Chapter One: Introduction

1.1 Background information on the research topic

Obesity is “a condition of having an abnormally high proportion of body fat, to the point that it seriously endangers health” (World Health Organisation (WHO), 1997). There are two main methods of identifying the extent of adult obesity: body mass index (BMI) and waist circumference. The World Health Organisation (1997) has classified adult BMI as follows:

Table 1.1: Classification of BMI (WHO, 1997).

<table>
<thead>
<tr>
<th>Definition</th>
<th>BMI (kg/m²)</th>
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<tbody>
<tr>
<td>Underweight</td>
<td>≤ 18.5</td>
</tr>
<tr>
<td>Healthy weight</td>
<td>18.5-24.9</td>
</tr>
<tr>
<td>Overweight</td>
<td>25-29.9</td>
</tr>
<tr>
<td>Grade I Obese</td>
<td>30-34.9</td>
</tr>
<tr>
<td>Grade II Obese</td>
<td>35-39.9</td>
</tr>
<tr>
<td>Grade III Obese</td>
<td>≥40</td>
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BMI is a measure of relative weight for height (Garrow and Webster, 1985), and is highly but not absolutely, correlated with adiposity (The National Health and Medical Research Council (NHMRC), 2003). The limitations of BMI to predict health risk arise from the fact that adiposity varies with age, sex and ethnicity, independent of BMI (NHMRC, 2003).

Waist circumference is an additional method of defining obesity as it has been shown to be positively correlated with abdominal fat and risk of disease (National Institutes of Health (NIH), 1998). However, when BMI is greater than 35kg/m², waist
circumference does not add to the absolute measure of risk provided by BMI (NHMRC, 2003). Based on this evidence, National Institute of Clinical Excellence (NICE) guidelines (2006) recommended that assessment of the health risk associated with overweight and obesity should be based on both BMI and waist circumference.

**Table 1.2:** Classification of the health risks of obesity (NICE, 2006).

<table>
<thead>
<tr>
<th>BMI Classification</th>
<th>Waist Circumference*</th>
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<tr>
<td><strong>Overweight</strong></td>
<td>Low: No increased risk</td>
</tr>
<tr>
<td><strong>Obesity Grade I</strong></td>
<td>Increased risk</td>
</tr>
</tbody>
</table>

*Men: Waist circumference less than 94cm is low, 94cm to 102cm is high and above 102cm is very high. Women: Waist circumference less than 80cm is low, 80-88 is high and above 88 is very high.

Overweight and obesity represent a rapidly growing threat to the health of populations worldwide, replacing traditional public health concerns such as undernutrition and infectious diseases (WHO, 1997). In the United Kingdom, epidemiological evidence suggests that the prevalence of overweight and obesity has almost trebled in the last twenty years. In 1980, 8% of adult women and 6% of adult men were classified as obese in England; in 2003, this had increased to 23% of women and 22% of men, with a further 32.5% of women and 43.4% of men being overweight. This equates to over 12 million men and 11 million women (Blake et al., 2004). These figures are expected to increase by 1-2 million by 2010 (Zaninotto et al., 2006) and by 2050, Foresight modelling indicates that 60% of men and 50% of women could be obese (Foresight, 2007). Obesity is also an increasingly common problem in children and young people. In England, a sixth (16%) of boys and girls aged 2 – 15 are obese and almost a third (30%) are either overweight or obese (Deverill et al., 2003).
In the Greater Manchester Strategic Health Authority, figures show that the prevalence of overweight and obesity has increased from 58% to 66% in men and 48% to 57% in women between 1994 and 2002 (Scholes et al., 2004). The 2007 health profile shows that early death rates from stroke and heart disease in Manchester are the highest in England. Only 19% of adults eat healthily and 11% are physically active (Association of Public Health Observatories, 2007). South Manchester Primary Care Trust (PCT) has acknowledged the effects of increasing levels of obesity on health, making it one of the city’s seven priority areas for improving health (South Manchester PCT, 2006).

Obesity is not only a disease in itself, but also a risk factor for other diseases. Overweight and obesity increase mortality and are also associated with increased risk of other conditions such as type 2 diabetes, coronary heart disease, hypertension, osteoarthritis and some cancers (WHO, 1997; Must et al., 1999). There are also significant psychosocial problems associated with obesity. These result from cultural views of body fat in western society as “ugly” and “unhealthy”. Such negative stereotypes and attitudes can translate into discrimination in employment, education and earnings (NIH, 1998). In population-based cross-sectional studies, an increasing degree of obesity has been associated with impaired health-related quality of life, particularly with physical functioning (Han et al., 1998; Lean et al., 1998; Fontaine & Barofsky, 2001). Obese people often display body shape dissatisfaction, eating disorders and a sense of isolation and humiliation (WHO, 1997).

