a school even adopts a healthy eating lunch policy, straight away that can remove huge amounts of junk food....' (Ex:D).

> '....the food that is available in schools has gotten a bit more nutritionally balanced....that is probably the one thing that I can think of that has actually changed and I can say that that has made a difference to the actual health of the children....' (Ex:F).

However, Ex:G is of the opinion that healthy eating policies in school can only be effective if they are part of a multi-stranded approach:

> 'I think that they can be effective and certainly as part of a multi-stranded approach, on their own, no, I mean the support and development of those kind of things would have to be in a broader context, em, otherwise you know....you might get some effecting changes in knowledge and maybe in behaviour for the short-term, but you, know, it's very hard to sustain these against, you know, against these much bigger forces at work....'..

According to Ex:C, many primary schools have a healthy eating policy in place, but the implementation of the programme varies among schools. She further commented that the healthy eating policy in schools can be,

> ' rolled out in very odd ways, sometimes they are policed like as if, I don't know, as if the kids were smoking in class or something I saw examples where children were shown up in front of their class mates for having a biscuit in their school bag'

Nevertheless, she reported that

> ' the kids will tell you that they like it because there is no competition they are more than likely to have the same and they do get it, they are getting it about healthy eating' (Ex C)

Similarly, Ex B stated

> 'I would say that every school has a healthy eating policy, some would have it formalized into very a sophisticated type policy, others would be more, well it wouldn't be written down but I would say that every school encourages healthy eating to a greater or lesser extent I think that parents are the main focus for teachers as to what is going into the children's mouths We are not trying to be killjoys but one of the common things that you see in primary schools now, is Friday as treat day I think that's a very balanced approach to it it's a question of having a balanced approach'

Moreover, the SPHE programme received positive comments from the majority of experts in that it is an effective method in creating awareness among children with regards to their health and well-being According to Ex B, the SPHE programme

> 'was a very important development in the revised curriculum of 1999 There were all sorts of programmes being dropped into schools or parachuted into schools on an adhoc basis But this was the first time that the whole thing was formalised Because of the really acute awareness of the importance of health education, a broad general education for children, which primary education is supposed to give for life, that healthy eatmg and physical well-being was as important as, you know, academic development'

In addition he reported that the SPHE programme is very much supported by teachers and that ' they see it as a very important part of their role' (Ex B)

Similarly, it was also stated that

> 'In general, if you go into schools and you do research with the children they have ceiling levels of knowledge about food, about diet and nutrition and about exercise the schools are already doing their job in that way through the SPHE programme and so on, there is no gap there that I can see really ' (Ex C)

> ' a lot is happening at schools from an education point of view that the SPHE curriculum has information about nutrition and the healthy eating, that the children are being educated ' (Ex A)

However, according to Ex G, children are generally aware of the benefits of healthy eating and regular physical activity through the SPHE programme, but the problem is that

> 'I think young people are probably quite well informed generally about what's good and bad they find it hard to think of the long-term if you say well in twenty years you might be regretting this it's hard for them to think in those terms' (Ex G)

The following sub-sections outline a number of responses that according to the experts, need more consideration in terms of policy development to manage and reduce overweight and obesity among children These responses are presented in the following sub-sections To begin with sub-section 4 4 7 outlines the findings that emerged from this study in relation to empowering parents in the home environment

4.4.7 Provisions to Empower Parents in the Home Environment

From the findings it is evident that the majority of experts are of the opinion that healthy eating and healthy lifestyles are issues that should also be encouraged by parents, as the home is the key influence This is evident from the following comments

> 'There need to be focus on parents to create the right early environment' (Ex I)

> ' that comes back to the home being the key influence when children are young and of primary school age, where parents have such a huge influence over what they eat the parents need to be informed ' (Ex A)

> 'You can educate kids, but you need to have family involvement in it the whole family approach I think is more appropriate than just targeting the children' (Ex E)

In addition, one expert suggested that the obesity taskforce report should include recommendations on parenting

> 'There should be a section about 'parenting' and however much that might not go down too well, because I think that has been overlooked, I think that maybe people feel that they don't have that responsibility ' (Ex F)

Furthermore it was suggested that parents need help in creating a healthy meal for their children from buying the ingredients in the shop to producing a healthy dinner

> 'But parents, well they report that they have great difficulty with shopping and food preparation there are very big gaps in relation to those kind of things, it's not that mothers don't know that their child should eat vegetables, I mean that is desperately patronising what they don't know is how to take a product off the shelf and create a healthy meal with it ' (Ex C)

Similarly Ex B stated

> 'I think there is definitely an issue of parental education and more needs to be done to help parents it can be very difficult for parents under pressure to source fresh fruit, fresh vegetables and then fight the battle to get the kids to eat it '

According to Ex G, this can be done by

> 'supporting parents its having a programme which brings things on an ongoing basis it might be giving parents cook books or meal providers, supporting them in questions that they might ask it needs to be an ongoing programme it needs to be part of a much more comprehensive approach'

Moving on, sub-section 4 4 8 presents the findings in relation establishing a food labelling system in Ireland

4.4.8 Provisions for a Standard Food Labelling System

The need for a food labelling system m Ireland was another issue that emerged from the findings Ex A believes that if foods were labelled more clearly for parents that this can help them to make an informed choice as to what they are feeding their children

> 'There is quite a lot happening at an EU level in relation to improving the consumer protection in relation to nutrition and health and then this year they are looking at food labelling and nutrition labelling so that the labels are clear and understandable so that parents can make an informed choice in relation to what their children are eating'

This was reiterated by Ex B who stated that

> 'The whole issue of food labelling, I think that is an issue that teachers would support the simplification of the whole process I think that we would support something as simple as the traffic light system I think we will give support to it

The findings reveal that there is a need to educate children about the importance of healthy eating and exercise from an early age According to Ex G, younger children spend a great deal of time in nurseries and crèche The findings are outlined in sub-section 4 4 9

4.4.9. Provisions for Healthy Eating Programmes in Nurseries/Crèches

Ex:G reports that such a programme has been established in Sweden. In his view this is necessary as it:

> 'gives you quite a lot of control over what or at least part of what's going into children…because a lot of children now are being brought up in crèches really, so a considerable part of their day, and they have also done with people providing crèche facilities in terms of what nutrition they traditionally give to kids but also what food they give to actually feed the kids….younger children are now in crèches or nurseries so pre-school things need looking at….' (Ex:G).

He further comments that:

> 'all those countries which are near the top of the table in terms of quality of life indices, are also the ones most likely to have done, you know, some difficult work around trying to afford a healthy agenda for children and young people'.

In addition, Ex:B agrees that children should be educated about healthy eating from pre-school age. He states that:

> '….There should be a state pre-school system where children will be introduced and learn about healthy eating from day one. Well, almost, the French have a system where three year olds are in full-time pre-school and we should have the exact same thing that should involve food and it should involve exercise and that is where we are failing' (Ex:B).

4.4.10 Provisions for Health and Weight Checks in Primary Schools

From the findings it emerged that a national database is under development as a means to monitor the growth and weight of children in Ireland. Ex:H reported that:

> 'The Department of Health and Children has made a commitment to establish a National Database to monitor prevalence trends in growth, overweight and obesity in children. This is important both for policy development on childhood obesity, to prioritise actions and target those who most need nutrition and physical activity intervention….' (Ex:H).

She also stated that:

> 'WHO is developing a European childhood obesity surveillance initiative and DoHC (Dept of Health and Children) has agreed to participate in this initiative. Given that both these initiatives are similar, the Department of Health and Children has decided to combine these initiatives and use the WHO protocol as the basis for both' (Ex:H).

A number of experts take the view that BMI and health checks should be available in primary schools as way of monitoring the height and weight trends of children but this

would need to be conducted in a sensitive manner with proper supports for parents in place

> 'I think that if we could find a way to inform parents and children particularly themselves about their mental health and their bodily health in a way that was understandable, it wasn't patronising, it was supportive and it was encouraging that in theory there is nothing wrong with doing that, but it would indicate that the system thinks that you are important ' (Ex C)

> 'I think what we need is integrated services for children every school should have a school nurse, to allow the health board to keep an eye on all aspects of the children's health, not just their eye sight and their hearing but that they would do regular, for example, BMI checks and that could go on their school report as easily as their performance in Art or Religion Every year parents should have a check done on their child's physical health, now if that was done through school, you would be ensured of getting all children' (Ex B)

However, in contrast to this, Ex E argues that

> 'parents would not classify their children as overweight and obese bringing up the topic of weight can be a sensitive subject and they don't want it mentioned'

While Ex F agrees that parents may not be in favour of BMI and health checks, as they may feel that their children are being 'picked on' However, she believes that it is necessary from a health professional point of view for surveillance purposes only Sub-section 4 4 11 outlines the need for improved PE facilities in Irish primary schools

4.4.11 Provisions for Improved PE Facilities in Primary Schools

It emerged from the findings that there is a need to improve PE facilities in primary schools This is strongly suggested by Ex B, who stated that

> 'We've started a lobby for proper physical education facilities in our schools, with a little bit of success, I think the major pressure now is that the economy is turning there will be less money around so and the school population is growing so the Minister's priorities will be classrooms, chairs and rooms and bums on seats rather than proper PE facilities' (Ex B)

Similarly, Ex C reported that PE facilities need to be accessible to children

> 'There is no doubt that working with young people from an early age about making things accessible to them, making physical activity accessible, sporting and physical activity in the schools ensuring that things are accessible '

In agreement, Ex:D commented that more time needs to be allocated to PE classes in Ireland as it is less than other countries:

> '....the time spent on activity in school is a lot higher in countries like Canada, Australia and Scandinavian countries, so you know, we could certainly look to them in terms of our environment and in terms of our schedule at school....'

