OBESITY AND BODY IMAGE: AN INVESTIGATION OF THE CAUSES OF BODY DISSATISFACTION IN OBESITY

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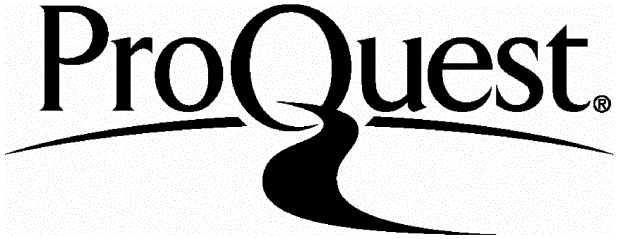

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Volume I

Abstract

Surprisingly little research exists examining body image in the overweight. The present study aimed to assess variation in body dissatisfaction in overweight and obese adults and to evaluate the contribution of childhood, family and attitudinal factors in the variation in body dissatisfaction. 128 obese (mean BMI = 37.2), and 37 overweight (mean BMI = 27.5) adults completed measures of: body dissatisfaction, self-esteem, weight locus of control, situational avoidance, teasing history, attitudes and beliefs about obesity, diet history, family weight history, and general demographics. Clinical participants were recruited from various centres including an obesity clinic, two dietetic departments and a general practice. A small normal weight community sample (n = 34) were also assessed.

Body dissatisfaction in the obese was associated with being female, having low self-esteem, being overweight as children, being frequently teased about weight and shape during childhood, having an external locus of control for weight, and having an unsupportive partner. The findings are discussed with regard to Friedman and Brownell's (1995) suggestion for a new generation of studies in obesity designed to understand the variation in health and well-being within the obese population.

'Public derision and condemnation of fat people is one of the few remaining sanctioned social prejudices... allowed against any group based solely on appearance.' (Fitzgerald, 1981).

1.0 Introduction

Studies into body image are a major research area, and a number of excellent reviews have been published (Thompson, J.K., 1996). Recognised as a fundamental feature of eating disorders, body dissatisfaction also represents a ubiquitous problem among young women. However, there is surprisingly little research examining body image in the obese, although it is widely assumed that obese people have a poor body image. It is also assumed that the poor body image will engender low self-esteem, although again this has not received much research attention. This study is directed towards understanding more about the development of body image among the obese, and its relationship to self-esteem.

I will begin by with a brief discussion of the epidemiology of obesity. I shall then describe the studies examining the aetiology of obesity and then move on to body image research. Most of this research has examined body image in normal weight participants, but some work has been done with obese participants, and the findings will be described. More recent studies have stressed the heterogeneity of body image problems, with many factors (teasing, social comparison, acceptance of social norms) influencing the psychological makeup of the individual. The stigma of obesity has been described in a number of studies (DeJong, 1980; Crocker, Cornwell, & Major, 1993; Robinson, Bacon, & O'Reilly, 1993), which raises the question of how the obese individual's self-esteem is affected. I shall

suggest a possible model of the effects upon a person's self-esteem, which may indicated why some obese people have low self-esteem, whilst others seem unaffected by the social stigmatisation of their condition.

1.1 Definition and Prevalence of Obesity.

Although 'medical and cultural assessments of desirable fatness are rarely the same' (Rand, 1994) the medical framework inevitably dominates the literature. The most common research and medical measure used to define obesity in adults is the Body Mass Index (BMI), which is an indicator of body fatness. The equation for the BMI is weight (in kilograms) divided by the square of height (in metres). The usual cutpoints suggest that a BMI of under 20 is underweight, 20-25 is a normal healthy weight, above 25 is overweight, and above 30 is obese. Another widely used measure from the *Metropolitan Life Insurance Company*, suggests that obesity can be defined when the individual is more than 20% above the ideal weight for height. When converted to BMI scale this is approximately equivalent to 27. In this study BMI will be used to categorise the participants degree of obesity.

Prevalence of obesity varies by gender, socioeconomic status, age, ethnicity, and time. Prevalence rates of adult obesity in Great Britain in the 1980s are cited in Bray (1990) as being 34% of men aged between 16-65 are overweight, with 6% being obese; whereas among women, aged between 16-65, 24% are overweight and 8% are obese. The trend of the prevalence of obesity is rising, and now affects more than 15% of adults in the U.K (Bennett, 1995). In most Western countries, levels of overweight are higher in the poor, older people, women, and people of African descent. Overweight is now more prevalent

than ever before, and is rising in most of the developed world.

A good deal of evidence exists indicating that severe obesity is a health problem. However, there is disagreement concerning the extent of the risk of more moderate levels of obesity, and the meaning of this risk in each individual case. In 1985 Garner and Garfinkel reviewed a number of studies and suggested that the treatment of obesity reflects our prejudices rather than a response to a serious heath risk, emphasising results from Mann's (1974) study which indicated there is little indication of a correlation between obesity and high blood pressure, heart disease and cholesterol levels.

However, the work of Garner and Garfinkel resulted in a belief among psychological research that being obese was not a problem, thus until recently little was researched on the health risks associated with obesity among psychologists. More recently Manson et al (1995) examined the association between BMI and mortality in a cohort of 115,195 U.S. women enrolled in the Nurses' Health Study. Once cigarette smoking and disease related weight loss was taken into account, the lowest mortality was among the leanest women (BMI <19.0). Even women with average weights had higher mortality. Thus, mortality was lowest among women who had weights below that recommended in U.S. guidelines.

Although obesity is a medical term, and the scientific literature focusses on medical problems associated with obesity, the cultural assessment of excess weight depends upon 'the degree of body fat compatible with social standards of physical attractiveness'. The cultural definition of obesity usually defines the individual's personal evaluation (Rand,

1990), and may or may not be related to the stigma and negative attitudes towards overweight.

During the 1960s to the 1970s, studies suggested varying degrees of importance for the environmental and genetic factors in obesity. A familial pattern was well established, with fat parents tending to have fatter children. However, Graham (1977) noted that familial patterns do not necessarily indicate a genetic factor, and suggested that overeating and underactivity occur in families as patterns of behaviour which have been encouraged by sociocultural mechanisms. Graham goes on to state 'a little girl who models herself upon her sluggish and gluttonous mother stands a good chance of developing obesity regardless of her genotype'.

This debate surrounding the degree of importance of genetics and the environment on obesity still exists, although maybe not in such harsh words! A number of studies (Bouchard et al, 1990; Stunkard et al, 1990; and Stunkard et al, 1986) illustrate that a child's weight correlates strongly to their biological parents. Furthermore, these studies suggest that the shared family environment the child is reared in plays little part in this correlation. Bouchard et al (1990) found that monozygotic twins reared separately vary in weight, on average, by 1.9kg (4.1lbs), whilst dizygotic twins vary by 4.5kg (10lbs), and siblings vary by 4.7kg (10.4lbs). Stunkard et al's (1990) study illustrated that monozygotic twins reared separately were closer in body weight than dizygotic twins reared together; 4.7kg compared to 7.9kg. A further study (Stunkard et al, 1986) indicated that adopted children's weight showed no correlation to their adoptive parents, whilst correlating well with their biological parents. The consensus is clearly that genetic

factors play a significant role in accounting for individual differences in obesity, although few health professionals are aware of the strength of this evidence.

At the same time, many studies support environmental factors as being important determinants of obesity. The doubling of obesity prevalence in the United Kingdom between 1980 and 1993 can only be attributed to environmental factors. Epidemiological surveys have associated obesity with season, geographic region and population density (Dietz, 1984). Other studies have indicated characteristics such as socioeconomic status (Garn and Clark, 1976; Goldblatt, Moore and Stunkard, 1965); family size (Ravelli and Belmont, 1979); and television viewing (Dietz and Gortmaker, 1985).

Obesity must be due to a positive energy balance (intake being greater than expenditure), and this is often assumed to be overeating. However, many studies have been unable to illustrate dramatically different eating patterns in the obese and normal weight individuals (Wooley & Wooley, 1979), but accurate assessment of energy intake in everyday life is very difficult to achieve. More recent studies have used the double labelled water method to give an accurage measure of energy expenditure related to obesity. These show energy expenditure to be consistently higher in obese than normal weight adults, therefore, this must be linked with higher energy intake (Prentice, Black, Murgatroyd, Goldberg, & Coward, 1989). In terms of aetiology, energy expenditure variation is probably an important factor, with average energy expenditures reducing over time, but not being matched by decreased energy expenditure. Metabolic differences between individuals are likely to relate to their likelihood of developing obesity (Ravussin, 1988). In addition, variations in appetite or food responsiveness, especially in an environment in which food

is so readily available, may play a part, but these factors have never been studied systematically as causes of obesity.

To put the genetic and environmental perspectives together, one model suggests that environmental factors largely explain why people in some cultures are fatter than others, and why fatness varies over time. Genetic factors contribute more to explaining why some individuals, showing a similar lifestyle and environment, are fatter than others. Genetics confers susceptibility, while the environment determines the level of phenotypic expression.

In addition, psychological factors have been suggested as being responsible for obesity. Again, I will discuss this in more detail later, but research has indicated contradictory findings. Enwright, Butterfield and Berkowitz(1995) note that obesity has been attributed to the individual's 'sexual fears or cravings, sadistic or aggressive impulses, unconscious conflicts, or masked depression or anxiety, as well as numerous personality disturbances'. However, they show that most systematic research has failed to reveal that obese participants have any more psychological disturbances than normal weight participants. Indeed, some studies have found obese participants to be less anxious, less depressed and less prone to suicide than normal weight participants (McReynolds, 1982).

Several large population studies (Hallstrom, & Noppa, 1981; Kittel, Rustin, Dramaix, deBacker, & Kornitzer, 1978) have concluded that obesity is not associated with greater incidence rates of psychopathology. However others (Crisp & McGuiness, 1976; Silverstone, 1968; Stewart & Brook, 1983) suggest that obese people have lower levels

of anxiety and depression. However, these early studies merely compare obese with non-obese participants, and thus the findings may be quite limited. These studies tended to measure one factor (ie. depression), in order for the investigator to identify personality and psychopathology variables related to the aetiology of obesity. The effects of obesity upon the individual were not measured.

Contemporary views of obesity identify psychological problems as more likely to be the consequences of having a stigmatised condition than the original cause, and this is where body image becomes important.

1.3 Defining and measurement of body image

Thompson (1995) defines body image disturbance as 'any form of affective, cognitive, behavioural, or perceptual disturbance that is directly concerned with an aspect of physical appearance.' Johnson (1985) suggests that there is a difference between the general dissatisfaction that many women feel about their body size and the almost delusional distortion that some feel, which impacts greatly on their lives. Johnson argues that it is the extent of the delusional distortion, and the effect of the distortion on restricting daily activities that needs to be considered. It is these definitions that I shall be examining in this study, and describing when discussing body image distortion.

The reason for the widespread body shape dissatisfaction, which is seen primarily in women, is attributed by Orbach (1985) to a 'body insecurity' that is 'bred' into women at two levels: on one level of the mass culture, and also in the family dynamics. Orbach also suggests that although the female body shape has changed throughout time, since the

1970s the rate of acceleration in the 'changing aesthetics of the female body' has dramatically increased. She compares the changes to 'hemlines that could be shortened or lengthened seasonally'; adding that previous generations did not have to be concerned that in two seasons their body shape would no longer be fashionable.

Measures of body image disturbance are numerous. Brown, Cash and Mikulka (1990) suggests the 'body image construct is multidimensional', with 'one key empirical distinction existing between the *attitudinal* experience of one's physical appearance and the *perceptual* experience of one's body size'. However, many studies have developed measures of body satisfaction around the psychopathologies of anorexia and bulimia nervosa. Thus, some may be inappropriate in the normal or overweight population (ie the Eating Disorder Inventory - Body Dissatisfaction scale), and others may merely need to be adapted.

Thompson (1995) argues that because there is not a definitive assessment battery that is able to measure the various factors associated with body dissatisfaction, one measure from each category (generic dissatisfaction, affective, cognitive, behavioural, and perceptual) should be used. Although this may result in some overlap among the inventories it is still important. Thompson (1995) provides a useful review of the current measures, their reliability, validity and norms.

The early research in body image focussed on assessing the perceptual component. Slade and Russell (1973) illustrated that anorexic patients overestimated the size of several body parts in comparison to control groups. This 'overestimation' was considered primarily

a percetpual aspect of body image disturbance. Assessment procedures for the overestimation of body parts can be divided into two categories: single-site methods and whole-image adjustment measures. Single-site methods requires the individual to have individual body parts measured with calipers, the degree of overestimation is computed by dividing the estimated size by the actual size. Whole-image adjustment methods requires the individual to view their whole body image (via mirror or video), and then match the image to their conception of actual size. Criticisms of these measures suggest that the individuals size was associated with greater over-estimation. Thus, when Penner et al (1991) tested anorexics and size-matched controls no differences were found in the overestimation.

A second category of measurement of body image disturbance includes ratings of figures. Stunkard, Sorenson and Schlusinger (1983) developed nine schematic male and female figures that range from underweight to overweight. Participants are usually asked to rate their current size and their ideal size. The difference between the sizes is a *discrepancy* index, and is considered to represent the level of dissatisfaction. Criticisms of these figures includes that some do not include figures that are overweight enough to be used in obese populations. Furthermore, the features are typically Caucasian, which makes them inappropriate for some ethnic groups. However, they are a widely used and, if precise and consistent wording is used, meet acceptable levels of reliability.