Obesity imposes a considerable economic burden both directly and indirectly. The Health Select Committee (HSC) reported that the cost of obesity in England is
between £3.3 and £3.7 billion per year. This estimate includes £49 million for treating obesity, £1.1 billion for treating the consequences of obesity, indirect costs of £1.1 billion for premature death and £1.45 billion for sickness absence. By 2050, this is expected to rise to as much as £45.5 billion per year, which leads to a seven-fold increase in National Health Service (NHS) costs (Foresight, 2007). Given the current financial burden of debt in the NHS and the escalating cost of obesity treatments, there is an urgent need to develop cost effective weight management strategies.

Weight loss in overweight and obese individuals improves physical, metabolic, endocrinological and psychological complications of obesity, and intentional weight loss may reduce obesity-related mortality (SIGN, 1996). Modest weight loss has been shown to reduce the incidence of both type 2 diabetes (DPP Research Group, 2002) and hypertension (Stevens et al., 2001). A 10kg weight loss can reduce diabetes-related deaths and obesity-related cancer deaths by more than 30% and 40% respectively, reduce fasting glucose levels in diabetics by half, and improve dyslipidaemia (SIGN, 1996). Weight reduction cannot only help control diseases associated with obesity, but also may decrease the likelihood of initially developing these diseases (NIH, 1998).

Obesity has only recently been placed high on the government agenda for public health. The National Service Frameworks for both coronary heart disease (Department of Health, 2000a) and diabetes (Department of Health, 2002) identified the importance of obesity as a risk factor for disease and aimed for all NHS bodies to develop and implement effective policies for reducing overweight and obesity. In 2001, the National Audit Office published a report investigating the effect of obesity
on the UK population and made recommendations for governmental departments to
tackle the situation (Bourne, 2001). The Public Health White Paper focussed on the
need for policies to enable the public to take responsibility of their own health
(Department of Health, 2004). In the same year, the HSC acknowledged individuals’
responsibility, but insisted that this is not an excuse for government inaction and
measures should be taken to tackle diet and inactivity. They recommended effective
treatment should consist of specialist clinics within each primary care trust (PCT) and
include diet, lifestyle, medical and surgical treatment. NICE guidelines (2006) have
since provided recommendations for the management of overweight and obesity
aimed at the public, health professionals, local government, education, the workplace
and the voluntary sector. This shows that long term, large scale action is clearly
needed to successfully tackle this problem.

The NHS has an important role to play in both the prevention and treatment of obesity,
but evidence suggests that this has not been a high a priority for PCTs (HSC, 2004).
Over half the PCTs included in the enquiry did not have organised weight-management
clinics in their local areas, and many general practitioners (GP’s) were offering
inconsistent, short-term support. Recent studies have further demonstrated that the
identification of obesity and its subsequent management are inadequate both in primary
(Counterweight Project Team, 2004) and secondary (Leslie et al., 2004) care settings.
The need to investigate effective interventions in obesity management in order to
implement effective strategies has been highlighted on numerous occasions (Harvey et
al., 2001; Bourn, 2001). Evaluation of current weight management interventions and
dissemination of the results can help achieve this (Hughes & Martin, 1999).
There are numerous studies advocating lifestyle programmes for weight loss, but are these strategies effective in a primary care setting and are the outcomes effective in terms of reducing health risk? Interventions are often of short duration with limited follow up and are conducted in research settings outside the UK. There is a clear need for published evaluations of weight management programmes undertaken within the UK in a real-practice setting in order to identify effective strategies that are transferable to a UK population. Issues such as cost, sustainability, applicability and participant satisfaction should also be considered.

1.2 Study Aims and Objectives

The aim of this study was to evaluate the effectiveness of a lifestyle-based weight management programme provided by the community nutrition service of South Manchester PCT.

Aim 1: To determine the effects of the service on participant measures of health.

a. To assess changes in weight, blood pressure, heart rate and percentage body fat of participants while they were enrolled in the ‘Your Choice’ programme.

b. To evaluate reported changes in participant’s nutritional knowledge, food choices, activity levels, self-efficacy and quality of life while they were enrolled in ‘Your Choice’ programme.

Aim 2: To evaluate participants’ personal satisfaction with the service.
Aim 3: To establish the number and characteristics of participants that did not attend follow-up sessions in programme.

Aim 4: To use this evaluation to make practical recommendations to improve the service for future participants of the ‘Your Choice’ programme and to disseminate the results to assist in the development of future weight management programmes.