A number of the experts are of the opinion that there is a need for proper infra-structure to accommodate walking and cycling. The findings are outlined in sub-section 4.4.12.

4.4.12 Provisions for Safe Walk Ways and Cycle Lanes

It was suggested by a number of experts that safe walk-ways and cycles should be provided by County Councils under the Department of Transport. Experts agree that if the infra-structure was improved to accommodate walk ways and cycle ways, it would subsequently increase the levels of physical activity among children. In addition, Ex:D and Ex:G report that this has been successful in other countries where they have developed the environmental structure to provide walk ways and cycle routes. This is evident from the following comments:

> 'Transport policy is another area that has to be looked at because I don't think that we do enough to encourage children to walk to school or cycle to school, in terms of providing safe lanes and safe roads that they can travel on....in terms of providing safe lanes and safe roads that they can travel on....I think, County Councils or local authorities have to do far more to make it safe for children to walk to school or cycle to school' (Ex:B).

> 'The county councils have a responsibility to ensure that we have safe walk-ways and green areas and play areas so that people can actually safely become a bit more active, sports councils....' (Ex:D).

According to Ex:G:

> 'If you look at somewhere like Sweden for example....they have done a lot of work in relation to promoting exercise through things like, they have made cycling to be safer....in Ireland the approach tends to be, draw a white line on a road with a symbol of a bike on it and that's a bike lane whereas again the evidence is showing that you need to segregate bicycles and cars in a physical way' (Ex:G).

From the interview findings, experts agree that these are the necessary responses that need more consideration by the government to effectively reduce and manage overweight and obesity among children in Ireland. Finally, sub-section 4.4.13 offers a conclusion to the chapter.

4.4.13 Conclusion

This chapter presents the findings that emerged from the primary research through use of focus groups, questionnaires and interviews To begin with, it presents the findings of the initial exploratory data collection phase that emerged from a number of focus group discussions with parents/guardians of primary school-aged children in Counties Donegal and Sligo The insights gained from the focus groups were used to construct the content design of the questionnaire that was distributed to parents/guardians of fifth class pupils in a sample of primary schools in Counties Donegal, Sligo and Leitrim The findings that emerged from this questionnaire and its analysis are presented in detail Lastly, this chapter presents the findings that emerged from a number of face-to-face, telephone and electronically conducted interviews with a sample of expert interviewees These interviews were designed by the findings from the initial primary research findings Following on, chapter five will discuss and interpret the main issues that emerged from the findings of this study It will particularly focus on the necessary government responses that are outlined above which need to be grappled with by the government to address overweight and obesity among children in Ireland

5.0 Discussion of Findings

5.1 Introduction

The purpose of this chapter is to discuss the main findings that emerged from the primary research of this study in correlation with the secondary research in chapter two As previously outlined in chapter four, a number of responses needed by the government arose from the qualitative research with regards to reducing childhood obesity According to experts these responses need more consideration in terms of policy development to reduce and manage overweight and obesity in children This chapter will discuss these responses in the wider context of the overall findings below Firstly, section 5 2 discusses the key findings concerning the awareness of parents/guardians of environmental factors that influence the health and well-being of their children

5.2 The Awareness of Parents/Guardians of Environmental Factors that Influence the Health and Well-being of their Children

This section outlines the key findings that emerged from the study in relation to the perception of parents/guardians with regards to their children's diet and eating habits, sedentary activities and involvement in physical activity To begin with, sub-section 5 2 1 discusses the diet and eating habits of children including fast food and eating out

5.2.1 Diet and Eating Habits including Fast Food and Eating Out

One of the key findings from this study, in relation to the dietary habits of children, is that children consume low amounts of fruit and vegetables The findings within this study reveal that just over 15% of children actually consume five portions or more of fruit and vegetables on any given day This indicates that a large proportion of children are not obtaining sufficient fruit and vegetables in their daily diet as recommended by the WHO (2003a) In addition it supports the findings from the HDA (2001) and the HBSC (2006) surveys that fruit and vegetable consumption is

low among children and young people Moreover, the findings from this study reveal that less than 43% of parents consider five portions or more, of fruit and vegetables to be a healthy intake on any given day This indicates that the majority of parents are not aware of the recommended daily allowance of five portions of fruit and vegetables A comparison was made between what parents/guardians considered to be a healthy intake of fruit and vegetables on any given day and how many portions their children actually consume on a daily basis The results revealed that the majority of children did not consume the amount of fruit and vegetables that parents/guardians perceived as a healthy intake For instance, 17% of parents/guardians consider four daily portions of fruit and vegetables to be healthy, however, only 40% of their children consume this amount, while 30% consume three portions and 27% two portions only This reinforces the view of one of the parents/guardians who stated that it would be difficult for children to consume the recommended amount of fruit and vegetables as parents do not do so This study also reveals that vegetable consumption as part of the evening meal is lower among low income households compared to high income households Overall, the findings suggest that the majority of parents are unaware of the daily recommended amount of fruit and vegetables and consequently children are not consuming the daily recommended amount

The findings reveal that the consumption of sweets is common among children Sweets are consumed by 37% of children 2-4 days per week, with a further 22% doing so five days or more per week However, these results are lower than those reported by the HBSC (2006) survey which revealed that 39% of children consume sweets daily or more frequently Moreover, the findings also indicate that parents/guardians reward their children with treats for eating their evening meal

Almost a quarter of children (22%) eat out once a week, while a further 15% eat out every fortnight In addition, almost 24% of children consume food from a take-away once a week, while 14% do so once every fortnight These findings support the view of Jekanowski (1999) that eating away-from-home has become more popular Moreover, restaurants and fast food chains are the most popular places to eat out in at 49% and 33% respectively The most popular meal to be ordered when eating out is burger and chips (29%) followed by meat and vegetables (28%) and nuggets and chips (21%) When eating from a take-away, the majority prefer a Chinese take-away

(40%), followed by nuggets and chips (21%) and pizza (17%) According to Zoumas-Morse *et al* (2001) more calories are consumed from meals that are eaten away from home Furthermore, Prentice and Jebb (2003) reported that regular consumption of fast food can lead to the consumption of excess calories which promote weight gain Therefore, the findings of this study suggest that parents/guardians may not be aware of the association between the regular consumption of convenient meals and the associated risk of weight gain or becoming overweight

While the main findings of this study indicate that there is regular consumption of sweets, fast food and take-away meals and low consumption of fruit and vegetables among children, interestingly the majority of parents are satisfied (62%) or very satisfied (21%) that their children consume a healthy diet This suggests that the majority of parents/guardians are unaware that the dietary habits of their children can lead to their children becoming overweight and obese Following on, sub-section 5 2 2 discusses the findings that emerged from the study in relation the amount of time children spend watching television and playing computer games

5.2.2 Television Viewing and Computer Playing

The findings from this study indicate that 57% of children watch two hours or more of television on weekdays, increasing to 80% on weekend days These findings are similar to those reported by the BCI (2006) Moreover, many authors have revealed that increased television can be associated with overweight and obesity among children For instance Gortmaker *et al* (1996) revealed that the prevalence of overweight increases among young people who watch more than two hours of television per day Likewise, Hancox and Poulton (2005) concluded that increased levels of television viewing play a significant role in the obesity epidemic Therefore, the main findings from this study suggest that children, who watch more than two hours of television per day, are increasing their risk of becoming overweight

According to Tremblay and Willms (2003) sedentary activity such as playing computer games for long periods of time, can be associated with obesity among children The findings from this study reveal that 7% of children spend two hours or more playing computer games on weekdays increasing to 33% on weekend days In

addition, Stettler *et al* (2004) reported that playing computer games for more than two hours per day, increases the risk for becoming overweight. Therefore the findings from this study suggest that children, who play computer games for more than two hours per day, are increasing the risk of becoming overweight. In addition, a comparison was made between children from rural schools and children from urban schools to investigate if there was a difference in the time they spent playing computer games. Just over 1% of children from rural schools spend three hours or more playing computer games on weekend days compared to more than 18% of children from urban schools. Therefore the findings from this study suggest that the risk of being overweight is higher among children from urban schools who spend more than two hours daily playing computer games.

Moreover, a significant difference was found between boys and girls and the amount of time they spend playing computer games on weekdays and weekend days. Only 7% of girls play computer games for two hours on weekdays compared to 13% of boys. Similarly, on weekend days, less than 17% of girls play computer games for two hours compared to 30% of boys. These findings suggest that the risk of overweight is higher among boys as a higher percentage of boys play computer games for two hours on weekdays and on weekend days. Overall, the findings indicate that parents/ guardians are aware of the amount of time that their children spend watching television and playing computer. While previous research reveals that watching television and playing computer games for two hours or more per day, increases the risk of becoming overweight, the findings of this study suggest that parents/guardians are not aware of the association between the amount of time involved in sedentary entertainment and the risk of becoming overweight.

Furthermore, the findings from this research indicate that 76% of children snack on foods while watching television and playing computer games. In addition it was also revealed that the most common foods to snack on are: crisps (39%), fruit (22%), yoghurt (19%), biscuits (16%), sweets (11%) and chocolate (8%). Moreover, previous authors have suggested that children can gain weight by passively consuming foods while watching television (Ebbeling *et al*, 2002; Marshall *et al* 2004; Oliver, 2006). Therefore the findings suggest that the snacking behaviour of children while watching television and playing computer games, further increases the risk of becoming

overweight. Moreover, these findings indicate that parent/guardians are aware of the foods that their children tend to snack on while viewing television and playing computer games. However, the findings also suggest that parents/guardians may not be aware that the consumption of snacks while watching television and playing computer games can promote weight gain. Moving on, sub-section 5.2.3 discusses the findings in relation to parent's/guardian's perceptions of advertising on the diet of their children.