A final assessment tool of body image disturbance includes questionnaire measures. The most widely used assessment of generic body satisfaction is the Eating Disorder Inventory - 2 (Body Dissatisfaction; Garner, Olmstead, & Polivy, 1983). The assessment uses a six-

point scale and measures satisfaction on nine different body parts. However, the inventory is not particularly useful with an obese population as the questions tend to assume that the individual is not overweight (ie. *I think my thighs are too large*). Other measures have examined the affective component of body image disturbance. The Physical Appearance State and Trait Anxiety Scale (PASTAS - Reed, Thompson, Brannick, & Sacco, 1991) was developed to examine the anxiety component of appearance concern. Two versions have been developed: The Trait version measures general body image anxiety and the State version assesses immediate levels of anxiety.

Measurement of the behavioural component of body image disturbance is most widely assessed by examining the individuals avoidance of certain situations because of concerns about their weight and shape. Rosen, Srebnik, Saltzberg, and Wendt (1991) developed the Body Image Avoidance Questionnaire (BIAQ). Four areas of avoidance are measured: clothing, social activities, eating restraint, and grooming/weighing. A final measurement of body image disturbance includes a cognitive component. The Bulimia Cognitive Distortions Scale contains a Physical Appearance subscale that examines the cognitive distortions related to physical appearance (BCDS-PA; Schulman, Kinder, Powers, Prange, & Gleghorn, 1986).

A further complication is the lack of standard definition of body image disturbance. Rosen (1996) suggests that the 'only accepted term for body image disorder is Body Dysmorphic Disorder (BDD)'. Rosen and Reiter (1996) in their development of Body Dysmorphic Disorder Examination (BDDE) suggest BDD is a 'preoccupation or excessive concern with a non-existent or slight physical defect in a normal appearing person'. Thus, Rosen

suggests that for obese people BDD is an inappropriate term as the 'defect' is real and not imagined. He concludes that there is no diagnostic category that accommodates a disorder of body image in people who are obese, only those who are a normal weight (or underweight) who believe that they are overweight. Similarly, unlike the imagined negative social evaluation in BDD, obese people have to continually face negative comments, criticisms and blame.

Klesges (1983) suggested that the varying conceptualisations of body image used by researchers in the field (for example, body perception, body attitude and body space), which is further complicated by the different assessment tools to measure body image, and almost exclusive focus on patients who were either hospitalised or being treated for their eating disorders have resulted in some contradictory results in body image research.

1.4 Body image in normal weight population

Most researchers agree that in Western society the strongest influences on the development and maintenance of body image disturbance are sociocultural factors (Fallon, 1990; Heinberg, Thompson, & Stormer, 1995). The ideals of feminine beauty have varied and changed over time, and women increasingly attempt to follow these trends (Mazur, 1986). Movement away from the curvaceous figure of the 1950s has been replaced with increasingly thinner ideals of beauty. Wiseman, Gray, Mosimann, and Ahren (1992) corroborated past findings and demonstrated that 'Miss America' beauty contests from 1979-1988 have seen contestants weighing 13%-19% below what was expected for their heights. This is in direct contrast to the general population who are getting increasingly heavier; thus, the difference between the ideal and reality is widening. Wiseman et al

conclude that the low body weight seen in the majority of 'ideal' women in our society, means that they reach one of the DSM-IV criteria for anorexia nervosa.

The conventional view is that of an innocent childhood in which the body is accepted, which develops into a disturbed adolescence, in which girls come to increasingly reject their appearance, and especially their levels of fatness. Hill, Draper and Stack (1994) suggested that the idea that body dissatisfaction and dieting behaviour began during adolescence was a misconception. They studied the dieting behaviour of nine and ten year olds. Although the weights and heights of the boys and girls was almost identical, interestingly 41% of girls expressed a wish to be thinner, with the same number of boys preferring to be broader. 18% of girls indicated they would prefer to be broader, with 28% of boys indicating they would like to be slimmer.

Hill, Draper and Stack (1994) suggest that non-clinical sample groups that have previously been studied rarely take into account the participant's weight. They propose the expectation would be that the heaviest participants would express the greatest dissatisfaction. Wadden et al's (1989) study indicates that overweight girls were significantly more dissatisfied with their weight and figure than their slimmer peers. However, this study also indicates that all the girls, including those that were underweight, wanted to lose weight. In Hill, Draper and Stack's (1994) study this was further emphasised. Although 80% of both boys and girls in the 'overweight' group stated they would prefer to be thinner, 40% of girls in the 'average weight' group also wanted to thinner, compared to 20% of boys in the 'average group'.

The idea that body image disturbance is predominantly a problem among White, Western women is confirmed in a number of studies examining cultural variations. The emphasis on body dissatisfaction primarily surrounds cultural pressures to conform with the ideal of beauty. Massara (1980, cited in Wright and Whitehead, 1987) investigated migrant Puerto Ricans. His findings showed that culturally defined obesity began at 86% above actual body sizes, compared with western medical standards of 20%. Furthermore, although obesity prevalence rates in women aged between forty and eighty years was 80%, only 12% of these women believed that they were 'too heavy'. Thus, it appears that women who live in a society where the ideal weight is higher, women are less concerned about their weight, and even at weights far higher than in our society, still do not regard themselves as being overweight.

Brown et al (1995) examined maternal influences on body satisfaction in Black and White nine year old girls. The NHANES II survey (1976-1980) showed no significant difference between Blacks and White's body mass index (BMI) up to the age of eleven. However, between the ages of twelve to twenty years Black females had a significantly higher BMI than White females. Furthermore, studies suggest that Black females report more favourable attitudes towards their appearances, are less concerned about fatness, and have less restrictive eating attitudes than Whites. Finally, Black women are less likely to consider themselves as overweight, even when they have a clinically obese BMI, than White women. Thus, Brown et al hypothesized that overweight Black girls would show higher levels of body satisfaction than their White counterparts. They argue this is due to less maternal criticism, and fewer attempts by their mother's to control their eating and exercise.

Brown et al recruited 1652 nine and ten year old girls who were enrolled in a study by the National Heart, Lung, and Blood Institute. Participants were required to fill out questionnaires examining body satisfaction, body esteem and weight. Furthermore, the mothers were required to give general demographic information, and complete a maternal influence questionnaire. Contrary to their hypothesis what Brown et al found was that: Black mothers were generally more disapproving of their daughter's size and eating habits; they attempted to control their daughter's eating habits more frequently; and encouraged exercise less than the White mothers. But, in contrast, Black mothers were less likely to express disapproval than White mothers of daughters with BMI over 30. Interestingly, Black girls body satisfaction scores were higher than White girls at all levels of the BMI, except the for the thinnest White girls. Therefore, the investigators concluded that maternal influences were not important factors in overall levels of body satisfaction, and that the racial differences could not be attributed to the mother-daughter influences.

This study may illustrate the work of Rosenberg (1989) who suggested that it was the individual's comparison groups which influenced their self-esteem. To apply this to the domain of weight, if peers of the overweight person are overweight, self-esteem will be less affected. I will discuss Rosenberg's (1989) work in more detail later.

In a number of studies of body dissatisfaction, Thompson and Heinberg (1993) suggest two hypotheses for body image disturbance. They felt that there was reasonable evidence to support seven factors as influences on body image: menarcheal timing; sociocultural influences; self-social comparison tendencies (comparing oneself to an ideal); negative verbal commentary (teasing); cortical deficits (ie. problems generally with visuospatial

abilities); adaptive failure (inability to modify perception of self after weight loss); and perceptual artifact hypothesis (a general perceptual overestimation of small sizes).

Thompson and Heinberg's study examined 146 female college students who were required to complete assessments including body image disturbances, eating disturbance, teasing history, social comparison and general distress. They illustrated that three factors explain the variance in body image disturbance: self-esteem; teasing about weight and size; and to a lesser extent comparing oneself to an unrealistic ideal. However, this study does not discuss the weight of the participants as being a factor, furthermore, the participants were all young female college students (ages: 17-25 years). Nevertheless, it suggested a number of factors which might be important in promoting body satisfaction.

1.5 Body image in obesity

A number of early studies (Bruch, 1973; Stunkard et al, 1967; Stunkard & Mendelson, 1961) focussed on body image among clinical obese populations. They found that the perception of excessive body size was an important factor in the self-concept of obese people, and that extreme body dissatisfaction is characteristic of many people who are overweight. However, as is clear from the previous section body dissatisfaction and body image disturbance is not unique to obese individuals, being very common in the normal weight, female population. Consequently, research into body image in the obese needs to go beyond clinical description.

Stunkard & Wadden (1992) have illustrated differences in body image in relation to body size. Obese people, when compared to nonobese, overestimate their body size more, are

more dissatisfied with their physical appearance, are more preoccupied with their appearance, and tend to avoid social situations because of their appearance. Collins, Beumont, Touyz, Krass, Thompson, & Phillips (1987) examined the differences between judgements of body shape among anorexic, bulimic, obese and normal weight female participants. The normal weight control group were more accurate in their estimations of body shape than were any of the clinical groups. Both the obese and bulimics varied the most in their judgements of body shape. Furthermore, Wadden, Stunkard, & Liebshutz (1988) studied the efficacy of the treatment of obesity by comparing very low-calorie diet, behaviour therapy, and a combination of the two. They concluded that any improvement of body image as a result of weight loss is only temporary, and those who do regain weight report the most negative effect is on satisfaction with appearance. Rosen et al (1995) also concluded that several components of body image (perception, cognition/affect, and behaviour) are more problematic for obese people.

Rosen (1996) points out that although the 'desire to improve body image is often the motivation to embark on weight reduction attempts', body image has largely been neglected in traditional weight loss programs. Rosen suggests that, this is because it is generally believed the best way for overweight people to improve their body image is to lose weight. With a change to their external appearance, the individual should experience a more positive self-image, although few studies that have examined this assumption. Cash (1994) indicated a much improved body image immediately after participants had lost considerable amounts of weight on a very low calorie diet. Furthermore, Stunkard and Wadden (1992) also indicated greatly improved body image after gastrointestinal

obesity surgery, but this may have improved merely because the individuals lost weight. But there have not been any studies examining less extreme weight-loss programs.

These studies have also failed to examine body image at follow-up. It would seem likely that the improvements will only continue if the weight loss is maintained. Rosen further points out that body image is a personal evaluation of the individual's belief about their physical attractiveness and, although related to an objective physical appearance, the correlation between the two is low (Feingold, 1992). Thus, Rosen concludes losing weight does not automatically result in a normal or positive body image. Moreover, as few weight loss programmes are effective in the long-term, weight loss is not necessarily an option for overweight people with severe body dissatisfaction.

Rosen (1996) warns health professionals against 'trivialising body image complaints of obese people, or acting if obese people deserve to feel the way they do'. He distinguishes between those whom feel dissatisfied with their appearance, and those whom are both distressed and inhibited because of their negative body image. He argues that body dissatisfaction is so prevalent among overweight people that a 'definition of significant distress is needed', and suggests that body image assessment scores should be compared to overweight norms, although he adds these norms are not readily available. Furthermore, because the prevalence rates of body image problems in the overweight are unknown these too needs to be measured. There is also an interesting issue relating body image to treatment outcome: do obese people with a more positive body image respond better to treatment than those with a negative body image?

Hill, Draper and Stack's (1994) study did not have a really overweight category, but it indicated that children in the most 'overweight' group had the lowest body-esteem scores. Body-esteem was highest for girls in the 'slightly underweight' category, and highest for boys in the 'average weight' category, but there were no effects on any of the weight categories on the children's overall levels of self-esteem. This failure to find lower levels of self-esteem in the overweight children will be discussed in more detail later.

These studies suggest body image is poor among obese, which is generally understood to be because of social attitudes towards obese people. Thus, this would indicate that the more positive attitudes there are towards obese people in society, the higher the levels of body satisfaction would be among the obese. This seems to be indicated in Massara's (1980) study of Puerto Rican immigrants, and could be implied by Rosenberg's (1989) work with Black adolescents during the 1970s in America (which I will discuss in detail later). The present study tests the hypothesis that the more overweight peers, family members and general support the individual receives the less the individual will be dissatisfied with their body image.

1.6 New generation of studies in the psychology of obesity

Obesity is increasingly being recognised as a heterogeneous disorder in terms of aetiology, psychological consequences and health impact (Brownell and Wadden, 1991, 1992; Stunkard and Wadden, 1992). Body shape concerns and levels of self-esteem also appear to vary across obese people, which raises the question of what accounts for such variation.

Sullivan et al (1993) examined the impact of obesity on psychological factors. Standard psychosocial questionnaires were completed by 800 obese men and 943 obese women. Results indicated that the severely obese reported poorer current health, less positive mood state and more social dysfunction than general population samples. Anxiety and depression scores were more frequent in the obese women than the obese men.

Friedman and Brownell (1995) propose a 'second generation of studies', where various factors that are likely to put overweight people at risk of psychological problems are studied. Thus, as well as comparing obese to non-obese individuals, factors would be examined that might explain why some overweight people experience psychological problems, whilst others do not. Friedman and Brownell conceptualise risk factors in three ways: *independent* risk factors which would be as likely to occur and have the same detrimental effects among obese and non-obese people; *potentiated* risk factors which would have the same consequences regardless of the individual's weight, but the risk is more prevalent among the obese; and *interactive (synergistic)* that would require the individual to be obese to have an adverse effect.

The initial studies were aimed at identifying areas of psychological functioning associated with obesity. Friedman and Brownell suggested that body image disturbance, low self-concept and negative attributions about life events were all interrelated. Mendelson and White (1982) found that obese women are at risk of suffering from their obesity because of societal pressures to be thin. Thus, Friedman and Brownell indicate that those who suffer from poor self-concept, body dissatisfaction, and negative attributions are likely to

demonstrate further psychological distress in the form of severe dieting, bingeing and weight cycling.

Friedman and Brownell (1995) suggest that the next stage of research is to establish who is most at risk of suffering psychological distress because of their obesity (ie. women, early onset of obesity) and test various hypotheses. Risk factors associated with psychological problems among the obese need to be established in order to identify the variables that are associated with suffering. The present study uses this concept in beginning to address the risk factors associated with psychological distress among the obese by comparing various sub-groups within an obese population.

Friedman and Brownell (1995) suggest the final stage of research into psychological correlates of obesity looks at causal relationships between obesity and psychopathology. They suggest that very few studies have examined causal links, however Polivy and Herman (1985) believe that there is a link with dieting and binge eating and a further study indicates dieting results in higher psychopathology (Rosen et al, 1990). The present study aims to make some the causal links between obesity and body dissatisfaction.

1.7 The Stigma of Obesity

Early 1960 studies (Richardson et al, 1961) emphasised culturally uniform responses to obesity. Participants, regardless of age, sex, race, socioeconomic status, or disability, rated photos of obese people as least likeable when compared with various other groups. Obese people were consistently rated as less likeable than people with a range of

disabilities: a person with a facial deformity; a person with a deformed leg; a person in a wheelchair; a person with a missing hand; and a normal weight person.

Goffman (1963) defines three types of stigmata: *abominations of the body* (or physical deformities); *tribal stigmata* (of race, religion, or social class); and *blemishes of individual character* (such as mental illness, addiction, and homeosexuality). Goffman argues that stigmatized people are 'subject to discrimination and outright rejection or avoidance', furthermore that daily interactions with *normal* individuals are 'a cause of great difficulty, being anxiety-producing and discomforting for both interactants'. DeJong (1980) expresses surprise that considering the weight of evidence suggesting the discrimination against the obese they are not included in Goffman's list of physical stigmata.

DeJong (1980) proposes that previous research illustrates that derogation by the public depends on the stigma. For example, characterological stigmas are usually ridiculed whereas physical stigmas are not . People with characterological stigmas are believed to behave this way through choice, thus DeJong argues, that they are 'almost always seen as having responsibility for acquiring and controlling their deviant status'. This compares with those with a physical deviance who are generally not blamed for their deviance. However, some physical stigmas (such as personal hygiene, hairstyles etc) are 'assumed to reflect the persons' intentions' and derogated. Thus, DeJong concludes that 'if the person can be blamed, that characteristic will be seen not as a misfortune, but as a defect'. This further leads to the argument that if the person had better personal characteristics they could prevent the characteristic. He suggests that obesity usually falls into the category of being within the individual's control (ie they could have eaten less, exercised

more etc.) and, therefore, they are likely to attract public ridicule. In Goffman's terms obesity might be a physical abomination *and* a blemish of character.

DeJong (1980) illustrated this attribution of blame in a study in which pictures of overweight girls were shown to two of participants. Both groups saw the same description about the girls' characters, except one group had the added information that the overweight girl had thyroid problems, which (it was said) accounted for her weight. He found that negative character assumptions were more likely when there was no 'external' explanation for the excess weight. Thus, DeJong concludes that it is 'not the mere fact that obese are physically deviant which causes them to be derogated, but that they are assumed to be responsible for their deviant status'.

Maddox et al (1968) found that likeability was associated with attribution to the individual of responsibility for their weight. The more the individual was thought to be responsible for their increased weight, the more they were disliked. Crocker, Cornwell, and Major (1993) further suggest that stigmas that result in negative reactions in other may change over time as 'knowledge, tastes, and public acceptance of deviant conditions and behaviours change'. They argue that unlike some stigmatised conditions such as homosexuality, which can be concealed from others the fact that someone is overweight is immediately visible, and thus affects every direct social interaction. Furthermore, as already suggested, being part of some stigmatised groups elicits some positive responses from society (for example being physically handicapped may arouse concern and a desire to help), obesity seems to induce unanimous negative response (Richardson et al, 1961).

Crocker, Cornwell and Major (1993) also looked at the perspective of the obese person and suggest that the attributions that the stigmatised individual makes of the negative comments and outcomes, determines variation in self-esteem. Whether the individual attributes the negative outcome to a 'lack of personal deservingness' or to 'prejudice and discrimination' will have opposite effects upon self-esteem: negative for the former and positive for the latter. This is illustrated by various studies (Dion, 1975, 1986; Dion & Earn, 1975) which indicate that women who attribute negative comments made by a male as being prejudiced, rather than believing them to be true evaluations, have higher self-esteem. Crocker et al argue that the *perception* of being stigmatised can therefore be 'self-protective, because it provides an explanation for negative outcomes, feedback, and reactions from others'. Self-esteem may influence attributions in that if the person has a relatively high self-esteem, they are able to counteract negative situations by providing themselves with an explanation. Furthermore, encouraging them to attribute negative situations to prejudice may enhance their self-esteem.

Crocker et al (1980) examined women's attribution of negative comments made to them by a male. They divided the participants into two groups; one receiving positive comments, the other negative. Within these groups were overweight and average weight participants. Their findings suggest that overweight women, when confronted with negative verbal feedback from a man, attributed the comments to their own weight and his concern about her appearance. Conversely, when given positive verbal comments the overweight women attributed them to their personalities and not to her looks. In comparison, average weight participants tended attribute the rejection to his personality. Thus, Crocker et al conclude than unlike other stigmatised groups overweight women do

not recognise the negative consequences of their stigma, and thus do not attribute negative comments to the persons' prejudice.

1.8 Attitudes and Beliefs about Obese People

Robinson, Bacon and O'Reilly (1993) examined 'fat phobia', referring to the 'pathological fear of fatness often manifested as negative attitude and stereotypes about fat people'. They indicated that obese people are stereotyped as being 'undisciplined, inactive, unappealing, having emotional and psychological problems'. Robinson et al requested 1135 participants (made up of college students, those attending a lecture on body image, psychotherapy clients with a low body image, and members of a weight loss group) to complete the Fat Phobia Scale. The participants were largely educated, interested in body image, women and had a professional job. Their studies suggest that respondents who were average or underweight, younger (less than 55 years), female, had more than just a high school education and non-medical professionals were more likely to have fat phobic attitudes.

Yuker, Allison and Faith (1995) suggest that it is vital that the attitudes and beliefs about obese people are measured because, they argue 'the degree of social discrimination ... is every bit as terrible as the medical sequelae of their fatness'. They argue that the pervasive nature of the discrimination and stigma which obese people face must be measured, in order for us to understand the cause and to begin to change this discrimination.

Harris (1990) suggests that health professionals and lay people feel that they know what is the right *treatment* for obesity; eat less, exercise more. She suggests that this belief

combined with the poor long-term prognosis for weight loss results in the obese person being put in a difficult position, as being largely responsible for their weight. Harris' study is interested in addressing why overweight people choose short-term, low-calorie diets in favour of more longer term effective approaches, such as: increasing exercise. She suggests that: what overweight people know about obesity; what overweight people feel about other overweight people; what overweight people's perceptions of society's attitudes and prejudices are, and how men and women differ in their experiences of being overweight, are important and under-investigated issues.

Harris (1990) examined the knowledge and attitudes in a small sample (n = 55) of overweight women and men, of whom the majority were attempting to lose weight. 89% knew people who were thinner than them but ate more than they did, and 44% knew people who were fatter than them who ate less than them. The participants were asked what they were prepared to do in order to lose weight permanently: 68% indicated they were prepared to exercise for one hour daily; 54% indicated they were prepared to leave food on the plate at mealtimes; 38% suggested that they were prepared to eat a diet of 500 calories a day; 36% indicated they would give up sweets and fatty foods; 9% indicated they would be prepared to stay in hospital for 2 months in order to lose the weight; 7% would spend all their savings; 2% would have stomach or intestinal surgery; and 2% would have their jaws wired.

In terms of the effects of weight, 58% felt that there was nothing good about being overweight, with only one person indicating multiple benefits of being overweight (ie. can

eat what you want, keep warm, avoid sex). A third of the participants felt that the worst aspects of obesity were the multiple disadvantages, 23% felt the worst part was poor self-esteem, 14% did not like the fact that clothes did not fit, and 11% mentioned health and looking bad. Therefore, the majority of participants were attempting to lose weight, and said that they were prepared to go to some lengths if weight loss could be guaranteed. Again, the majority believed that there was nothing positive about being overweight, and tended to believe there were multiple disadvantages to being overweight. Therefore, participants were aware of the negative social stereotypes, and to some extent shared them. Only a minority were able to describe any positive aspects of being overweight, perceiving the disadvantages as many.

Harris went on to ask the participants if they would trade their weight for each of a list of handicaps. Although 67% indicated they would not trade their weight, a third believed they would exchange their weight for a handicap: 21% indicated they would change their weight for 'an ugly birthmark on their back'; 12% for being very short; 9% for being bald; 9% for being on crutches; 7% for a criminal record; 4% for an ugly birthmark on the face; 2% for cancer, serious heart disease, diabetes, or being confined to a wheelchair.

Most of the sample believed that overweight people eat more than people of an average weight. This belief was in spite of the fact that nearly all of the participants knew thinner people than them who ate more than they did. Harris suggests that educating overweight people about the complex aetiology of obesity, with reference to the difficulties in treating obesity, may help to lessen the feelings of guilt, responsibility and self-blame. Interestingly, Harris discovered that knowledge about obesity was negatively correlated

with the participants' Body Mass Index (BMI), which she rashly concluded indicates that 'increased knowledge may help in weight reduction'.

Harris did find some sex differences, although indicated it may be hard to generalise these findings with only eight men in the sample. Women were more knowledgeable about obesity. They reported that losing weight was more important to them, and were prepared to do more to lose the weight. Furthermore, they indicated that they would like to weigh less than the weight they believed would be the healthiest, unlike the men. Harris concludes that there is a serious 'challenge facing health care professionals to instill a long-term attitude to weight reduction', with no 'quick fix' solution.

Crandall and Biernat (1990) were interested in why the obese are such a strongly disliked group and asked the question: 'Where do anti-fat attitudes come from?' They suggest that 'obese people pose no real threat to society or the individual', and thus suggest prejudice against the obese is similar to Kinder and Sears' (1981) 'symbolic racism'. Crandall and Biernat substitute obese for race and suggest 'fatism' involves 'moral feelings that [the obese] violate such traditional American values as individualism, self-reliance, the work ethic, obedience and discipline'. Crandall (1994) suggests that prejudice towards Black people is twofold: 'old-fashioned racial hatred' and the belief that Black people do not attempt to strive for the American values of 'discipline, self-control, and self-reliance'.

Crandall and Biernat's (1990) surveyed 1072 undergraduates about their attitudes toward fatness and fat people. Their findings indicated that anti-fat attitudes are not based on one's own situation; higher body mass index was not correlated with anti-fat attitudes.

Therefore, they conclude that the 'origin may be primarily ideological, rather than out of one's own experience'. The study highlighted a sex difference in self-esteem and anti-fat attitudes, with self-esteem being uncorrelated with anti-fat attitudes for men, but women with lower self-esteem holding negative attitudes towards fatness. Crandall and Biernat argue that this is consistent with Tesser's (1987) theory of 'self-evaluation maintenance', which predicts that in order to 'protect the self, one will denigrate others who may be perceived as competitors on self-relevant dimensions, such as weight'. Self-esteem was not significantly associated with being fat among men, and only slightly associated with being fat among women. However, they comment that heavier women compared to thinner participants did seem to have lower self-esteem. Once the female participants were divided into three weight groups (lowest 25%, middle 50%, and top 25%) self-esteem is correlated with anti-fat attitudes only among the heaviest women. They conclude that for women 'being fat, and at the same time disliking fatness, seems to have negative consequences for self-esteem'. However, the most significant factor across all three groups was a general conservative and authoritarian attitude: they found that being anti-fat is 'associated with being racist, politically conservative, prohibitive about the sexuality of people..., in favor of traditional marriage, and for men, in favor of capital punishment'. Crandall and Biernat conclude that one's politics 'permeates much of one's thinking about the world'. Thus, they suggest that the conservative ideology of 'people get what they deserve' underlies general prejudice.

Crandall (1994) investigated this comparison between anti-fat attitudes and 'symbolic racism' further. From a number of studies he devised, Crandall concluded that compared to racism, anti-fat attitudes are fifty years behind: 'overt, expressible, and widely held'.

In addition, Crandall suggests that because anti-fat attitudes are so widely held within Western societies, fat and thin people are just as likely to hold anti-fat attitudes. Thus, he concludes that it is fat people who hold anti-fat attitudes who will suffer from low self-esteem (Crandall & Biernat, 1990). Furthermore, there is little group feeling among fat people, thus the self-protective factors are not available to them (Crocker, Cornwell, & Major, 1993; Rosenberg, 1989). Group identity is further complicated by the fact that identification with other fat people may not improve self-image, since fat people may see themselves of being able to opt out by losing weight. Crandall concludes that overweight people, in order to avoid self-rejection, should learn from the Black communities and encourage 'self-categorization as members of a group'.