5.2.3 The Effects of Advertising

In addition to snacking and passively consuming foods while watching television, it has also been suggested that television food advertisements influence the food choices of children and young people (Halford *et al*, 2004). The findings from this study reveal that 72% of parents agree that the eating habits of their children are influenced by advertising. These findings support the view of O'Sullivan and Kelly (2005) who reported that one third of parents believe that children's eating habits are influenced by television advertising. Furthermore, the findings from this research show that less than 1% of parents/guardians are of the opinion that television food advertising *always* promotes healthy eating which further supports similar findings reported by O'Sullivan and Kelly (2005). Moreover, the findings from this study indicate that parents/guardians consider fizzy drinks, fast food, cereals, chocolate, yoghurt and sweets as the most commonly advertised foods during children's television. These findings are similar to those reported by O'Sullivan and Kelly (2005) and Powell *et al* (2007). This further reiterates the view of other researchers who reported that the foods that are least recommended for consumption, are the foods that are promoted through advertising (Story and French, 2004; Report of the National Taskforce on Obesity, 2005). In addition, more than 30% of parents/guardians take the view that television food advertisements have an effect on the diet of their children. Furthermore, 27% of parents/guardians reported that their children put pressure on them to buy items that they see advertised on television. Of these respondents, 60% 'give in' to their children and purchase food items that are requested. Therefore the findings of this study indicate that parents/guardians are aware that television food advertising can influence the food preferences of children and that parents/guardians 'give in' and purchase requests for food items that are commonly advertised on

television. Sub-section 5.2.4 discusses the findings that emerged from the study in relation to the perceptions of parents/guardians of their children's involvement in physical activity outside of school.

5.2.4 Physical Activity

The findings indicate that 94% of children are involved in extra-curricular activities outside of school. However, less than half of the children (46.5%) spend five hours or more being physically active per week which support the findings from the HBSC (2002) and the HBSC (2006) surveys. These findings indicate that the majority of children are not physically active for one hour per day, as recommended by the WHO (2003b). Despite these findings, the majority of parents/guardians reported that they are satisfied (42%) or very satisfied (41%) that their children engage in sufficient physical activity. Therefore, within this study the findings indicate that the majority of parents are not aware that their children are not obtaining sufficient daily physical exercise.

Overall these findings suggest that parents/guardians are not fully aware of the influence environmental factors have on the health and well-being of their children. These findings support the view of the experts who report that there is a need for government to ensure that there are provisions in place to empower parents in the home environment. Section 5.3 moves on to discuss the role of the government in addressing the issue of childhood obesity. It then discusses the view of the experts regarding empowering parents in the home environment.

5.3 The Need for Government Intervention

The findings from this study reveal that experts are of the opinion that there is a need for government intervention in Ireland with regards to developing policies to tackle childhood obesity and that the main role of the government is to give leadership (Ex:A, Ex:C). In addition, the majority of the experts support the view that a multi-stranded approach, as proposed by the WHO (2007), needs to be adopted by the government to effectively reduce the growing rates of childhood obesity in the long-term. Moreover, this approach is outlined in the report of the National Taskforce on

Obesity (2005) along with an extensive list of recommendations that need to be implemented and led out by the government to tackle the obesity issue. However, a number of experts are of the opinion that there has been 'inactivity' and 'quite a significant delay' in implementing the proposed recommendations included in the report since its introduction. Ex:G suggests that a number of the recommendations within the report have implications for the food industry and that this may explain why the government has not effectively implemented recommendations with regards to this area. In contrast to this, Ex:D defended the government's lack of inactivity by stating that these recommendations were not legislation and therefore 'there is no particular requirement to have them fulfilled by any particular time....'. In addition, two experts agree that the report has been effective in that it has made the wider population more aware of the obesity issue. Moreover, in recent times a campaign has been launched by the HSE and Safefood in conjunction with the HPA (Northern Ireland), to raise awareness in the public domain with regards to healthy eating and physical activity (HSE, 2008). A similar campaign which was launched in the Netherlands in 2003, which has since proved successful in raising awareness around the obesity issue among consumers (Covenant on Overweight and Obesity, 2005).

While the findings indicate that government intervention is necessary, experts also take the view that parents must take some responsibility for the health and well-being of their children. For instance, Ex:F strongly argues that parents need to informed of their responsibilities for the health and well-being of their children. She suggests that the report of the National Taskforce on Obesity should have included recommendations with regards to 'parenting' to highlight these responsibilities to parents. This leads onto sub-section 5.3.1 and the need for provisions to empower parents in the home environment.

5.3.1 Provisions to Empower Parents in the Home Environment

The findings from this study reveal that experts are of the opinion, that while there is a need for government intervention in addressing childhood obesity; parents also have a responsibility for the health and well-being of their children. According to Ex:I, the government needs to focus on parents/guardians to ensure that they 'create the right early environment' as it is their responsibility to promote healthy eating and physical

activity among their children. In addition, Ex:A is of the opinion that the home is the key influence and that family intervention is needed as parents influence their children's eating habits. This is an important issue as the eating habits developed during childhood tend to persist into adulthood (Mikkilä *et al*, 2004). As already mentioned, key findings from this study suggest that parents/guardians are not aware of the full implications that environmental factors (energy dense foods, sedentary entertainment, advertising and the lack of physical activity) may have on the health and well-being of their children. While the WHO recommends that overweight and obesity can be reduced at an individual level by consuming a healthy diet and being physically active, it also reports that to implement these recommendations, there is a need for government intervention 'in shaping healthy environments' to ensure that healthier options are accessible to people (WHO, 2006a, p.2). Therefore, the findings from this research suggest that there is a need for government to ensure that there are provisions in place to support parents as they are the main role models for their children. Parents/guardians need to be informed about making healthy choices with regards to the diet, exercise and lifestyle of their children. In addition, a number of experts reported that to there is a need for the government to establish a food labelling system in Ireland as this would further enhance the food choices made by parents. The findings that emerged in relation to this issue are discussed in sub-section 5.3.2.

5.3.2 Provisions for a Standard Food Labelling System

The findings from this study reveal that 43% of parents never check food items for calorie content and 34% never check labels for carbohydrate or sugar content when shopping for food. According to Ex:A there is a need to establish a food labelling system, which can assist parents in making an informed choice about the foods that their children are consuming. This view is further supported by Ex:B and he further states that his organisation would be supportive of the 'traffic light system' that has been established in the UK. These findings reinforce those from EHN project (Lobstein *et al*, 2006) and the PorGrow project (Lobstein and Millstone, 2006) which both concluded that improved nutritional labelling is necessary to reduce growing trends in obesity. This supports the view of the experts that parents need to be made more aware about the nutritional value of foods that they are purchasing for the provision of healthy meals in the home. Moving on, section 5.4 discusses the key

findings that were generated from the study in relation to the effectiveness of school-based initiatives.

5.4 Effectiveness of School-based Initiatives

To begin with, this section discusses the findings in relation to healthy eating policies and the SPHE programme in primary schools. It then outlines a number of actions, proposed by experts, that the government needs to consider to reduce overweight and obesity in children within the school setting. Within this study, it was revealed that 95.5% of the participating schools in the North-West region have a healthy lunch policies in place. These findings suggest that the majority of children in this region consume school lunches that comply with the schools healthy eating policy as recommended by the DoHC (2003). Results from this study indicate that the majority of children consume a sandwich (95%), fruit (62%) and yoghurt (57%) for lunch, while only a small minority consumes foods such as crisps (7%), chocolate (3%) and sweets (2%). These findings further support the view of Ex:D who states that healthy eating initiatives in schools can be successful in the removal of junk food from school lunches. In addition Ex:F reports that school lunches are more 'nutritiously balanced' along with having a positive effect on the health of children. This indicates that school-based initiatives such as healthy eating policies are an effective measure in the promotion of healthy eating in the school setting.

However, the findings suggest that the way in which healthy lunch policies are implemented, vary from school to school. It emerged that some schools are strict in how they enforce the healthy lunch policy while others are more lenient. According to Ex:B some schools have a 'formalised' and 'sophisticated' healthy eating policy compared to other schools. Furthermore, Ex:C reported that sometimes schools have the healthy eating policy 'policed' in 'very odd ways', although she is of the opinion that they are effective as there is 'no competition' between children and it creates awareness among children of the benefits of healthy eating. This further supports the view of other authors, Warren *et al* (2003), Carter and Swinburn (2004) and Raine (2004) that the school is a suitable environment for targeting children to promote healthy eating. However, Ex:G argues that while school-based initiatives are

successful in the school environment, he states that they are not effective on their own and would gain much more credence as part of a multi-stranded approach

According to a number of experts, the SPHE programme in primary schools is an effective programme in that it creates awareness among children about their health and physical well-being For instance, Ex C is of the opinion that children are well educated about nutrition and exercise through the SPHE programme In addition this supports the view of one parent/guardian who states that all children are aware of being healthy as they are taught this through the school curriculum However, while these findings suggest that healthy eating policies in schools and the SPHE programme are effective in educating children about the benefits of health, nutrition and physical activity, the above findings in relation to their diet and exercise habits at home contradict these findings This is supported by a respondent who argues that children are educated about healthy eating and regular exercise at school but that it needs to be further encouraged by parents in the home environment She states that 'they can rhyme off everything, the message is there from baby infants, but it's not actually going into their mouths' (DP1) This suggests that children consume healthy foods at school, but this is not being further extended to the home environment, thereby supporting the view of the experts that the government needs to empower parents to promote the health and well-being of their children in the home