Crandall suggests that two factors lead to anti-fat attitudes: cultural and individual's preference for thinness; and the individual being blamed for their weight. He adds that the overweight are one of a 'long list of deviant groups', which includes homosexuals, the elderly, ethnic minorities, the handicapped and the poor, and suggests that the study of 'anti-fat attitudes' provides an opportunity to come to a greater understanding of the general processes of prejudice and discrimination.

Allison, Basile and Yuker's (1991) developed a scale called the 'Attitudes Toward Obese Persons Scale' (ATOP) which they used to assess the attitudes of health professionals about obese people. This scale has not previously been administered to obese people. Previous studies would suggest that obese people would hold as many prejudices about obese people as non-obese people (Crandall and Biernat, 1990; Crandall, 1994). However, as already suggested by Crandall and Biernat, those who are overweight and

hold anti-fat attitudes tend to have lower self-esteem. These hypotheses will be tested in this study.

1.9 Obesity and Self-esteem

The relationship between weight body image and self-esteem is complex. Low self-esteem could contribute to a poor body image, but the reverse (poor body image resulting in a low self-esteem) is equally plausible. The ubiquitous negative cultural stereotypes would lead to the expectation that overweight people should have low self-esteem levels. In addition, some researchers have suggested that body image is an extremely important aspect of self-esteem (Striegel-Moore, Silberstein, & Rodin, 1986, 1993), particularly for women in our culture (Silberstein, Striegel-Moore, Timko, & Rodin, 1988). They showed that low self-esteem was associated with chronic dieting and body dissatisfaction in both average weight dieters and eating disorder patients. However, studies examining self-esteem in obese people have generally failed to show significant differences between obese and non-obese groups. It would seem important to investigate these inconsistencies further.

Rosenberg (1989) suggests that the assumption that stigmatized groups have low self-esteem is based upon an objective frame of reference, which he argues needs to shifted to be subjective. Behaviour is not governed entirely by the state of the world, but by how the person perceives the world. Rosenberg (1989) researched Black, lower socio-economic groups in the United States during the 1960s, and his ideas provide some of the theoretical background for the present study. One of his studies tested the idea that Black children would, because of social prejudice 'experience impaired self-esteem', but his

results failed to confirm this assumption. As a result he concluded that it is not the level of prejudice in society, but the individual experience and perception of prejudice that damages self-esteem. The children he studied came largely from segregated schools, thus they did not experience bigotry. However, Black children attending largely White schools were more likely to report experiences of racism and they also had lower self-esteem. The idea that the Black pupils would have accepted and internalised the negative attitudes also had to be rejected. The overwhelming majority of Black students expressed strong feelings of pride in their race, clearly the students did not hold the widespread negative beliefs of the wider system. Applying this reasoning to the situation of obese people in a society which stigmatises obesity, suggests that the obese individual's self-esteem may be modified in relation to the extent that they personally experience, or introject the prejudice of the broader society.

Rosenberg's second principle of self-evaluation is social comparison, which suggests that people judge themselves by comparing themselves to others. Thus, if an individual has an unprestigious job, or performs poorly at school, they should have a lower self-esteem than those with a prestigious job or a high school performer. However, he found that self-evaluation also appeared to be contextual; thus, if your neighbours are as poor as you, or if relative to your school peers your (poor) school grades were average, then you would not necessarily have a damaged self-esteem. In the light of Rosenberg's observations, perhaps the context of obesity needs to be better understood. Thus, if the obese person is surrounded by obese friends and family, their body image and self-esteem may not be damaged.

The interaction between body image, self-esteem and teasing

Grilo, Wilfley, Brownell and Rodin (1994) investigated the nature of the variability in body image and self-esteem in a small sample of middle-class obese women, and particularly the effect of being teased upon body satisfaction and self-esteem. They hypothesised that teasing targeted at the individual's weight and size would be particularly damaging. They found that obese participants who indicated a greater frequency of being teased about their weight and shape while growing up had greater body dissatisfaction and more negative evaluation of their appearance. However, teasing was not significantly correlated with self-esteem, although self-esteem was significantly correlated with two measures (out of three) of body image: positively with appearance evaluation, and negatively with body dissatisfaction.

Finally, the investigators divided the participants into early-onset (younger than eighteen years) and adult-onset (older than eighteen years) obesity. Their findings illustrated that participants with early-onset obesity indicated a significantly higher frequency of being teased about weight and size, and about general appearance while growing up than those with adult-onset. Group differences with appearance evaluation were not statistically significant, but those with early-onset obesity did indicate statistically greater levels of body dissatisfaction. Within this group on early-onset obesity the frequency of being teased about weight and size was significantly correlated both with body dissatisfaction and self-esteem. A complication is that the participants were asked about levels of teasing during childhood, so levels of adult teasing was not measured, and furthermore, if one was not overweight as a child presumably they would not be teased about their weight.

The social comparison process is another complex factor. The general assumption is that upward social comparison promotes a sense of inferiority. On that basis, an 'obese' friendship and family network might prevent too much upward social comparison and protect self-esteem. However, Collins (1996) argues that this is too simplistic. In her review of the literature she discusses the importance of 'upward social comparison on self-evaluation'. She suggests that superior beliefs are positively correlated with self-esteem (Brown, 1986; Campbell, 1986) 'indicating that people equate being better with being good'. In reviewing the impact of upward comparison on self-esteem Collins finds that research is divided. In one study (van den Borne et al, 1987) the self-esteem of patients attending a cancer support group improved over time, this was particularly noticeable in the patients who were most ill. Collins suggests that the increase in 'self-worth may have resulted from exposure to upward social comparisons as part of participation in the groups'. However, in contrast, some studies have indicated that social evaluation and self-esteem have lowered as a result of upward comparisons (Thornton and Moore, 1993).

Collins (1996) suggests that two effects that most clearly impacted on upward comparison were level of self-esteem and shared distinctiveness (where the participant believes that there is a common feature between them and the person they are comparing with; for example, a shared birthday). Collins proposes that those with high levels of self-esteem or who shared a distinctive feature with the comparison were 'more likely to react positively to upward comparison'. She concludes that 'people want to be better than others, but they will almost inevitably come into contact with persons superior to themselves'. Collins argues that this does not necessarily pose a problem for 'self-esteem maintenance' and may even help people to 'achieve and maintain superiority by serving

self-evaluative and self-improvement functions'. When the individual has to conclude that they are part of an 'inferior category', it will be 'ego deflating'.

This review is relevant to the current study in that if obese people are constantly faced with their 'inferiority' when they compare with society's ideal, and are stereotyped and ridiculed then it seems likely to impact on their self-evaluation. However, if self-esteem is good because their comparison group is similar (Rosenberg, 1989) then may be their frame of comparison will not involve their weight, but another feature of their self-evaluation, thus maintaining their self-esteem.

1.12 Supportiveness of Partners

Little has been studied about the effects of having a supportive partner upon obese people's levels of body dissatisfaction. The few studies that have examined the effect of a supportive partner have looked at spouses involvement upon weight loss and maintenance. Murphy (1982) examined the effects of spouses involvement in a weight loss program. Seventy-five obese adults were divided into four groups; a weight-loss group with partners attending, a weight-loss group without partners attending, a placebo group without partners, and a waiting list control group. Participants attended eleven weekly sessions and eight maintenance sessions over a two-year follow-up. The most effective weight-loss groups were those attending the treatment sessions. Furthermore, at one and two year follow-ups, participants who attended the weight-loss sessions with their partners lost significantly more weight, and kept the weight off, than those who attended without their partners. The effect of having a partner who does not denigrate

the weight you are, and actively supports any weight-loss treatment attempted would presumably have a positive effect upon the obese persons body image.

The Present Study

In a society that extols the virtues of slimness, indicating health, success and beauty, it would seem to follow that obese people may experience high levels of body dissatisfaction. This assumption is generally taken to be a truth. However, as in the normal weight population it would seem that variation in levels of body dissatisfaction among the obese may well occur. It may be that certain protective factors could be in place that would preserve the individuals assessment of their body image. Thus, if an obese person believes that they have high self-worth, or their partner supports the weight they are, or they have a positive attitude generally about people who are overweight, then they may too have low body dissatisfaction levels. Variations in body dissatisfaction among obese people has not been previously measured, nor have the individual factors that may account for such variation.

Previous studies have largely examined only the overweight and obese population who attend weight-loss clinics. The present study suggests that this population may not be indicative of the beliefs of obese people generally. People attending weight-loss clinics are, by their very nature, dissatisfied with their weight. Thus, the present study has drawn from a number of sources in order to maximise the variation in weight, age, age of onset of obesity, gender, race etc.

Therefore, this review makes the case that body dissatisfaction varies, both in the normal weight and the obese population. While social attitudes explain the general level of weight concern, more individual factors must explain the inter-individual variation. This review of the literature illustrates the range of factors which have been linked with body image

of body dissatisfaction. Gender consistently predicts dissatisfaction in the community samples. It has rarely been looked at in obesity, partly because few men attend obesity treatment programmes, although this in itself suggests lower body dissatisfaction in men. Why women should be more dissatisfied is not fully understood: do they have different ideals, are the ideals similar but more salient, or do women experience greater external pressure for shape control (eg. from family and friends or partners).

Teasing is one of the few factors to have been investigated in the obese, and has been shown to be associated with poorer body image. In the overweight this association may be confounded by age of onset of obesity, in that most teasing inventories focus on childhood teasing. Thus, only people who were overweight as children are likely to report childhood teasing. However, there may still be variation within the early-onset obese, which could be explained by teasing, and this will tested in the present study.

Attitudes and beliefs about weight have been studied largely in the non-obese, these studies suggest that negative attitudes are common, but beliefs about the causes may vary. The belief that a case of obesity is an illness (eg. caused by glands) rather than a sign of lack of self-control, predicts less rejection in that case. This is matched by some data on health professionals which suggested that beliefs in 'genetics', as a factor of obesity, promoted less negative attitudes. These results suggested the value of studying the beliefs and attitudes about obesity among the obese, as factors which might influence body dissatisfaction and self-esteem.

Research Questions

This study aims to address some of the issues raised in this review of the literature by comparing different variables associated with body dissatisfaction among different weight groups (ie normal weight range and obese), and examining the same associated variables among the obese group. By making various comparisons it is hoped to have a greater understanding of body dissatisfaction among the obese group, and what some contributing factors may be. The main research predictions are:

- The obese group of participants will be significantly different from either the overweight and normal weight group on a number of psychological variables (eg. Body dissatisfaction, self-esteem, bulimic type behaviour). Furthermore, they will avoid more situations that involve eating or where a persons weight may be an issue, they will have more negative attitudes generally about people who are overweight, and will have been teased significantly more about their weight and shape during childhood.

- Once it has been established that the obese group are a significantly different group from the overweight and normal group with regards to a number of psychological and behavioural variables, they shall be examined separately in order to look more closely at what accounts for the variance. Research predictions about the obese group are:

i. Obese men will have lower body dissatisfaction scores than obese women.

ii. Body dissatisfaction among the obese will be greater in those who became overweight during childhood.

iii. Teasing during childhood about weight and shape, but not about competency, will be associated with greater body dissatisfaction scores during adulthood.

iv. Having fewer overweight people in the social and family environment will lead to the obese person having greater body dissatisfaction.

v. Body dissatisfaction will be greater in obese adults who attribute their overweight to internal factors.

vi. Body dissatisfaction will be correlated with low self-esteem among the obese group.

vii. Having a partner who is supportive about the obese person's weight/shape will result in lower body dissatisfaction.

viii. Negative attitudes, held by the obese person, about obese people generally will be associated with higher body dissatisfaction.

ix. Those obese people with greater body dissatisfaction, but not necessarily those who are the heaviest, will avoid more social situations.

- Finally, the obese participants beliefs about the general causes of obesity will be compared to their personal beliefs about how they became overweight. It is predicted that general beliefs about the causes of obesity will mirror the personal beliefs of the individual's weight gain.

Method

Design

A cross-sectional correlational study examining hypothesised influences on body image and self-esteem in obese adults. The study is questionnaire based.

Ethical Approval

Ethical approval was received from each of the centres Ethics Committees (see approval letters in Appendix 1). Recruitment of subjects began in August 1996, and questionnaires were sent out between January and April 1997 (see Appendix 2 for examples of the letters and information sheets sent out to the participants from each of the centres).

Study population

Obese participants were sought from a range of different sources in order to maximise variation in relation to weight, gender, social circumstances, age of onset and attributions. The clinical sample was recruited from four different sources: a nutrition and dietetic service; an obesity clinic; a weight loss study; and a General Practice. In the initial design, no normal weight sample had been planned, but interest in non-obese people's responses to some of the instruments prompted the recruitment of a working adult sample from a local telecommunications company. This working adult sample was not a control group, but devised to check the patterns of relationships between body dissatisfaction and other variables to see if different patterns exist among the obese group.

Nutrition and Dietetic Outpatient Department 1

125 referrals were received by this outpatient department from 1st January 1996 to 31 December 1996. All patients referred to the service were sent a questionnaire. Approximately half of the referrals had come from General Practioners and the other half from Consultant Physicians. The dieticians at the department believed that referrals from G.P.s had usually been requested by the patient, whereas those from the Physicians were often referred because their weight was leading to medical complications. Patients all lived in the same county, and were seen by one of five dieticians employed by the hospital. Twenty-five men and 100 women with a Body Mass Index (BMI) above 29 were contacted, at their last recorded address.