In addition, a number of experts take the view that children should be educated about the benefits of healthy eating from an early age To do this, they suggest that the government should extend healthy eating policies to nurseries and crèches as a means of targeting preschoolers In this way children will gain knowledge about healthy eating habits from early childhood These findings are further discussed in sub-section 5 4 1 below

5.4.1 Provisions for Healthy Eating Programmes in Nurseries/Crèches

The findings reveal that a number of experts are of the opinion that healthy eatmg policies should be implemented in nurseries and crèches so that children can be educated about the importance of a healthy diet from an early age Ex C states that the government needs to examine the nutrition of children to a greater extent, from early

childhood to late adulthood. In addition Ex:B strongly believes intervention during early childhood is necessary. He argues that a state pre-school system needs to be established by way of educating children about nutrition and healthy lifestyles from an early age. He states that in France, children attend full-time pre-school from the age of three years and a similar system is necessary in Ireland, to initiate the promotion of healthy eating and physical activity among children during early childhood. Similarly, Ex:G agrees that the provision of nutritional meals is necessary in crèches as well as schools, because nowadays, many young children spend long periods of time in childcare. In his view the Scandinavian countries have been successful in establishing such initiatives. On the basis of these findings, it is suggested that school-based healthy eating policies can be effective in promoting healthy eating in primary schools. This further supports the view of the experts that similar policies should be implemented in pre-school establishments as a means of targeting children during early childhood prior to reaching primary school age. According to parents/guardians and experts, the PE curriculum needs to be improved in primary schools. Sub-section 5.4.2 discusses the findings that emerged in relation to this issue.

5.4.2 Provisions for Improved PE Facilities for Primary Schools

This study revealed that the majority of parents/guardians (65%) do not consider sports policies in primary schools to be appropriate. It highlights a number of barriers that prevent school children from gaining the benefits of physical activity through regular PE classes. For instance the main barrier for many schools is the lack of indoor facilities. The findings reveal that less than 40% of primary schools in the North-West region of Ireland do not have access to indoor facilities to accommodate PE classes. This is supported by a number of parents who take the view that sports policies in primary schools are not being met due to a lack of resources. This corresponds to research conducted by the INTO (2008) which revealed that many primary schools in Ireland have no indoor facilities. Moreover, according to Ex:D this barrier means that PE classes are weather dependent. This is supported by IDNO: 9, who reported that 'the school has no proper facilities to accommodate PE in Irish weather'. This is again reiterated by Ex:B and he claims that this 'is sending the wrong message entirely to young children'.

A second barrier that emerged from this study is the time constraints with regard to PE classes. According to the Department of Education and Science (1999) the recommended amount of time allocated to PE classes is one hour per week. However, the INTO (2008) states that the average time allocated to PE classes in Ireland do not meet this recommendation and that children in Irish schools are less physically active compared to other EU countries. In addition, 46% of parents/guardians take the view that the lack of PE at school is contributing to their children's overall lack of physical activity. The findings suggest that greater involvement in PE at school would increase the confidence levels of children and motivate them to be more physically active outside of school (IDNO: 58; IDNO: 179). This supports the findings from a Canadian based programme involving compulsory daily physical activity for 30 minutes is having a positive effect on reducing levels of overweight and obesity (CAHPERD, 2008). Additional PE in schools is further supported by the Scottish government as it recently proposed to increase classes to two hours per week along with improved facilities to accommodate sport and physical activity during break times at school (Scottish Government, 2008). Therefore, this suggests that there is a need for government to increase the recommended amount of PE time in Irish primary schools and that all primary schools should be provided with adequate facilities and resources to accommodate PE classes to further increase physical activity levels among school-aged children. On the basis of these findings, this further supports the view of the experts that the government needs to improve PE facilities in primary schools.

According to a number of experts children must have access to safe walk-ways and cycle lanes to further increase their activity levels. Section 5.4.3 discusses the findings that emerged relation to this issue.

5.4.3 Provisions for Safe Walk Ways and Cycle Lanes

According to a number of experts, safe walk-ways and cycle lanes should be provided to increase activity levels among children. Ex:B states that the Department of Transport needs to examine policy for the provision of safe walkways and cycle ways for children to travel to school. Ex:G cricitises the efforts made in Ireland to create bicycle lanes on the side of the roads. He believes that bicycles and cars need to be

segregated from each other for the provision of safe cycle routes He claims that a number of other countries have been somewhat successful in the implementation of policies with regards to providing safe cycle routes to promote physical activity This view is supported by Ex D who reports that countries such as Canada, Australia and some European countries have made improvements in infra-structure for the provision of cycle ways and parks and recreational facilities have been developed to provide play areas for children to promote physical activity

Following on, section 5 5 discusses the findings that emerged in relation to the awareness of parents/guardians of their children's health and weight It then outlines the view of the experts on the need for provisions for weight and health checks in primary schools

5.5 The Awareness of Parents/Guardians of Their Children's Health and Weight

The data from this research indicates that almost 50% of parents rate their child's health as excellent, 42% rate their child's health as very good and 8% rate their child's health as good None of the respondents rated their child's health as fair or poor Overall, this suggests that the majority of parents/guardians perceive their children as healthy According to Eckstein *et al* (2006) parents of children who are overweight or at risk of being overweight do not recognise their children as being overweight This may also be the case within this study as 41% of parents/guardians did not know their child's actual weight, yet 83% described their children's weight as normal This was also highlighted by Ex A, who stated that findings from a previous Irish study showed that a large proportion of parents did not identify their children as being overweight when in effect, they were While the findings from this study reveal that 14% of 10-12 year olds in the North-West region are overweight, there is a possibility that this figure is underestimated due to parental perceptions of their children's weight Therefore the findings from this study suggest that parents/guardians may not be aware of their children's weight and that regular health and weight checks are necessary A number of the experts support this view which is outlined in sub-section 5.5.1.

5.5.1 Provisions for Health and Weight Checks in Primary Schools

According to the HSE (2006), there is no standard definition of childhood overweight and obesity The fixed BMI standards that are used for the classification of overweight and obesity among adults are not considered to be appropriate as the weight and height of children are constantly changing from birth to teenage years (Fahey *et al,* 2005) Ex H revealed that that a national database to monitor trends in growth, overweight and obesity in children is currently under development by the Department of Health and Children This will also assist in policy development and will help target children who need nutrition and physical activity intervention Ex G supports this view that the measurement of children should be monitored providing the appropriate supports and services are in place In addition, Ex F is of the opinion that such methods are necessary from a health professional point of view although it may raise some concerns among parents Therefore, the findings reveal that a national database to monitor the trends of growth, overweight and obesity among school children is under development and this will effectively target those who are overweight and obese provided appropriate supports are in place for parents

Moreover, Ex B claims that if BMI checks were conducted through primary schools, it would ensure that every child would be monitored He supports the enactment of BMI legislation which requires annual BMI screening for all public school students in Arkansas (National Conference of State Legislatures, 2007) An evaluation of this legislation has since shown that the level of overweight among school children has decreased (Arkansas Center for Health Improvement, 2006) In addition, a number of other American states have introduced similar legislation with regards to BMI screening at school (National Conference of State Legislatures, 2007) This suggests that BMI legislation may need to be considered by government to effectively reduce levels of overweight among school children Finally, section 5 6 concludes this chapter

5.6 Conclusion

The findings of this study suggest that parents are not aware of the full extent to which environmental factors influence the health and well-being of their children The key findings suggest that children regularly consume sweets and meals eaten outside the home, while fruit and vegetable consumption is low In addition, the findings suggest that children spend a great deal of time involved in sedentary activities Furthermore this study indicates that the majority of parents/guardians are of the opinion that the eating habits of their children are influenced by television food advertisements and that unhealthy foods are more likely to be advertised during children's television Moreover, while the majority of children are involved m physical activity outside of school, the majority of them are not obtaining the recommended amount

The key findings reveal that experts are of the opinion that there is a need for government intervention to address this issue although parents/guardians must take some responsibility for the health and well-being of their children In addition, the findings suggest that certain school-based initiatives are effective in educating children about the benefits of healthy eating and regular physical activity but they need to be part of a multi-stranded approach to be effective for the long-term The findings suggest that they need to be further extended to the home environment so that there is consistency between the school and home settings

Experts take the view that a number of additional responses need to be considered by government to further enhance policies and initiatives that are already in place For instance, the key findings suggest that parents/guardians need to be empowered to promote the health and well-being of their children in the home environment In spite of this a new campaign has recently been launched in Ireland which focuses on the promoting healthy eating and physical activity Moreover, experts take the view that the government needs to establish a standard food labelling system to encourage parents/guardians to make healthier food choices for their children Other responses to build upon existing school-based initiatives include implementing healthy eating policies in nurseries and crèches, improving PE facilities in primary schools and providing safe walk-ways and cycle lanes to encourage children to walk or cycle to

school While a national database is under development to monitor trends in growth, overweight and obesity through the school setting, a number of experts are of the opinion that this could be further enhanced by introducing BMI legislation within primary schools

6.0 Conclusion and Recommendations

6.1 Introduction

This purpose of this chapter is to give an overall conclusion to the research that was conducted and on the basis of this, to suggest a number of recommendations that may need to be considered The aim of this research was to explore the heath and well-being of children in the North-West region of Ireland in the context of childhood obesity and to examine the effectiveness of existing government policies and initiatives that have been introduced as a means to address the issue To begin with, section 6 2 outlines the limitations of the research

6.2 Limitations of Research Paradigm

Firstly, the participants in the focus group sessions were female As participation was on a voluntary basis, there was no way of ensuring that both mothers and fathers would attend the discussion groups

Secondly, a number of schools that were contacted chose not to participate in the study Reasons for this included involvement in other studies and time constraints In addition, a number of principals felt that questions concerning topics such as marital status and income were 'too personal' and therefore parents would not answer these questions honestly

Thirdly, some of the respondents may have found questions relating to the eating habits and physical activity of their children as being intrusive For this reason some respondents may not have answered them as honestly as they possibly could have According to various authors such as Livingstone *et al* (2004) and Cade *et al* (2006) it can be difficult to assess the diet of young children as the reporting of eating habits can be inaccurate Therefore, questions regarding the dietary habits of children may not have been answered accurately

Fourthly, as the area of childhood obesity is such a broad one, input from other professionals may have enhanced the data collection but due to resources and time allocated to conduct this study, this was not possible. Three other organisations were contacted but refused participation for reasons including busy schedules and time constraints.