Dietetic Department 2

Sixty-six patients were referred by General Practioners to attend an outpatient programme for the management of overweight. Patients were all seen within a group format for dietetic and psychological advice at primary care settings. Patients were invited to take part by the group organisers, with a letter explaining the reason for the research.

Obesity Clinic

This service is a national centre based at an Inner London Hospital, thus patients attended the clinic from a variety of areas. All patients attending the clinic over a period of six weeks were invited to take part in the study. They could complete the questionnaire at the clinic or return it by post. All participants had a BMI of above 30. Each week approximately 10 patients attended the clinic for follow-up treatment and 5 were new referrals.

General Practice

Eighty-nine patients with a Body Mass Index over 27, were randomly chosen from a register of patients. One hundred men and women were selected, and once the G.P.s had removed any patients they regarded to be unsuitable (ie underlying psychiatric problems, those whose last weight had been taken whilst they were pregnant etc.), eighty-nine were invited to take part in the study. All those chosen to take part were sent a letter of explanation from their G.P.,and a questionnaire, inviting them to take part.

Workplace Sample

Fifty-nine people who worked within the residential sales, customer care and administration departments of a telecommunications company were sent the questionnaire and an information sheet explaining the outline of the study. The sample consisted of people with a wide variation in BMI (range 18-31).

Measures

Participants were sent a questionnaire booklet (see Appendix 3) containing the following measures:

Rosenberg Self-Esteem Inventory which is a 10 item index of general self-esteem (Rosenberg, 1965). The measure has a test-retest reliability of .85 and is the most widely used measure in health psychology. The Rosenberg Self-Esteem Inventory (RSE) requires the individual to respond to each of the items using a 4 point Likert scale from 1 to 4. Half the items are expressions of positive self-esteem (items 1, 3, 4, 7, 10) and half are negative (items 2, 5, 6, 8, 9). The score is the sum of the item scores and range from 10 to 40, with low scores indicating high self-esteem.

Eating Disorders Inventory - Bulimia subscale (Garner, 1991). Low self-esteem has been associated with bulimic behaviour. This subscale measures tendency to binge, purge and engage in other bulimic type behaviours. Its internal consistency is .86 for a sample of eating disordered individuals, and .69-.82 for 4 samples of non-patient female controls (Garner, 1991). This inventory was developed for assessing anorexic and bulimic patients, but was the only standard measure available.

This scale requires the individual to respond to 7 items on a 6 point Likert scale. Each item is scored from 0 to 3 (0, 0, 0, 1, 2, 3), the 'never' response is scored 0 and the 'always' response is scored 3. The scale score is the sum of the items, which range from 0 to 21. High scores indicate bulimic behaviour.

Body Image Avoidance Questionnaire (Rosen, Srebnik, Saltzberg, & Wendt, 1991)is a self-reported measure of 19 items which looks at the avoidance of various activities which are likely to provoke anxiety about social situations (e.g. avoiding wearing revealing clothes, or avoiding physical intimacy). One item was removed as it was felt to be too much of an American colloquialism ('I do not go out socially if I will be "checked out"').

The questionnaire requires the respondant to answer the items on a 6-point Likert scale. Each item is scored from 0 - 5; with 0 = 'Never' and 5 = 'Always'. The scale score is the sum of the items, thus ranges from 0 - 90. A high score indicates more avoidant behaviour.

Attitudes Towards Obese People (Allison, Basile, & Yuker, 1991) focusses on 'discriminatory' and 'stereotypical' perceptions of obese people to measure the negative attitudes held by society. The ATOP coefficient alphas range from .80 to .84. No test-retest reliability data has been collected. The questionnaire was developed in order to measure attitudes of health professionals and has not previously been used with obese people. Because it was felt that the word 'obese' may be upsetting to overweight people, and was not very clear in meaning to non-health professionals, the word was substituted with 'overweight'. Furthermore, one item was removed as it was felt that it may be offensive to overweight people ('Overweight people should not expect to lead normal lives').

The questionnaire asks the individual to respond to the 17 items on a 4-category Likert scale. Items were scored -3, -2, +2, +3; then the following items were reversed: 2 through to 6, 9 through to 13 and items 16 and 17. The responses were then added, and 51 was added to account for the negative items. The higher the score the more positive the individual's attitude towards overweight people.

Perception of Teasing Scale (Thompson et al , 1995) is an 11-item self-reported questionnaire which has 2 subscales: Weight-Related teasing and Competency teasing. Internal consistency for the General Weight subscale is .94, whilst the Competency subscale is .78. Criticisms of this measure is that it is retrospective, and thus there is no corroborative data to check the truth of the responses. Furthermore, teasing during adulthood is not addressed, and may be just as damaging to the overweight person.

Participants were required to answer 11 items about the frequency of teasing during their childhood; 6 items referred to teasing about their weight and shape, 5 referred to teasing about their competency. Items were measured on a 5-point Likert scale, ranging from 1 = 'Never' to 5 = 'Very Often'. The scale score is the sum of the items, the range being from 11 to 55. A high score indicates a high frequency of teasing.

Locus of Control Scale adapted from the Recovery Locus of Control Scale (Partridge & Johnston, 1989) which provides a measure of the internality/externality of the person's perceptions of control over their recovery. Four of the items were adapted to measure the internality/externality of the person's perceptions of their weight.

Each item is scored from 1 to 5, reflecting the strength of internal beliefs. Thus for the 3 items which reflect external beliefs (1, 2, and 3) the 'strongly disagree' response is scored 1 and the 'strongly agree' response is scored 5. For the other item which reflects external beliefs (4), 'strongly disagree' is scored 5 and 'strongly agree' is scored 1. The scores for each item are combined to from a total score, ranging from 9 - 45. Thus, a high score indicates a strong internal locus of control and a low score a strong external locus of control.

Figure Rating Scale (Stunkard, Sorenson, & Schulsinger, 1983) is widely used to assess satisfaction with body size. Nine male and female schematic figures are ordered by increasing size (very thin to obese). Participants are asked to choose the figure that best represents: how they feel most of the time; how they actually look; and how they would like to look. The test-retest reliability of the ratings are: *Ideal;* male .82; female .71: *Think*; male .92; female .89; *Feel*; male .81; female .83.

The present study used the discrepancy between how the person indicated they 'felt most of the time' with how they indicated they would 'most like to look like'. Each of the figures corresponded to a number (1-9) with 1 being a very thin figure and 9 being a very overweight figure. Thus, the range could be 0-8, with a high score indicating the individual has a big discrepancy between how they feel and what they would ideally like to look like. This discrepancy score was used in the Body Dissatisfaction Scale described below.

Body Dissatisfaction Measure

Three scales were used to devise this scale. One item was taken from the Eating Disorder Inventory - Body Dissatisfaction Scale ('I feel satisfied with the shape of my body'), the other items being too specific to an eating disordered population (eg. 'I think my thighs are too big'). The item requires the participant to respond on a 6 point Likert scale (0,0,0,1,2,3) with the 'never' response scoring 3 and the 'always' response scoring 0. Thus, the range is 0 - 3, with a high score indicating greater body dissatisfaction. The second item used to devise this scale required the participant to rate how they would describe themselves (Very underweight, Underweight, About right, Overweight, Very overweight). This item was scored with 'very underweight' scoring 1 and 'very overweight' scoring 5. Thus the range of scores was 1 - 5 with a high score indicating the participant rates themself as being more overweight. Finally, the third item used was the feel-ideal discrepancy score from the Figure Rating scale, described above.

Therefore, the range of scores for the body dissatisfaction scale was 1-17, with a high score indicating greater levels of body dissatisfaction.

Causes of Obesity adapted from Price et al (1989) who examined Paediatricians' beliefs about childhood obesity. Three further items were added (hormone problems, after pregnancy, and giving up smoking). Participants were asked to rate each statement (from Strongly disagree = 1, to Strongly agree = 4) on a four-point Likert scale. This scale was adapted for this study and was devised to examine what obese people generally believe to be the causes of obesity and compare this to what they believe to be the cause of their own obesity.

Quetlet's Index (Weight (kilograms) / Height (metres)*2) this is a widely used measure of body mass index. Each participant was requested to record their weight and height with other demographic information (age, gender, race). Quetlet's Index provides a universal and simple measure of obesity, with scores above 30 being regarded as 'obese', above 25 as being 'overweight', between 20-25 as being a normal weight, and under 20 as being underweight.

Weight history. A general history of the participants' recent dieting history and when they became overweight was obtained.

Family and Friends. Participants were asked to indicate if their mother, father, and/or siblings were overweight. In addition, they were asked to approximate the percentage of friends who were overweight. Participants were finally asked to indicate if their partner's were overweight, and whether the partner was supportive of their weight.

Procedure

Participants from both the Dietetic Departments were sent an information sheet with a questionnaire attatched inviting them to complete it, and return by post. Two weeks later they were sent a reminder, after which there was no further contact. Participants from the General Practice were randomly chosen from the register of overweight patients at the clinic. Questionnaires and information sheets were sent, again with a two week reminder, and returned to the investigator by post. Participants recruited from the Obesity Clinic were approached in the clinic and invited to join the study whilst attending their

appointment at the Obesity Clinic. If they agreed to join they were given an information sheet and asked to fill in the questionnaire. They were informed that they could either return it whilst at the clinic or return it by post to the investigator. The workplace sample were recruited by sending the questionnaire with an information sheet to all sales, administration and customer care staff. Participants were provided with an envelope and asked to return to the investigator. See Appendix 2 for examples of the letters and information sheets sent to participants.

All participants were informed the questionnaire was completely anonymous, and would only be seen by the investigators. Completion of the booklet was suggested to take approximately 15 minutes.

Statistical Analyses

The data was analysed using 'Statistical Package of Social Sciences' (SPSS). Statistical tests used included correlations, t-tests, one-way analyses of variance, and a factor analysis.

Results

3.0 Overview

The results are organised into four sections. Firstly, demographic details are given of the whole sample, and then the three weight groups (normal weight, overweight and obese). Secondly, comparisons are made between the three weight groups. The third section examines associations within the obese group. In the fourth section beliefs about the causes of obesity are presented.

3.1 Response rates and demographic details

Of the three hundred and ninety three questionnaires sent out, two hundred were returned, an overall response rate of fifty-one per cent. Table 1 gives the response rates and demographic details of the participants from each of the five centres. Only one of the questionnaires returned was incomplete, thus for the demographic data n = 199.

All the clinical samples were drawn from outpatient settings, although they did vary in geographical location: Dietetic Department 1 was based at Northampton General Hospital's Nutrition and Dietetic Department; Dietetic Department 2 was based within the Department of Health, UCL; the Obesity Clinic was a national treatment centre based at The Royal London; the G.P. surgery was in Devon. The four clinical samples were fairly similar in age, employment, education, marital status, ethnicity, body mass index. The workplace sample group was significantly different in age, gender, marital status, education, employment and body mass index.

Table 1: Demographic details of all participants

	Centre 1 Workplace Sample	**Centre 2** Dietetic Dept.1	**Centre 3** Dietetic Dept. 2	**Centre 4** Obesity Clinic	**Centre 5** G.P. Practice	**Total Scores**
Number:						
Sent	59	125	66	54	89	393
Returned	38	56	29	31	46	200
%	64%	45%	44%	57%	52%	51%
Gender (%):						
Male	50%	4%	0	6.7%	34.8%	21.1%
Female	50%	96%	100%	93.3%	65.2%	78.9%
Ethnicity(%):						
White	81.6%	98.2%	86.2%	93.3%	97.8%	92.5%
Black/Asian	18.4%	1.8%	13.8%	6.7%	2.2%	7.5%
Age (years):						
Mean	27.7	45.1	48.1	39.9	45.6	41.6
S.D.	6.8	14.3	9.3	11.7	12.0	13.5
Range (years)	17-57	20-79	29-65	18-66	20-65	17-79
Marital Status:						
Single	60.5%	12.5%	17.2%	16.7%	8.7%	22.1%
Married	39.5%	75%	70.0%	70.0%	89.1%	69.8%
Divorced	0	7.1%	10.3%	6.65%	2.2%	5.1%
Widowed	0	5.4%	3.5%	6.65%	0	3.0%
Highest Level of Education:						
Senior school	0	41.1%	20.7%	20.0%	45.6%	28.1%
GCSE/O levels	34.2%	12.5%	13.8%	36.6%	19.6%	22.1%
A Level	15.8%	7.1%	6.9%	10.0%	6.5%	9.0%
Diploma	13.1%	32.1%	27.6%	20.0%	21.7%	24.6%
Degree	23.7%	5.4%	20.7%	6.67%	2.2%	10.5%
Post-Graduate	13.2%	1.8%	10.3%	6.67%	4.4%	6.5%
Employment:						
Employed	97.4%	51.8%	68.9%	64.5%	60.9%	67.3%
Unemployed	0	12.5%	13.8%	3.2%	8.7%	8.0%
Homemaker	0	12.5%	0	22.6%	15.2%	10.5%
Retired	0	21.4%	17.3%	6.5%	13.0%	12.6%
Student	2.6%	1.8%	0	0	2.2%	1.5%
BMI:						
Mean	22.9	35.3	33.0	43.9	30.6	32.78
S.D.	3.1	5.6	5.3	12.7	4.4	9.11
Range	18-31	27-51.5	26-46	31-103	24-45	18-103

The sample was then divided into 3 subgroups (normal weight, overweight and obese) for the later subgroup analyses, as per the categories devised by the Quetlet's Index. Thus, the allocation to the three weight groups was based upon the weight of the individual; those with a BMI of <25.5 were in the normal weight group, those with a BMI between 25.5-29.49 were in the overweight group, and those with a BMI of >29.49 were in the obese group. This involved some movement between the sample groups. For example, 94.1% of the normal weight group were comprised of participants from the workplace sample, with the remaining 5.9% coming from the G.P. practice. The overweight group contained participants from all sample groups, except the obesity clinic, however, half were from the G.P. practice. Finally, the obese group contained participants from all five sample groups.

There were 34 participants who were within the normal weight range (BMI = <25.5), 37 participants fell within the overweight subgroup (BMI = 25.5-29.49), and 128 participants were obese (BMI >29.49). Table 2 shows the demographic differences between these 3 groups. The two clinical groups (overweight and obese) were similar on age, ethnicity, marital status, education, and employment. However, these groups did differ in the location of treatment and gender (with a higher percentage of women in the obese subgroup than in the overweight group). The normal weight group did differ from both the overweight and obese group with regards to age and gender, and thus ANCOVAs were used to control for each of these independently.

Table 2: Characteristics of the three sub-groups

	Sub-group 1 BMI<25.49	**Sub-group 2** BMI=25.5-29.49	**Sub-group 3** BMI>29.5
Number	34	37	128
Participant from (n):			
Workplace sample (38)	94.1% (32)	10.8% (4)	1.6% (2)
Dietetic Department 1(56)	-	13.5% (5)	39.8% (51)
Dietetic Department 2 (29)	-	21.6% (8)	16.4% (21)
Obesity Clinic (31)	-	-	23.4% (30)
G.P. Practice (46)	5.9% (2)	54.1% (20)	18.8% (24)
Gender			
Male	47.1%	27.0%	12.5%
Female	52.9%	73.0%	87.5%
Ethnicity			
White	82.4%	94.6%	94.5%
Black/Asian	17.6%	5.4%	5.5%
Age			
Mean	28.4	44.86	44.1
S.D.	8.9	12.5	12.7
Range	17-62	20-65	18-79
Marital Status			
Single	61.8%	13.5%	14.1%
Married (living as)	38.2%	83.8%	74.2%
Divorced	-	-	7.8%
Widowed	-	2.7%	3.9%
Highest Level of Educ.			
Secondary school	2.9%	35.1%	32.8%
GCSE/O levels	29.4%	21.6%	20.3%
A levels	14.7%	5.4%	8.6%
Diploma	17.7%	16.2%	27.3%
Degree	26.5%	10.8%	6.3%
Post-Graduate	8.8%	10.8%	4.7%
Employment (%)			
Employed	91.2%	59.5%	63.3%
Unemployed	-	13.5%	8.6%
Homemaker	2.9%	13.5%	11.7%
Retired	2.9%	13.5%	14.8%
Student	2.9%	-	1.6%
Body Mass Index			
Mean	21.9	27.5	37.2
S.D.	1.8	1.1	8.3
Range	18-25.3	25.7-29.3	29.6-103

3.2 Comparisons between the obese, overweight, and normal weight participants

In order to establish whether there were any differences between the three sub-groups (obese, overweight and normal weight) in psychological variables measured in this study one-way analyses of variance were carried out , with Tukey-HSD's post-hoc test (significance level .05). See Table 3 for mean and standard deviation scores. Furthermore, because of the differences between the three groups with regards to age and gender (with the normal weight group having significantly more men and the average age being far younger than the two other weight groups), which were thought could make a difference to the significance levels obtained, these variables were controlled for using ANCOVAs, which are also reported.

As would be expected, there was a significant difference between all three groups on the perceived overweight variable ($F(2,196) = 95.0$, $p < .01$). Tukey-HSD comparisons, at the .05 level of significance, showed that the obese group scored significantly higher than the overweight group, and the overweight and obese groups scored higher than the normal weight group. ANCOVA scores indicated that once controlling for age and gender ($F(2,195) = 72.40$, $p < .01$) the difference between the three weight groups still remained significant.

Furthermore, there was a significant difference between the three groups with regards to their levels of body dissatisfaction ($F(2,196) = 88.0$, $p < .01$). The post hoc group comparisons using Tukey-HSD ($p = .05$) indicated that all three groups (obese, overweight and normal weight) were significantly different from each other. The obese group reported the highest levels of body dissatisfaction, the normal weight group the least body dissatisfaction and the overweight group falling in the middle. ANCOVA

scores indicated that once controlling for age and gender ($F(2,195) = 73.11$, $p < .01$) the difference between the three weight groups still remained significant. There was a significant correlation across the three groups between self-esteem and body dissatisfaction ($r = .54$, $p < .001$), with lower self-esteem indicating higher body dissatisfaction.

When examining the difference between the three groups with regards to family members reported to be overweight, there was a significant difference between the three groups ($F(2,196) = 12.9$, $p < .01$). Tukey-HSD test of significance ($p = .05$) indicated a significant difference between the normal weight group and the overweight group, between the normal weight group and the obese group, and between the overweight and obese groups. The normal weight group reporting the least number of overweight family members, the overweight group reporting more members of their family as being overweight than the normal weight group, and the obese group indicating the highest number of overweight family members. ANCOVA scores indicated that once controlling for age and gender ($F(2,195) = 9.40$, $p < .001$) the difference between the three weight groups still remained significant.

There was a significant difference between the three weight groups (ie. normal weight, overweight and obese) and the number of overweight friends they reported having ($F(2,196) = 5.11$, $p < .01$). The mean number of overweight friends reported by the normal weight group was 14.5%, with the overweight group recording 23.7% of their friends as being overweight. Tukey-HSD indicated that the only significant difference between the three groups ($p = .05$) was between the normal weight and the obese group, who reported that 25.3% of their friends were overweight. No difference was indicated

by the post hoc test between the normal weight and overweight groups. ANCOVA scores indicated that once controlling for age and gender the difference between the three weight groups was no longer significant ($F(2,195) = 0.93$, ns). In order to establish whether age or gender independently effected number of overweight friends reported by the three weight groups they were independently controlled for. ANCOVA scores indicated that although once controlling for age the difference between the weight groups was no longer significant ($F(2,195) = 1.39$, ns), when controlling for gender ($F(2,195) = 3.93$, $p < .05$) the difference between the three weight groups still remained significant. This would indicate that although being male or female does not effect the number of overweight friends reported, being older does.

There was a significant difference between the normal weight group and the obese group, with regards to their attitudes towards obese people ($F(2,196) = 5.5$, $p < .01$); with the obese group having significantly more negative attitudes. Tukey-HSD comparisons showed a significant difference between the negative attitudes held by the obese and normal weight groups. However, there was no difference indicated between the overweight and normal weight groups' attitudes, nor between the overweight and obese groups attitudes. ANCOVA scores indicated that once controlling for age and gender ($F(2,195) = 8.38$, $p < .001$) the difference between the three weight groups still remained significant.

Furthermore, their was a significant difference ($F(2,196) = 4.5$, $p = .01$) between the different weight groups' levels of bulimic type behaviour, with the obese group reporting higher levels. Again, although there was an upward trend between the three groups, Tukey-HSD comparisons indicated the significant difference fell between the normal

weight group and the obese group, but no difference between the overweight group and either the normal weight group or the obese group. ANCOVA scores indicated that once controlling for age and gender ($F(2,195) = 6.00$, $p < .01$) the difference between the three groups still remained significant.

The Body Image Avoidance Questionnaire (BIAQ) indicated a significant difference between the weight groups ($F(2,196) = 31.2$, $p < .01$). Again, there was an increasing trend among the groups with the obese group avoiding the most situations. Tukey-HSD comparisons showed that all three groups (normal weight, overweight and obese) were significantly different from each other at the .05 level of significance. ANCOVA scores indicated that once controlling for age and gender ($F(2,195) = 23.64$, $p < .001$) the difference between the three weight groups still remained significant.

In addition, there was a significant difference between the three groups regarding their weight locus of control scores ($F(2,196) = 14.5$, $p < .01$). There was a decreasing trend among the three groups, indicating higher external locus of control scores among the obese group. Tukey-HSD illustrated a significant difference ($p = .05$) between the normal weight group and the overweight group, and between the normal weight group and the obese group, although no difference was detected between the overweight and obese groups' locus of control scores. ANCOVA scores indicated that once controlling for age and gender ($F(2,195) = 9.85$, $p < .001$) the difference between the three weight groups still remained significant.

A significant difference was indicated between the overweight and obese groups scores in relation to early onset and late onset obesity ($F(2,196) = 10.1$, $p < .01$). Tukey-HSD

indicated a significant difference ($p = .05$) between the two groups, with the obese group indicating higher levels of early onset obesity (ie overweight before the age of sixteen). This item did not apply to the normal weight group as they did not report being overweight during child nor adulthood. ANCOVA scores indicated that once controlling for age and gender ($F(2,195) = 8.15$, $p < .001$) the difference between the three weight groups still remained significant.

No significant difference was found between the three groups with regards to levels of teasing about competency ($F(2,196) = 2.5$, ns), this remained non-significant after controlling for age ($F(2,195) = 2.80$, ns) and gender ($F(2,195) = 2.35$, ns). However, with regards to levels of teasing about weight there was a significant difference found between the three groups ($F(2,196) = 11.9$, $p < .01$). Tukey-HSD indicated a significant difference ($p = .05$) between the normal weight group and the obese group, and between the overweight group and the obese group. The obese group recalling significantly higher levels of teasing than either of the other groups. No difference was found between the normal weight and overweight group. ANCOVA scores indicated that once controlling for age and gender ($F(2,195) = 18.51$, $p < .001$) the difference between the three weight groups, when examining recall of teasing about weight and shape, still remained significant.

Finally, a significant difference was found between the three groups and their levels of self-esteem ($F(2,196) = 14.5$, $p < .01$). Although there was no difference between the mean scores between the normal weight group and the overweight group, Tukey-HSD indicated a significant difference ($p = .05$) between both the normal weight group and the obese group, and between the overweight group and the obese group. ANCOVA scores

indicated that once controlling for age and gender ($F(2,195) = 16.65$, $p < .001$) the difference between the three weight groups still remained significant.

Table 3: Mean and standard deviation scores between the normal weight, overweight and obese participants

Variables	Normal weight group (BMI<25.5) (n = 34)	Overweight group (BMI=25.5-29.5) (n = 37)	Obese group (BMI>29.5) (n = 128)
Attitude Towards Obese People	65.68 (13.22)	58.70 (16.91)	55.21 (17.04)
Body Image Avoidance Ques.	23.79 (6.20)	30.00 (9.01)	37.47 (10.34)
Eating Disorders Inventory - Bulimia scale	0.47 (1.24)	1.03 (2.20)	2.32 (4.27)
Locus of Control	17.44 (2.35)	15.73 (2.89)	14.70 (2.69)
Perception of Teasing Scale:			
Competency	9.29 (3.75)	7.68 (2.92)	9.34 (4.42)
Weight	8.15 (3.12)	8.05 (3.74)	12.75 (7.58)
Rosenberg Self-Esteem Scale	19.12 (4.14)	19.78 (5.31)	23.46 (5.16)

3.3 Associations within the obese group

Because the obese group appeared to be a significantly different group on a number of measures they were examined in more detail in order to attempt to discover what accounts for the variation in body dissatisfaction, self-esteem, avoidance of social situations, bulimic type behaviour, recall of teasing about weight and shape.

3.3a: Gender

Sixteen men and 112 women fell within the obese range on the BMI (BMI >29.49). See Table 4 for mean and standard deviation scores. Despite the small numbers of men, gender differences were examined because so little is known about weight problems in men.

There was no significance between the body mass index among the obese men and women ($t(126) = .72$, ns). Nor was there any significance between the men and women with regards to an overweight family history ($t(126) = .10$, ns). Finally, no difference was indicated between the genders and their reporting of supportiveness of partners ($t(126) = 1.07$, ns).

There was a significant difference between the scores of body dissatisfaction among the obese male and female participants ($t(126) = 3.80$, $p < .001$), with women being more dissatisfied than men. The obese men described themselves as being less overweight than the obese women ($t(126) = 3.82$, $p < .001$). Furthermore, the obese men described a significantly larger picture on the Stunkard's Figure Rating Scale as being the most desirable ($t(126) = 3.14$, $p < .01$). However, there was no significance between the obese

men and women's description of the which of the figures were overweight ($t(126) = .15$, ns).

There was a significant difference between the obese men and women's self-esteem ($t(126) = 3.13$, $p < .01$), with the obese women recording significantly lower levels of self-esteem than the obese men. There was no difference between the obese male and females recall of teasing about weight ($t(126) = .85$, ns). Furthermore, the women avoided social situations significantly more than men ($t(126) = 3.82$, $p < .001$). Obese women reported significantly higher levels of bulimic behaviour than obese men ($t(126) = 5.48$, $p < .001$), although this did not fall within the range of an eating disordered population.