Lastly, from the two interviews that were electronically conducted, it was evident that the responses given were shorter than those obtained through use of face-to-face and telephone interviews. However, these limitations do not appear to expose any major defects to the study.

Moving on, section 6.3 provides an outline of the key findings that emerged from this study. In addition, a number of recommendations are suggested which need to be considered by policy-makers as measures to promote the health and well-being of school-aged children, in the fight to reduce and manage childhood obesity.

6.3 Summary of Key Findings

According to experts there is a need for government intervention in addressing the childhood obesity issue, however, parents have a responsibility to promote healthy eating and exercise in the home environment. For parents to do this effectively, experts are of the opinion that the government needs to empower parents by ensuring that there are provisions in place to support them as they are the main role models to their children.

6.3.1 The Home Environment

The findings from this study reveal that many parents/guardians are not aware of the extent to which environmental factors influence the health and well-being of their children. For instance, the findings suggest that parents/guardians are not aware that the diet and eating habits of their children can lead to overweight and obesity. The results from this study revealed that the majority of children do not consume the recommended daily amount of fruit and vegetables in their diet although this is not surprising as the majority of parents/guardians did not know the recommended daily

amount The findings also indicate that children regularly consume sweets and meals outside the home, further increasing their risk for overweight and obesity In addition, children spend a considerable amount of time involved in sedentary activities such as television viewing and computer playing which can increase their risk for overweight and obesity While parents/guardians are aware of the amount of time their children spend involved in such activities, and their snacking behaviour, the findings suggest that they are not aware of the link between such activities and their association with overweight and obesity The key findings also reveal that the majority of parents/guardians are of the opinion that their children's eating habits are influenced by television food advertisements and 34% take the view that television food advertisements have an effect on the diet of their children Moreover, the findings indicate that children are not meeting the recommended amount of physical activity, yet the majority of parents are satisfied that their children engage sufficient physical activity

On the basis of these findings the following recommendations need to be considered by policy-makers to create a greater awareness among parents and the importance of promoting healthy eating habits and regular exercise in the home environment

- Nutrition education programmes for parents which can enable them to make healthier food choices for their children in the home and when eating out

- Advertising campaigns to promote consumption of fruit and vegetables and healthy food choices

- Information campaigns which encourage less television viewing and computer playing among children

- Information campaigns which encourage parents and children to be active together to increase levels of physical activity

6.3.2 The School Environment

The findings from this study reveal that the school environment is a suitable setting for targeting children to promote healthy eating In addition, it can be concluded that the majority of primary schools have a healthy eating policy in place However, the findings indicate that the implementation of the healthy eating policy can vary from school to school On the basis of these findings the following recommendation may need to be considered

- A mandatory healthy eating policy that must be consistent between primary schools

According to the experts, the SPHE curriculum in primary schools is an effective programme in educating children about the benefits of health, nutrition and exercise However, experts are of the opinion that children should be educated about the benefits of healthy eating and physical activity from early childhood The findings indicate that children spend a great deal of time in nurseries and crèches and this setting would be ideal for targeting pre-school age children On the basis of these findings the following recommendations need to be considered

- Development of a healthy eating policy for pre-schoolers in childcare

- Nutrition education programme for pre-schoolers to inform them of the benefits of health, nutrition and exercise

PE is a compulsory as part of the primary school curriculum and it is recommended that children should be involved in one hour of PE per week in primary school However, the findings indicate that the majority of parents do not consider the sports policies in primary schools to be appropriate Many primary schools are faced with a number of barriers which prevent them from facilitating PE classes For instance, almost 40% of primary schools in the North-West region do not have access to indoor facilities to accommodate PE classes Therefore, for many primary schools, PE classes can only be held when the weather is suitable As a result of this, children are

not obtaining the recommended amount of PE and as a result, children in Irish primary schools are less physically active compared to other EU countries In addition experts take the view that if safe walk-ways and cycle lanes were provided, this would enable more children to walk or cycle to school, thereby increasing their physical activity levels On the basis of these findings the following recommendations need to be considered

- Investment in PE facilities to ensure that every primary school has access to indoor facilities

- Increase recommended amount of PE to two hours per week to promote physical activity

- Promotion of physical activity in the school environment to motivate children to be more physically active

- Investment in infra-structure to provide safe walk-ways and cycle ways for children to travel on to school

The main findings from this research indicate that the majority of parents/guardians rate their children's health as excellent or very good In addition, the majority of parents/guardians describe their children's weight as normal and 14% describe their child's weight as overweight However, previous research indicates that a large proportion of parents do not recognise their children as overweight, when technically they are The findings revealed that a national database is under development to monitor trends in growth, overweight and obesity In addition, according to experts regular health and weight checks are necessary within the school setting as this ensures every child is targeted On the basis of these findings the following recommendations may need to be considered

- Provisions for school nurses and dieticians within primary schools

- Implementation of BMI legislation which would require measuring the BMI of primary school children on a regular basis with appropriate supports in place for parents

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Appendices

Appendix A

Topic Guide for Focus Group Discussion

The following guide outlines a list of topics for discussion that are relevant to the study

- Health and weight of children Perception of children's health and weight
- Diet and Eating Habits What children consume for the three main meals of the day, fruit and vegetable consumption, consumption of 'treats' such as sweets, chocolate, crisps
- Fast Food and Eating Out Frequency of children eating out, where they like to go to eat out, meals that they tend to order when eating out
- Television Viewing and Playing Computer Games The amount of time spent watching television and playing computer games
- Effects of Advertising Effects of food advertising on the eating habits of children
- Physical Education and Physical Activity Children's involvement in primary school PE curriculum, children's engagement m physical activity outside of school
- Awareness of policies in relation to healthy lifestyles in children

Appendix B

Volunteer Form:

I volunteer to participate in this research and I am aware that any comment I contribute may be used anonymously for the purpose of this research

Sign:_____

Date:_____

Appendix C

Questionnaire

Dear Parent/Guardian,

I am a postgraduate student currently undertaking a Research Masters course in Sligo, Institute of Technology The main topic of my research is childhood obesity and its causes among school age children in the North-West region As part of the research I am using questionnaires to unearth information surrounding the topic I have chosen to base my research on children in fifth class in primary school I would be grateful if parents would be willing to take the time to fill in the following questions to gain an insight into the lifestyle of children at the present time All information given will be used anonymously and in confidence I would be grateful to anyone willing to participate and your contribution to this research study would be hugely appreciated

Ann Mc Cauley,
Research Student,
I T Sligo

Section 1: Details of Child

Q. 1. What age is your child?

10 years [ ]
11 years [ ]
12 years [ ]
13 years [ ]

Q. 2. Sex of child:

Male [ ] Female [ ]

Q. 3. In general, how would you rate your child's health, with 1 being excellent and 5 being poor? Please circle the appropriate number.

Excellent	1
Very Good	2
Good	3
Fair	4
Poor	5

Q. 4. Do you know what the BMI (Body Mass Index) is?

Yes [ ] No [ ]

Q. 5. Do you know how the BMI (Body Mass Index) is measured?

Yes [ ] No [ ]

Q. 6. (a) Do you know your child's weight without clothes?

Yes [ ] No [ ]

Q. 7. (a) Do you know your child's height without shoes?

Yes [ ] No [ ]

Q. 8. How would you describe your child's weight? Please tick one of the following:

Underweight	[ ]	Overweight	[ ]
Normal	[ ]	Very overweight	[ ]

Section 2: Parental Details

Q. 1. What county do you live in? Please tick one of the following:

Donegal	[ ]	Leitrim	[ ]
Sligo	[ ]	Other	[ ], please specify_____

Q. 2. What age are you? Please tick the appropriate box:

25-30 yrs	[ ]	41-44 yrs	[ ]	55-60 yrs	[ ]
31-34 yrs	[ ]	45-50 yrs	[ ]	61-64 yrs	[ ]
35-40 yrs	[ ]	51- 54 yrs	[ ]	65+ yrs	[ ]

Q. 3. What is the highest level of education you have achieved? Please tick the appropriate box.

Primary school education only	[ ]
Intermediate/ Junior Certificate	[ ]
Leaving Certificate	[ ]
Certificate at third level	[ ]
Diploma at third level	[ ]
Degree at third level	[ ]
Masters/ PHD at third level	[ ]
Other, please specify	[ ] _____

Q. 4. What is your present marital status? Please tick the appropriate box.

Married	[ ]	Divorced	[ ]
Separated	[ ]	Widowed	[ ]
Cohabiting	[ ]	Single/ Never married	[ ]

Q. 5. What is your household's total net income per year, i.e. income from all sources (Include social benefits, etc)? Please tick the appropriate box.