Table 4: Gender differences in body image and attitudes towards obesity

Variables	Men (n = 16)	Women (n = 112)
Attitude Towards Obese People (ATOP)	64.00 (15.76)	53.95 (16.91)
Body Image Avoidance Questionnaire (BIAQ)	28.69 (9.13)	38.72 (9.91)
Eating Disorders Inventory-Bulimia scale (EDI-B)	0.19 (0.54)	2.62 (4.48)
Perception of Teasing Scale (POTS)		
Competency	7.68 (3.26)	9.57 (4.53)
Weight	11.50 (6.01)	12.93 (7.78)
Rosenberg Self-Esteem Scale (RSE)	19.81 (4.59)	23.98 (5.04)
Body Mass Index	35.78 (5.86)	37.38 (8.60)
Body dissatisfaction	7.94 (2.14)	10.09 (2.11)
Perceived overweight	4.06 (0.44)	4.54 (0.52)
Overweight at sixteen	31.2%	50.9%
Number of overweight family members		
None overweight	18.75%	20.5%
1 overweight	31.25%	33.9%
2 overweight	31.25%	23.2%
3+ overweight	18.75%	22.3%

3.3b Age of onset

Those obese participants who reported being overweight before the age of sixteen (n = 62; 5 men and 57 women) were compared to the obese participants who indicated they became overweight during adulthood (n = 66; 11 men and 55 women). See Table 5 for mean and standard deviation scores.

The childhood onset group had significantly higher adult BMIs than the late onset group ($t(126) = 2.63$, $p = .01$). Body dissatisfaction scores among the early onset group were also significantly higher than the late onset group ($t(126) = 3.95$, $p < .001$). Furthermore, the early onset group reported significantly lower self-esteem scores ($t(126) = 3.76$, $p < .001$) than the late onset group.

In addition, levels of teasing for both competency ($t(126) = 2.93$, $p < .005$) and weight and shape ($t(126) = 9.38$, $p < .001$) were significantly higher among the early onset group. As there was a BMI difference between the groups, with those in the early onset group being heavier in adulthood than the late onset group, BMI was controlled for. This was to ensure that it was not their current weight that lead to higher recall of teasing during childhood, but in fact higher frequency of teasing during childhood about weight and shape. The effect remained equally strong ($F(1,126) = 78.9$, $p < .001$), suggesting it was a matter of age of onset and not biased recall related to adult weight that resulted in higher levels of teasing.

There was no significant difference between the early onset and late onset group for levels of avoidant behaviour ($t(126) = 1.74$, ns). The early onset group had significantly higher

bulimia scores on the Eating Disorders Inventory ($t(126) = 4.32$, $p < .001$), although this did not fall within the eating disordered range. The childhood onset group reported significantly more negative attitudes towards obesity than the later onset group ($t(126) = 3.01$, $p < .005$). Finally, there were no significant results between the two groups when comparing whether they reported any family member as being overweight ($t(126) = 1.26$, ns).

Table 5: Mean and standard deviation scores for early and late onset of obesity among the obese group

Variables	Early Onset (n = 62)	Late Onset (n ==66)
Average age of onset	9.13 (4.32)	31.95 (9.78)
Attitude Towards Obese People (ATOP)	50.68 (16.57)	59.47 (16.48)
Body Image Avoidance Questionnaire (BIAQ)	39.10 (10.33)	35.94 (10.18)
Eating Disorders Inventory-Bulimia scale (EDI-B)	3.94 (5.54)	0.80 (1.42)
Perception of Teasing Scale (POTS)		
Competency	10.48 (4.73)	8.26 (3.84)
Weight	17.79 (7.08)	8.01 (4.27)
Rosenberg Self-Esteem Scale (RSE)	25.14 (5.00)	21.88 (4.82)
Body Mass Index	39.13 (10.30)	35.35 (5.30)
Body dissatisfaction	10.58 (1.98)	9.11 (2.23)
Perceived overweight	4.69 (0.46)	4.27 (0.51)
Supportive Partner	51.6%	45.4%
Number of overweight family members		
None overweight	19.4%	21.2%
1 overweight	29.0%	37.9%
2 overweight	24.2%	24.2%
3+ overweight	27.4%	16.7%

3.3c Teasing about weight and shape

Distribution of the scores on the Perception of Teasing Scale (POTS) was highly skewed; 51 (39.8%) had the lowest possible score reporting that they had never been teased about their weight or shape during childhood, while the remaining 77 had scores ranging from 6-30, 30 being the highest possible score. Data were analysed first by comparing those who were not teased with those who were teased, see Table 6 for the mean and standard deviation scores. They were also analysed with a Pearson correlation coefficient, which strongly suggested an association between more teasing and more psychological distress.

Those with scores of six and below, who indicated that they had never been teased about their weight or shape, formed one group, and those who indicated that they had been teased about their weight or shape (ie with scores above six) formed another group. Fifty-one participants (39.8%) in the obese group indicated they had never been teased, and thus seventy-seven (60.2%) were in the teasing group.

The high and low teasing groups did not report any significant difference in the number of overweight family members ($t(126) = .40$, ns). Furthermore, there was no significant difference between the number of reported overweight peers ($t(126) = .91$, ns). Nor was there any significant difference between gender among the high and low teasing groups ($t(126) = .20$, ns).

No significant difference was detected on the low or high teasing groups attitudes about obese people ($t(126) = 1.15$, ns). There was no significant difference on their levels of avoidant behaviour ($t(126) = .17$, ns). There was no significant difference between the

high and low teasing groups attributions of weight locus of control ($t(126) = 1.06$, ns). Again, there was no significant difference between the two groups self-esteem ($t(126) = 1.46$, ns).

When analysing the total obese sample with a Pearson correlation coefficient, a number of associations were found between teasing and psychopathology. Those who were teased during childhood had significantly higher BMI during adulthood ($r = .32$, $p < .001$), and were overweight at a significantly younger age ($r = -.65$, $p < .001$) . Those who were teased about weight and shape during childhood had significantly higher levels of body dissatisfaction ($r = 34$, $p < .001$), and they perceived themselves as being more overweight than those not teased ($r = .30$, $p < .001$). Those who were teased about the weight and shape had lower levels of self-esteem ($r = .30$, $p < .001$). Furthermore, those who were teased avoided more social situations ($r = .26$, $p < .01$), and had more negative attitudes about obese people ($r = -.33$, $p < .001$).

Table 6: Mean and standard deviation scores for teasing about weight and shape among the obese group

Variables	Low Teasing (n = 51)	High Teasing (n = 77)
Perception of Teasing Scale - Weight and Shape (POTS-WT)	6 (0)	17.22 (6.72)
Attitude Towards Obese People (ATOP)	57.33 (16.91)	53.80 (17.08)
Body Image Avoidance Questionnaire (BIAQ)	37.27 (10.20)	37.60 (10.48)
Eating Disorders Inventory-Bulimia scale (EDI-B)	1.16 (2.91)	3.09 (4.84)
Rosenberg Self-Esteem Scale (RSE)	22.65 (4.82)	24.00 (5.32)
Body Mass Index	34.82 (4.73)	38.74 (9.71)
Body dissatisfaction	9.25 (2.27)	10.19 (2.13)
Perceived overweight	4.31 (0.55)	4.58 (0.50)
Supportive partner	41.2%	53.2%
Age first overweight	31.45 (11.50)	13.91 (10.23)
Number of overweight family members		
None overweight	23.5%	18.2%
1 overweight	33.3%	33.8%
2 overweight	19.6%	27.3%
3+ overweight	23.6%	20.7%
% of overweight friends	24.39% (15.25)	26.01% (21.51)

3.3d Percentage of peers who are overweight

All the participants indicated the percentage of their friends who were overweight, this ranged from some who reported none of their friends were overweight to others who reported 80% of their friends were overweight. Because the sample was oddly skewed, with a large majority (39.2%) of participants indicating that 25% of their peers were overweight, the sample was divided into three groups: those who indicated that less than 25% of their friends were overweight (40.7%); those who indicated that 25% of their friends were overweight (39.2%); and those who indicated that more than 25% of their friends were overweight (20.1%). See Table 8 for summary of mean and standard deviations.

Data was analysed first by comparing the three groups (ie those with <25% of peers overweight, those with 25% of peers overweight, and those with >25% of peers overweight). No significant difference was found on any of the variables in relation to the percentage of overweight friends. Still no association was found when groups were joined and the data was analysed with a Pearson correlation coefficient. This suggests that the psychological distress of being overweight is not decreased if one has a high number of overweight friends.

Table 8: Mean and standard deviation scores for percentage of peers indicated as being overweight among the obese group

Variables	Less than 25% of peers overweight (n = 44)	25% of peers overweight (n = 53)	More than 25% of peers overweight (n = 31)
% peers overweight	6.57% (5.54)	25.0% (0)	52.26% (13.83)
Gender			
Male	13.6%	15.1%	6.5%
Female	86.4%	84.9%	93.5%
Attitude Towards Obese People (ATOP)	51.93 (17.40)	56.62 (17.60)	57.45 (15.30)
Body Image Avoidance Questionnaire (BIAQ)	37.59 (10.82)	38.02 (10.73)	36.35 (9.09)
Eating Disorders Inventory-Bulimia scale (EDI-B)	1.95 (3.85)	2.41 (4.66)	2.68 (4.26)
Perception of Teasing Scale (POTS)			
Competency	9.52 (4.12)	8.94 (4.39)	9.74 (4.94)
Weight	14.02 (8.12)	11.98 (7.57)	12.26 (6.76)
Rosenberg Self-Esteem Scale (RSE)	23.70 (5.47)	23.49 (5.13)	23.06 (4.88)
BMI	36.93 (6.38)	36.79 (5.49)	38.22 (13.41)
Perceived overweight	4.59 (0.50)	4.40 (0.57)	4.45 (0.51)
Body dissatisfaction	10.07 (2.17)	9.60 (2.37)	9.83 (2.08)
Age first overweight	19.07 (14.27)	21.04 (13.49)	23.26 (13.51)
Number of overweight family members			
None overweight	25.0%	20.7%	12.9%
1 overweight	31.8%	32.1%	38.7%
2 overweight	27.3%	24.5%	19.4%
3+ overweight	15.9%	22.6%	29.0%

3.3e Weight locus of control

The data were analysed with a Pearson correlation coefficient, with suggested an association between an internal locus of control and less psychological distress. A higher internal locus of control was not associated with perceived weight, but was associated with lower body dissatisfaction scores ($r = -.34$, $p < .001$). Internal locus of control was significantly associated with higher self-esteem ($r = -.33$, $p < .001$). Furthermore, internal locus of control was associated with more negative attitudes towards obese people ($r = .20$, $p < .05$) and less avoidance of social situations ($r = -.26$, $p < .01$).

3.3f Self-esteem

Scores on the Rosenberg Self-Esteem scale ranged between 10 and 39 across the whole sample. The data was analysed with a Pearson correlation coefficient, which strongly suggested an association between low self-esteem and more psychological distress.

There was a significant association between self-esteem and BMI, with higher BMI indicating a lower self-esteem ($r = .25$, $p < .01$). Low self-esteem was associated with high body dissatisfaction ($r = .62$, $p < .001$), and higher perceived overweight ($r = .40$, $p < .001$). Furthermore, those with a low self-esteem indicated high avoidance of social situations ($r = .47$, $p < .001$), and greater negativity towards obese people ($r = -.59$, $p < .001$). These effects remained strongly significant after controlling for BMI.

3.3g Supportive partner

In order to establish the effects of having a supportive partner only participants in the obese group with a partner were analysed. This left 106 participants; 62 with a supportive partner and 44 with a non-supportive partner. See Table 11 for mean and standard deviation scores.

When examining the numbers of men and women who reported supportive partners, 75% of men described their partner as being supportive about their weight, compared to 64% of women who described their partner as supportive, this was non-significant ($t(104) = 1.09$, ns). There was no significant difference between the two groups BMI ($t(104) = .80$, ns), although those with a supportive partner did have a slightly higher BMI (BMI = 37.53) compared to those with an unsupportive partner (BMI = 35.67). Again, there is no significance between the number of family members who are overweight ($F(1,104) = 0.63$, ns).

There was no significant difference in perceived overweight ($t(104) = .98$,ns). However, there was a significant difference between body dissatisfaction scores among the two groups, with those with unsupportive partners having significantly greater body dissatisfaction scores ($t(104) = 2.23$, $p < .05$).

There was no significant difference between self-esteem scores ($t(104) = 1.20$, ns) among those with a supportive partner and those without a supportive partner. In addition, no significant difference was found between the teasing levels, for either competency ($t(104) = 0.99$, ns) or weight ($F(1,104) = 0.96$, ns), between the two groups.

Furthermore, those with supportive partners avoided fewer social situations than those with supportive partners ($t(104) = 1.98$, $p < .05$). There was no significant difference between the bulimia scores for those with, or without, a supportive partner ($t(104) = 0.77$, ns). There was a significant difference in attitudes towards obese people between those with a supportive partner and those without ($t(104) = 1.94$, $p = .05$); with obese participants who had a supportive partner having less negative attitudes than those who had unsupportive partners.

Table 11: Mean and standard deviation scores for those in the obese group with, and those without, a supportive partner.