Below €10,000	[ ]	€61,000 - €70,000	[ ]
€10,000 – €20,000	[ ]	€71,000 - €80,000	[ ]
€21,000 – €30,000	[ ]	€81,000 - €90,000	[ ]
€31,000 – €40,000	[ ]	€91,000 - €100,000	[ ]
€41,000 – €50,000	[ ]	€101,000 - €120,000	[ ]
€51,000 – €60,000	[ ]	more than €120,000	[ ]

Q. 6. What is your nationality? Please tick the appropriate box.

Irish [ ]

Other nationality [ ], please specify _____

Section 3: Diet and Eating Habits

Q. 1.What does your child eat for breakfast on a typical day? Please tick from the following:

Plain cereal (e g rice krispies, cornflakes)	[ ]	Fruit	[ ]
Sugar-coated cereal (e g cocoa pops, frosties)	[ ]	Breakfast juice	[ ]
Toast	[ ]	Tea/ Coffee	[ ]
Egg	[ ]	Milk	[ ]
Sausages	[ ]	Water	[ ]
Bacon	[ ]		

Q. 2. What does your child do for lunch? Please tick the appropriate box.

Brings a packed lunch [ ]

Comes home for lunch [ ]

Eats in school canteen [ ]

Buys lunch from school tuck-shop [ ]

Lunch is supplied by the school [ ]

Q. 3. If your child brings a packed lunch to school, who is the lunch prepared by? Please tick one of the following:

Mother [ ]

Father [ ]

Older sibling [ ]

The child himself/ herself [ ]

Childminder/ Carer [ ]

Other [ ], please specify _____

Q. 4. What constitutes a typical lunch for your child? Please tick from the following:

Meat and vegetables	[ ]	Soup	[ ]
Salad	[ ]	Fried foods	[ ]
Rice/ Pasta	[ ]	Crisps	[ ]
Bread with filling	[ ]	Chocolate	[ ]
Rolls with filling	[ ]	Sweets	[ ]
Wraps with filling	[ ]	Nuts	[ ]
Yoghurt	[ ]	Fizzy drinks	[ ]
Cheese	[ ]	Milk	[ ]
Fruit	[ ]	Water	[ ]
Crackers	[ ]	Tea/ Coffee	[ ]
Biscuits	[ ]	Fruit Juice	[ ]
Scone	[ ]	Other	[ ], please specify _____

Q. 5 How often does your child consume the following foods as part of the evening meal? Please put an X in the appropriate boxes.

	Never	**Less than once a week**	**Once a week**	**2-4 days a week**	**5-6 days a week**	**Every day**
Meat (Inc steak, beef)						
Poultry(Inc chicken, turkey,)						
Fish						
Vegetables						
Potatoes						
Rice dish (eg Curry)						
Pasta dish (eg lasagne)						
Fried foods						
Chips						

Q. 6. Who prepares the evening meal? Please tick one of the following:

Mother [ ]

Father [ ]

Sibling [ ]

Childminder/ Carer [ ]

Other [ ], please specify _____

Q. 7. What would you consider to be a healthy intake of fruit and vegetables for your child on any given day? Please tick one of the following:

One portion	[ ]	Four portions	[ ]
Two portions	[ ]	Five portions	[ ]
Three portions	[ ]	More than five portions	[ ]

Q. 8. How many portions of fruit and vegetables does your child eat on any given day? Please tick one of the following.

One portion	[ ]	Four portions	[ ]
Two portions	[ ]	Five portions	[ ]
Three portions	[ ]	More than five portions	[ ]

Q. 9. How often does your child consume the following foods?

Please put an X in the appropriate boxes.

	Never	Less than once a week	Once a week	2-4 days a week	5-6 days a week	Once a day, every day	Every day, more than once
Sweets(Candy)							
Chocolate (Sweets, bars,)							
Crisps/Popcorn							
Chocolate/ iced biscuits							
Plain biscuits							
Cakes(buns, pastries, etc)							
Ice-cream							
Fizzy drinks							
Diet fizzy drinks							

Q.10. When shopping for food, do you check food items for their calorie content?

Always [ ]

Often [ ]

Occasionally [ ]

Never [ ]

Q. 11. When shopping for food, do you check labels for carbohydrate or sugar content?

Always [ ]

Often [ ]

Occasionally [ ]

Never [ ]

Section 4: Fast Food and Eating Out

Q. 1. Where does your child like to go to eat out?

Hotel [ ]

Restaurant [ ]

Café [ ]

Fast food outlet [ ]

Other [ ], please specify _____

Q. 2. If your child eats out at a fast food outlet, which chain is more popular?

McDonald's [ ]

Burger King [ ]

Abrakebabra [ ]

Four Lanterns [ ]

Kentucky Fried Chicken (KFC) [ ]

Pizza Hut [ ]

Domino's Pizza [ ]

Other [ ], please specify_____

Q. 3. How often would your child eat out?

Never	[ ]
Less than monthly	[ ]
Once a month	[ ]
Once a fortnight	[ ]
Once a week	[ ]
More than once a week	[ ]

Q. 4. What food is your child likely to order in such places?

Soup	[ ]	Fish and chips	[ ]
Meat and vegetables	[ ]	Burger and chips	[ ]
Salad	[ ]	Pizza	[ ]
Pasta/ Rice dish	[ ]	Chips	[ ]
Nuggets & chips	[ ]	Curry chips	[ ]
Sausages & chips	[ ]	Chicken Box	[ ]
Other	[ ], please specify _____		

Q. 5. How often would your child eat from a 'take-away'?

Never	[ ]	Once a fortnight	[ ]
Once a week	[ ]	Less than monthly	[ ]
Once a month	[ ]	More than once a week	[ ]

Q. 6. What type of 'take-away' food is your child more likely to order?

Chinese	[ ]	Fish and chips	[ ]
Indian	[ ]	Chips	[ ]
Thai	[ ]	Curry chips	[ ]
Nuggets & chips	[ ]	Chicken Box	[ ]
Sausages & chips	[ ]	Pizza	[ ]
Burger & chips	[ ]		
Other	[ ], please specify_____		

Q. 7. Overall, how satisfied are you that your child eats healthily, with 1 being very satisfied and 4 being very unsatisfied? Please circle the appropriate number.

Very satisfied	1
Satisfied	2
Unsatisfied	3
Very unsatisfied	4

Section 5: Television Viewing and Computer Playing

Q. 1. How many hours per day would your child spend watching television? Please tick one box in each column marked weekdays and weekends.

	Weekdays	Weekends
None at all	[ ]	[ ]
Half an hour per day	[ ]	[ ]
One hour per day	[ ]	[ ]
Two hours per day	[ ]	[ ]
Three hours per day	[ ]	[ ]
Four hours per day	[ ]	[ ]
Five hours or more per day	[ ]	[ ]

Q. 2. How many hours per day would your child spend playing on a computer (PC/ Playstation/ X-Box/ Wii)? Please tick one box in each column marked weekdays and weekends.

	Weekdays	Weekends
None at all	[ ]	[ ]
Half an hour per day	[ ]	[ ]
One hour per day	[ ]	[ ]
Two hours per day	[ ]	[ ]
Three hours per day	[ ]	[ ]
Four hours per day	[ ]	[ ]
Five hours or more per day	[ ]	[ ]

Q. 3. Does your child watch television during mealtimes? Please tick one of the following boxes.

Always [ ]

Often [ ]

Occasionally [ ]

Never [ ]

Q. 4. (a) Does your child eat a snack while watching television or playing on a computer? Please tick one of the following boxes.

Always [ ]

Often [ ]

Occasionally [ ]

Never [ ]

(b) If so, what type of snack?

Fruit	[ ]	Sweets	[ ]
Yoghurt	[ ]	Biscuits	[ ]
Crisps/ popcorn	[ ]	Other	[ ] please specify_____
Chocolate bar	[ ]		

Q. 5. Does your child have a television in his/her bedroom?

Yes [ ] No [ ]

Q. 6. Do you monitor your child's exposure to television, videos, DVD's?

Always [ ]

Often [ ]

Occasionally [ ]

Never [ ]

Section 6: Effects of Advertising

Q. 1. Do you think the eating habits of children are influenced by advertising?

Yes [ ] No [ ]

Q. 2. In your opinion does television food advertising promote healthy eating?

Always [ ]

Often [ ]

Occasionally [ ]

Never [ ]

Q. 3. In your opinion, what food or drink items are more commonly advertised on children's television?

_____

_____

_____

Q. 4. (a) Does your child put pressure on you to buy certain foods or drinks that are advertised on television?

Yes [ ] No [ ]

(b) If yes, please specify the items.

_____

_____

Q. 5. How often would you 'give in' and buy such food and drink items?

Always [ ]

Often [ ]

Sometimes [ ]

Never [ ]

Q. 6. What are the effects of television food advertisements on your child's diet?

_____

_____

_____

Section 7: Physical Education and Physical Activity

Q. 1. (a) Is Physical Education (PE) part of the curriculum in your child's school?

Yes [ ] No [ ]

(b) If yes, how many PE classes does your child avail of during the week?

One	[ ]	Four	[ ]
Two	[ ]	more than four	[ ]
Three	[ ]		

Q. 2. What is the duration of a PE class?

10 mins	[ ]	31-40 mins	[ ]
11-15 mins	[ ]	41-50mins	[ ]
16-20 mins	[ ]	51-60 mins	[ ]
21-30 mins	[ ]	more than 60 mins	[ ]

Q. 3. Are there facilities available for indoor and outdoor activities at your child's school?

Indoor facilities only	[ ]
Outdoor facilities only	[ ]
Both indoor and outdoor facilities	[ ]

Q. 4. What activities are available to your child as part of the PE curriculum? Please tick from the following:

Gaelic football	[ ]	Badminton	[ ]
Soccer	[ ]	Aerobics	[ ]
Swimming	[ ]	Tennis	[ ]
Basketball	[ ]	Gymnastics	[ ]
Athletics	[ ]	Hurling	[ ]
Dance	[ ]	Camogie	[ ]
Martial Arts	[ ]	Hockey	[ ]
Rugby	[ ]	Horse riding	[ ]
Squash	[ ]	Other	[ ] please specify_____

Q. 5. Do you have to finance certain activities that are part of the PE curriculum?

_____

_____

Q. 6. (a) Does your child participate in extra curricular activities involving physical exercise outside of school?

Yes [ ] No [ ]

(b) If yes, what activities does he/ she partake in?

Gaelic football	[ ]	Badminton	[ ]
Soccer	[ ]	Aerobics	[ ]
Swimming	[ ]	Tennis	[ ]
Basketball	[ ]	Gymnastics	[ ]
Athletics	[ ]	Hurling	[ ]
Dance	[ ]	Camogie	[ ]
Martial Arts	[ ]	Hockey	[ ]
Rugby	[ ]	Horse riding	[ ]
Squash	[ ]	Walking	[ ]
Cycling	[ ]	Other	[ ] please specify_____

Q. 7. How many hours per week does your child spend involved in such activities?

Half an hour	[ ]	Four hours	[ ]
One hour	[ ]	Five hours	[ ]
Two hours	[ ]	More than five hours	[ ]
Three hours	[ ]		

Q. 8. Overall, how satisfied are you that your child engages in sufficient physical activity, with 1 being very satisfied and 4 being very unsatisfied? Please circle the appropriate number.

Very Satisfied	1
Satisfied	2
Unsatisfied	3
Very unsatisfied	4

Section 8: Policy Awareness

Q. 1. Does your child's school have a healthy eating policy?

Yes [ ] No [ ]

Q. 2. (a) Do you know the recommended amount of Physical Education in primary school?

Yes [ ] No [ ]

(b) If yes, is it

30 mins	[ ]	50 mins	[ ]
40 mins	[ ]	60 mins	[ ]
45 mins	[ ]	90 mins	[ ]

Q. 3. Do you think the current recreation/ sports policy in primary schools is appropriate?

_____

_____

_____

Q. 4. In your opinion is the absence of PE contributing to the child's lack of physical exercise?

Any Other Comments

Thank you for your time and co-operation.

Appendix D

Code Book for SPSS Analysis

Variable Values

Value		Label
age	99(a)	Missing
sex	1	Male
	2	Female
	9(a)	Missing
chilheal	1	Excellent
	2	Very Good
	3	Good
	4	Fair
	5	Poor
	9(a)	Missing
knowbmi	1	Yes
	2	No
	9(a)	Missing
howbmi	1	Yes
	2	No
	9(a)	Missing
chilweig1	1	Yes
	2	No
	9(a)	Missing
chilweig2	999(a)	Missing
chilheig1	1	Yes
	2	No
	9(a)	Missing
chilheig2	999(a)	Missing
descweig	1	Underweight
	2	Normal
	3	Overweight
	4	Very Overweight
	9(a)	Missing
county	1	Donegal
	2	Sligo
	3	Leitrim
	4	Other
othcoun	1	Yes
	2	No
yourage	1	25-30 yrs
	2	31-34 yrs
	3	35-40 yrs
	4	41-44 yrs
	5	45-50 yrs
	6	51- 54 yrs

	7	55-60 yrs
	8	61-64 yrs
	9	65+ yrs
	99(a)	Missing
higheduc	1	Primary school education only
	2	Intermediate- Junior Certificate
	3	Leaving Certificate
	4	Certificate at third level
	5	Diploma at third level
	6	Degree at third level
	7	Masters-PHd at third level
	8	Other, please specify
	9(a)	Missing
marstat	1	Married
	2	Separated
	3	Cohabiting
	4	Divorced
	5	Widowed
	6	Single-Never married
	9(a)	Missing
income	1	Below €10,000
	2	€10,000 – €20,000
	3	€21,000 – €30,000
	4	€31,000 – €40,000
	5	€41,000 – €50,000
	6	€51,000 – €60,000
	7	€61,000 - €70,000
	8	€71,000 - €80,000
	9	€81,000 - €90,000
	10	€91,000 - €100,000
	11	€101,000 - €120,000
	12	more than €120,000
	99(a)	Missing
nation	1	Irish
	2	Other Nationality
	9(a)	Missing
nationoth	1	Yes
	2	No
	9(a)	Missing
brkcer	1	Yes
	2	No
	9(a)	Missing
brksugar	1	Yes
	2	No
	9(a)	Missing
brktoast	1	Yes
	2	No
	9(a)	Missing
brkegg	1	Yes
	2	No
	9(a)	Missing

brksaus	1	Yes
	2	No
	9(a)	Missing
brkbacon	1	Yes
	2	No
	9(a)	Missing
brkfruit	1	Yes
	2	No
	9(a)	Missing
brkjuice	1	Yes
	2	No
	9	Missing
brktea	1	Yes
	2	No
	9(a)	Missing
brkmilk	1	Yes
	2	No
	9(a)	Missing
brkwater	1	Yes
	2	No
	9(a)	Missing
dolunch	1	Brings a packed lunch
	2	Comes home for lunch
	3	Eats in school canteen
	4	Buys lunch from school tuck-shop
	5	Lunch is supplied by the school
	9(a)	Missing
preplunch	1	Mother
	2	Father
	3	Older sibling
	4	The child himself or herself
	5	Childminder- Carer
	6	Other
	9(a)	Missing
lunmeat	1	Yes
	2	No
	9(a)	Missing
lunsalad	1	Yes
	2	No
	9(a)	Missing
lunrice	1	Yes
	2	No
	9(a)	Missing
lunbread	1	Yes
	2	No
	9(a)	Missing
lunrolls	1	Yes
	2	No
	9(a)	Missing
lunwrap	1	Yes

	2	No
	9(a)	Missing
lunyog	1	Yes
	2	No
	9(a)	Missing
luncheese	1	Yes
	2	No
	9(a)	Missing
lunfruit	1	Yes
	2	No
	9(a)	Missing
luncrac	1	Yes
	2	No
	9(a)	Missing
lunbisc	1	Yes
	2	No
	9(a)	Missing
lunscone	1	Yes
	2	No
	9(a)	Missing
lunsoup	1	Yes
	2	No
	9(a)	Missing
lunfried	1	Yes
	2	No
	9(a)	Missing
luncrisp	1	Yes
	2	No
	9(a)	Missing
lunlunchoc	1	Yes
	2	No
	9(a)	Missing
lunsweet	1	Yes
	2	No
	9(a)	Missing
lunnuts	1	Yes
	2	No
	9(a)	Missing
lunfizzy	1	Yes
	2	No
	9(a)	Missing
lunmilk	1	Yes
	2	No
	9(a)	Missing
lunwater	1	Yes
	2	No
	9(a)	Missing
luntea	1	Yes
	2	No
	9(a)	Missing
lunjuice	1	Yes

	2	No
	9(a)	Missing
lunoth	1	Yes
	2	No
	9(a)	Missing
lunoth2	1	Yes
	2	No
	9(a)	Missing
meat	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
poultry	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
fish	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
potat	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
rice	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
pasta	0	Never
	1	Less than once a week
	2	Once a week

	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
friedfood	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
chips	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
prepeve	1	Mother
	2	Father
	3	Older sibling
	4	The child himself or herself
	5	Childminder- Carer
	6	Other
	9(a)	Missing
healfruit	1	One portion
	2	Two portions
	3	Three portions
	4	Four portions
	5	Five portions
	6	More than five portions
	9(a)	Missing
portfruit	1	One portion
	2	Two portions
	3	Three portions
	4	Four portions
	5	Five portions
	6	More than five portions
	9(a)	Missing
sweets	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
chocolate	0	Never

	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
crisps	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
chocbisc	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
biscuits	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
cakes	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
icecream	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
fizzy	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week

	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
dietfizzy	0	Never
	1	Less than once a week
	2	Once a week
	3	2-4 times a week
	4	5-6 times a week
	5	Once a day
	6	More than once a day
	9(a)	Missing
checcal	1	Always
	2	Often
	3	Occasionally
	4	Never
	9(a)	Missing
checcarb	1	Always
	2	Often
	3	Occasionally
	4	Never
	9(a)	Missing
eatout	1	Hotel
	2	Restaurant
	3	Cafe
	4	Fast food outlet
	5	Other
	9(a)	Missing
eatoutoth	1	Yes
	2	No
	9(a)	Missing
fastchain	1	McDonald's
	2	Burger King
	3	Abrakebabra
	4	Four Lanterns
	5	Kentucky Fried Chicken (KFC)
	6	Pizza Hut
	7	Domino's Pizza
	8	Other
	9(a)	Missing
fastchainoth	1	Yes
	2	No
	9(a)	Missing
ofteatout	0	Never
	1	Less than monthly
	2	Once a month
	3	Once a fortnight
	4	Once a week
	5	More than once a week
	9	Missing
outsoup	1	Yes

	2	No
	9(a)	Missing
outmeat	1	Yes
	2	No
	9(a)	Missing
outsalad	1	Yes
	2	No
	9(a)	Missing
outpasta	1	Yes
	2	No
	9(a)	Missing
outnugg	1	Yes
	2	No
	9(a)	Missing
outsaus	1	Yes
	2	No
	9(a)	Missing
outfish	1	Yes
	2	No
	9(a)	Missing
outburg	1	Yes
	2	No
	9(a)	Missing
outpizza	1	Yes
	2	No
	9(a)	Missing
outchips	1	Yes
	2	No
	9(a)	Missing
outcurry	1	Yes
	2	No
	9(a)	Missing
outchick	1	Yes
	2	No
	9(a)	Missing
outother	1	Yes
	2	No
	9(a)	Missing
ofttakeaway	0	Never
	1	Less than monthly
	2	Once a month
	3	Once a fortnight
	4	Once a week
	5	More than once a week
	9	Missing
takchine	1	Yes
	2	No
	9(a)	Missing
takindia	1	Yes
	2	No
	9(a)	Missing

takthai	1	Yes
	2	No
	9(a)	Missing
taknugg	1	Yes
	2	No
	9(a)	Missing
taksaus	1	Yes
	2	No
	9(a)	Missing
takfish	1	Yes
	2	No
	9(a)	Missing
takchips	1	Yes
	2	No
	9(a)	Missing
takcurry	1	Yes
	2	No
	9(a)	Missing
takchick	1	Yes
	2	No
	9(a)	Missing
takpizza	1	Yes
	2	No
	9(a)	Missing
takburg	1	Yes
	2	No
	9(a)	Missing
takoth	1	Yes
	2	No
	9(a)	Missing
takoth2	1	Yes
	2	No
	9(a)	Missing
sateat	1	Very Satisfied
	2	Satisfied
	3	Unsatisfied
	4	Very Unsatisfied
	9(a)	Missing
tvwkday	1	None at all
	2	Half an hour per day
	3	One hour per day
	4	Two hours per day
	5	Three hours per day
	6	Four hours per day
	7	Five hours or more per day
tvwkend	1	None at all
	2	Half an hour per day
	3	One hour per day
	4	Two hours per day
	5	Three hours per day
	6	Four hours per day

	7	Five hours or more per day
tvdiff2	1	Less tv
	2	More tv
compwkday	1	None at all
	2	Half an hour per day
	3	One hour per day
	4	Two hours per day
	5	Three hours per day
	6	Four hours per day
	7	Five hours or more per day
compwkend	1	None at all
	2	Half an hour per day
	3	One hour per day
	4	Two hours per day
	5	Three hours per day
	6	Four hours per day
	7	Five hours or more per day
tvmeal	1	Always
	2	Often
	3	Occasionally
	4	Never
	9(a)	Missing
tvsnack	1	Always
	2	Often
	3	Occasionally
	4	Never
	9(a)	Missing
tvsnack2	1	Sometimes
	2	Never
snacfruit	1	Yes
	2	No
	9(a)	Missing
snacyog	1	Yes
	2	No
	9(a)	Missing
snaccrisp	1	Yes
	2	No
	9(a)	Missing
snacchoc	1	Yes
	2	No
	9(a)	Missing
snacsweet	1	Yes
	2	No
	9(a)	Missing
snacbisc	1	Yes
	2	No
	9(a)	Missing
snacoth	1	Yes
	2	No
	9(a)	Missing
snacoth2	1	Yes

	2	No
	9(a)	Missing
tvbed	1	Yes
	2	No
	9(a)	Missing
monitortv	1	Always
	2	Often
	3	Occasionally
	4	Never
	9(a)	Missing
eathabit	1	Yes
	2	No
	9(a)	Missing
promhealeat	1	Always
	2	Often
	3	Occasionally
	4	Never
	9(a)	Missing
foodadv	1	Yes
	2	No
	9(a)	Missing
pressbuy	1	Yes
	2	No
	9(a)	Missing
pressbuy2	1	Yes
	2	No
	9(a)	Missing
givein	1	Always
	2	Often
	3	Occasionally
	4	Never
	9(a)	Missing
efffoodadv	1	Yes
	2	No
	9(a)	Missing
pesch	1	Yes
	2	No
	9(a)	Missing
howmanype	1	One
	2	Two
	3	Three
	4	Four
	5	More than Four
	9(a)	Missing
durpe	1	10 mins
	2	11-15 mins
	3	16-20 mins
	4	21-30 mins
	5	31-40 mins
	6	41-50mins
	7	51-60 mins

	8	more than 60 mins
	9(a)	Missing
facil	1	Indoor Facilities only
	2	Outdoor Facilities only
	3	Both indoor and outdoor facilities
	9(a)	Missing
Gaelic	0	No
	1	Yes
	9(a)	Missing
Soccer	0	No
	1	Yes
	9(a)	Missing
Swim	0	No
	1	Yes
	9(a)	Missing
Baskball	0	No
	1	Yes
	9(a)	Missing
Athletics	0	No
	1	Yes
	9(a)	Missing
Dance	0	No
	1	Yes
	9(a)	Missing
Martials	0	No
	1	Yes
	9(a)	Missing
Rugby	0	No
	1	Yes
	9(a)	Missing
Squash	0	No
	1	Yes
	9(a)	Missing
Badminton	0	No
	1	Yes
	9(a)	Missing
Aerobics	0	No
	1	Yes
	9(a)	Missing
Tennis	0	No
	1	Yes
	9(a)	Missing
Gymnas	0	No
	1	Yes
	9(a)	Missing
Hurling	0	No
	1	Yes
	9(a)	Missing
Camogie	0	No
	1	Yes
	9(a)	Missing

Hockey	0	No
	1	Yes
	9(a)	Missing
Horse	0	No
	1	Yes
	9(a)	Missing
Othsport	0	No
	1	Yes
	9(a)	Missing
finanpe	1	Yes
	2	No
	9(a)	Missing
extrasport	1	Yes
	2	No
	9(a)	Missing
Gaelic2	0	No
	1	Yes
	9(a)	Missing
Soccer2	0	No
	1	Yes
	9(a)	Missing
Swim2	0	No
	1	Yes
	9(a)	Missing
Baskball2	0	No
	1	Yes
	9(a)	Missing
Athletics2	0	No
	1	Yes
	9(a)	Missing
Dance2	0	No
	1	Yes
	9(a)	Missing
Martials2	0	No
	1	Yes
	9(a)	Missing
Rugby2	0	No
	1	Yes
	9(a)	Missing
Squash2	0	No
	1	Yes
	9(a)	Missing
Cycling	0	No
	1	Yes
	9	Missing
Badminton2	0	No
	1	Yes
	9(a)	Missing
Aerobics2	0	No
	1	Yes
	9(a)	Missing

Tennis2	0	No
	1	Yes
	9(a)	Missing
Gymnas2	0	No
	1	Yes
	9(a)	Missing
Hurling2	0	No
	1	Yes
	9(a)	Missing
Camogie2	0	No
	1	Yes
	9(a)	Missing
Hockey2	0	No
	1	Yes
	9(a)	Missing
Horse2	0	No
	1	Yes
	9(a)	Missing
Walking	0	No
	1	Yes
	9	Missing
Othsport2	0	No
	1	Yes
	9(a)	Missing
hoursact	1	Half an hour
	2	One hour
	3	Two Hours
	4	Three Hours
	5	Four Hours
	6	Five Hours
	7	More than Five Hours
	9(a)	Missing
satactiv	1	Very Satisfied
	2	Satisfied
	3	Unsatisfied
	4	Very Unsatisfied
	9(a)	Missing
eatpolicy	1	Yes
	2	No
	9(a)	Missing
recamope	1	Yes
	2	No
	9(a)	Missing
recamope2	1	30 mins
	2	40 mins
	3	45 mins
	4	50 mins
	5	60 mins
	6	90 mins
	9(a)	Missing
currpolicy	1	Yes

	2	No
	9(a)	Missing
absentpe	1	Yes
	2	No
	9(a)	Missing
othcomm	1	Yes
	2	No
	9(a)	Missing
rururb	1 00	Rural
	2 00	Urban
	9 00	Missing
compwkday2	1	None at all
	2	Half an hour per day
	3	One hour per day
	4	Two hours per day
	5	Three hours or more per day
	6	Four hours per day
	7	Five hours or more per day
compwkend2	1	None at all
	2	Half an hour per day
	3	One hour per day
	4	Two hours per day
	5	Three hours per day
	6	Four hours per day
	7	Five hours or more per day
filter_$	0	Not Selected
	1	Selected
meat2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
poultry2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
fish2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
vegetables2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
potat2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
nce2	00	Never

	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
pasta2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
friedfood2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
chips2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
sweets2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
chocolate2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
crisps2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
fizzy2	00	Never
	1 00	Seldom
	2 00	Often
	9 00(a)	Missing
ofteatout2	1 00	Very Rarely
	2 00	Seldom
	3 00	Often
	9 00(a)	Missing
ofttakeaway2	1 00	Very Rarely
	2 00	Seldom
	3 00	Often
	9 00(a)	Missing

a Missing value

Appendix E

Interview Questions

1 Name and position held

2 What are your views on the issue of obesity?

3 What do you think are the main concerns for children and young people who are overweight or obese?

4 What health implications may be experienced by children and young people who are overweight or obese?

5 What impact does it have on our health service?

6 It was reported in a recent newspaper article that there are over 300,000 overweight or obese children in Ireland, what are your views on that?

7 What are the key factors that are contributing to the prevalence of overweight and obesity among children and young people?

8 How has cultural change led to the rise in obesity?

9 What support is available to those who are overweight and obese?

10 Do you think that there is a role for 'aggressive interventions' (eg Arkansas)?

11 How can children and young people be made more aware of the issue?

12 How can children and young people be encouraged to eat healthy and participate in physical activity?

13 How effective are school-based initiatives in reducing childhood obesity?

14 What is the role of the Government in dealing with the issue?

15 The Obesity Taskforce Report was introduced in 2005, what recommendations have been implemented since its introduction?

16 What impact has the report had to date on the issue?

17 What role does this organisation play in dealing with the issue?

18 What other organisations play a part in reducing the problem?

19 What responses are needed to reduce the problem?

20 What responses/ policies/ initiatives have been effective in other countries?

21 What can we learn, if anything, from best practices elsewhere?