Variables	Supportive Partner (n = 62)	Unsupportive Partner (n = 44)
Gender		
Male	16.1%	9.1%
Female	83.9%	90.9%
Attitude Towards Obese People (ATOP)	59.48 (16.35)	53.11 (17.13)
Body Image Avoidance Questionnaire (BIAQ)	35.66 (10.21)	39.75 (10.79)
Eating Disorders Inventory-Bulimia scale (EDI-B)	2.16 (4.36)	2.84 (4.62)
Perception of Teasing Scale (POTS)		
Competency	9.40 (4.69)	8.54 (3.90)
Weight	12.84 (7.29)	11.45 (7.39)
Rosenberg Self-Esteem Scale (RSE)	22.81 (5.96)	24.07 (4.30)
Body Mass Index	37.53 (10.29)	35.67 (5.54)
Body dissatisfaction	9.31 (2.15)	10.27 (2.27)
Perceived overweight	4.42 (0.56)	4.52 (0.50)
Age first overweight	20.55 (13.32)	22.41 (14.11)
Number of overweight family members		
None overweight	22.6%	22.7%
1 overweight	38.7%	27.3%
2 overweight	19.3%	25.0%
3+ overweight	19.3%	25.0%
% of overweight friends	26.61% (19.09)	26.39% (20.30)

3.4 Beliefs about obesity

3.4a General Beliefs

A varimax rotated factor analysis was used in order to establish the factor structure. Table 12 shows the factor scores. Three factors, with eigenvalues greater than one, emerged from the analysis accounting form 47.3% of the variance in scores. These factors are labelled: Factor 1 - 'Input - Output' (ie too much fuel put in and not enough energy expending the excess) accounting for 19.1% of the variance; Factor 2 - Genetic and Social Factors (ie inherited from parents, poverty) accounting form 17.4% of the variance; Factor 3 - Psychological Factors (ie stress, psychological problems) accounting for 10.8% of the variance. Five causes of obesity loaded onto the 'input-output' factor, six causes loaded onto the genetic and social factor, and two causes loaded onto the psychological factor.

Pearson correlations were used to see whether general causal beliefs were associated with dissatisfaction and attitudes towards obese people. It was predicted that Factor 1 would be correlated with more body dissatisfaction and more negative attitudes, while Factor 2 would show the opposite association. Scores on the 'Input-Output' factor were correlated with greater perceived size ($r = .22$, $p < .01$), and with dissatisfaction ($r = .17$, $p < .05$). There were not significant correlations with Factor 2.

Table 12: Factor structure for beliefs about obesity

Factor 1	**Input-Output**	**19.1%**
Cause 1:	Excess calorie consumption	0.74
Cause 2:	Poor control over eating	0.82
Cause 4:	Lack of exercise	0.56
Cause 6:	Lack of self-control	0.68
Cause 8:	Accessibility of 'junk food'	0.56
Factor 2	**Genetic and Social**	**17.4%**
Cause 3:	Inherited from parents	0.37
Cause 9:	Poverty	0.52
Cause 10:	Pressures to eat from family & friends	0.58
Cause 11:	Hormone problems	0.36
Cause 12:	After pregnancy	0.72
Cause 13:	Giving up smoking	0.71
Factor 3:	**Psychological**	**10.8%**
Cause 5:	Being generally stressed	0.78
Cause 7:	Underlying psychological problems	0.80

3.4 b Personal beliefs about the causes of obesity

Participants were requested to indicate which causes they felt had affected their weight. They were not given a limit on the number of causes they could mark. See Table 13 for a detailed breakdown of the percentages choices for each cause.

Men tended to account for their obesity by a lack of exercise and eating too much (ie Factor 1 - Input/Output). No men believed that their obesity was a result of underlying psychological problems or stress. In comparison, approximately 20% of the women believed that their obesity was the result of psychological problems and stress. Furthermore, women tended to attribute their obesity to genetic factors (ie inherited from parents, hormone problems and after pregnancy).

Table 13: Percentages endorsing each personal causes of obesity

Causes of Obesity	Male (n = 16)	Female (n = 112)	Total (n = 128)
Excess calorie consumption	43.7%	27.7%	29.7%
Poor control over eating	50.0%	30.4%	32.8%
Inherited from parents	6.2%	16.1%	14.8%
Lack of exercise	31.2%	25.9%	26.6%
Stress	0	24.1%	21.1%
Lack of self-control in general	18.7%	27.7%	26.6%
Underlying psychological problems	0	21.4%	18.8%
Accessibility of 'junk food'	37.5%	17.0%	19.5%
Poverty	0	1.8%	1.6%
Pressures to eat from family & friends	6.2%	5.4%	5.5%
Hormone problems	6.2%	22.3%	20.3%
After pregnancy	0	20.5%	18.0%
Giving up smoking	12.5%	13.4%	13.3%

3.4c Association between personal and general beliefs about causes of obesity

These results lead to the question: Are people's general causal beliefs associated with their views of the cause of their own problem? These were analysed by comparing mean factor scores of subgroups defined by endorsing each cause as relevant to self. Results showed that those who endorsed excess food had higher scores on Factor 1 ($F(1,196) = 24.82$, $p < .001$) but did not differ on Factor 2 or 3 scores. Similarly, those who endorsed giving up smoking had higher scores of Factor 2 ($F(1,196) = 18.32$, $p < .001$) but did not differ on 1 and 3. Those who endorsed underlying psychological problems had higher scores on Factor 3 ($F(1,196) = 22.82$, $p < .001$) but did not differ on 2 and 3.

Type I Errors

Given the large number of statistical tests done on the data set, caution needs to be taken regarding Type I errors (rejecting the null hypothesis when it should be retained). The greatest caution needs to be had for those p values significant at the 0.05 level. However, the vast majority of results reported were significant at the <0.01 and <0.001 level, and would remain significant with corrections made.

4.0 Discusssion

The primary purpose of the present study was to examine the factors associated with negative body image in obesity. This discussion examines the findings in the light of the study's aims, and the methods used. A brief introduction will outline the main themes found, then a more detailed summary of the hypotheses will be described. Finally, the results will be discussed. The limitations and strengths of the study are then examined. This is followed by a consideration of the findings within the wider theorectical context, and possible directions for future research are proposed. Finally, the clinical implications of the findings are explored.

As intended, there was considerable variation in concern about weight among the clinical sample. Some participants had requested the referral to the clinics to lose weight, whilst others had been referred by physicians on the grounds that the weight was compounding physical illnesses. Participants recruited from the General Practioner were not necessarily attending a weight loss clinic, and thus presumably would be less distressed about their weight.

The main aim of the study was to compare variables within an overweight population, not between overweight and normal weight. However, a normal weight community sample was recruited to provide some additional information. The normal weight sample was not matched for age, sex, gender, class etc., but were recruited in order to give a first indication of the results with some of the newer measures in a non-overweight group.

4.1 General Observations and Main Themes

Within the total sample group, the obese participants appeared to be a significantly different group than either the overweight group or the community control on a number of measures. The obese participants had significantly higher body dissatisfaction, and lower self-esteem. They also had more negative attitudes towards obese people, avoided more situations (ie social events, wearing revealing clothes, physical intimacy), recalled more teasing about weight in childhood, and were more likely to attribute weight to external factors. Furthermore, they reported a higher number of overweight family members, more overweight peers, earlier onset of being overweight, and more frequent bulimic types of behaviour, although not within the eating disordered range. These differences remained largely unchanged when controlling for both age and gender.

Among the obese group of participants, it was found a number of factors contributed to higher levels of body dissatisfaction. Women experienced higher levels of body dissatisfaction than men. Those who became overweight at a younger age were more dissatisfied than those that became overweight during adulthood. Those who experienced a high frequency of teasing about their weight and shape during childhood, experienced greater body dissatisfaction during adulthood. Obese participants who had an external locus of control for weight, experienced higher levels of body dissatisfaction. Those with globally low self-esteem experienced higher levels of body dissatisfaction. Those with unsupportive partners had higher body dissatisfaction levels. Finally, those who reported that they had previously dieted experienced higher levels of body dissatisfaction.

Beliefs about the causes of obesity in general, were factor analysed to reveal three factors termed: 'Input-output', 'Genetic and Social', and 'Psychological'. Participants' beliefs about the causes of their own obesity indicated a similar pattern. Men largely believed that their weight gain was due to eating too much and exercising too little, whereas women largely believed their weight gain was either caused by hormone problems, inherited from their parents or due to psychological problems. When examining the association between personal and general beliefs about the causes of obesity there appeared to be a link; with people's beliefs about the general causes of obesity mirroring their beliefs about how they personally became overweight.

4.2 Summary and Discussion of the Results

4.2a Obese men will have lower body dissatisfaction scores than obese women

Obese women had higher levels of body dissatisfaction than their male counterparts. They also perceived themselves as being more overweight than the obese men. This is consistent with the findings between male and female body dissatisfaction (Hill, Draper and Stack, 1994). Interestingly, there was no difference between male and females BMI, both had equally supportive partners and there was no difference between teasing levels.

The obese women also tended to have more negative attitudes towards obese people (indicated by Harris, 1990), a significantly thinner shape ideal, and a significantly lower self-esteem than the obese males. These results seem to indicate that it is not the amount one is overweight, but how one perceives one's weight that results in more psychological

distress. This supports Orbach's (1985) idea that women's 'body insecurity' has been 'bred' into them.

4.2b Body dissatisfaction will be greater in those who became overweight during childhood

As predicted, obese adults with childhood onset of obesity indicated significantly higher body dissatisfaction levels than those who became obese during adulthood, supporting Grilo, Wilfley, Brownell and Rodin's (1994) findings. Unlike Grilo et al's results, the present study also found that there was an association between being teased and self-esteem; with those who were overweight during their childhood also having lower self-esteem, and more negative attitudes towards obese people.

The results also showed that those who were overweight during childhood are fatter in adulthood, but even after controlling for adult weight, those with childhood onset are still more dissatisfied. The present results cannot distinguish the mechanisms, which may be because they have been fatter for longer leading to higher body dissatisfaction, or because the impact of childhood obesity could have a more lasting effect. One possible mechanism for this effect is childhood teasing.

4.2c Teasing during childhood about weight and shape, but not about competency, will be associated with greater body dissatisfaction during adulthood

Those who were teased about weight and shape during childhood perceived themselves as more overweight and had significantly greater levels of body dissatisfaction than those who were not teased. There was no significant difference between levels of teasing about

competency between the three weight groups (normal weight, overweight and obese). However, within the obese group there was a significant difference between body dissatisfaction levels of those who had not been teased about competency and those who had been teased. Those who had been teased had higher body dissatisfaction.

Some of these assumptions may become quite complex. For example, one would assume that a child would only be teased about their weight and shape if they were overweight as a child. Thus, age of onset is critical in teasing history. Furthermore, teasing during childhood about one's weight and shape has been illustrated as being damaging to adult body dissatisfaction (Grilo et al, 1994). Therefore, because an individual is overweight as a child, they will be at risk of being teased as a child, and then will be more likely to have greater body dissatisfaction levels during adulthood.

Although Grilo et al (1994) looked at the relationship between teasing, self-esteem and body image finding teasing resulted in body dissatisfaction, but not lowered self-esteem. Furthermore, they found self-esteem and teasing were not correlated. The present study found that a number of associations existed between teasing and psychopathology. Those that were teased indicated higher levels of body dissatisfaction and lower levels of self-esteem. The association between self-esteem and teasing may not have been detected in the Grilo et al study because of the small number eligible for the low teasing group (n = 15). Furthermore, the relationship between low self-esteem and teasing appears to make sense, in that if others place great importance on your weight and shape it is likely that this will become a significant factor in your general self-evaluation. Thus, teasing about one's weight and shape during childhood appears to have lasting effects upon adult

psychological distress.

4.2d Having fewer overweight people in the social and family environment will lead to greater body dissatisfaction

Rosenberg (1989) in his studies with Black, low socio-economic children during the 1960s, found that children attending segregated schools, and thus not experiencing bigotry, had higher self-esteem than those Black children attending largely White schools. From his findings Rosenberg argued that it was not actual prejudice that damages self-esteem, but the experience and perception of the prejudice. On the basis of these results, this study hypothesised that obese people who had more overweight friends and family would have a more intact self-esteem than those who had few overweight people in their social group.

No association could be found between psychological distress, including body dissatisfaction, and the proportion of overweight friends, or the number of obese family members. This may be because the number of family and friends who are overweight does not really replicate the Rosenberg effect of living in a whole community with people who are like the self. Alternatively, the negative attitudes held generally by society may be fully introjected by obese people. Rosenberg recounted Black students' strong feelings of pride in their race, which was not tainted by the larger societies beliefs and bigotry. Pride in weight and shape was clearly not illustrated in the present study, and in fact the obese participants in the present study had more negative attitudes towards obese people than those within the normal weight range. I shall discuss this in more detail later.

Collins (1996) suggested that upward social comparison may be important in self-esteem maintenance. She argues that individuals are likely to find a common feature and compare themselves with that feature, they will then evaluate and improve themself in order to achieve a better self-evaluation. She adds that when an individual has to conclude that they are part of an 'inferior category' it will be 'ego deflating'. It would seem that the pressures to be thin and society's condemnation of overweight people may have resulted in obese people realising they are in an 'inferior category' and thus impact on their self-evaluation.

The hypothesis that suggested the more overweight members of family and friends one has the higher the body satisfaction, was proved to be incorrect, with there being no association between the two. This may be the case because everyone is subjected to societies thin ideal; in advertisements, in fashion magazines, in films etc. Thus, having friends and family members who are overweight does not improve one's body dissatisfaction, because society's comparison groups are all thin. What appears to be more important is whether your partner supports the weight you are. Having a significant person who understands and loves you for the weight that you are, and not the number of people you know who are overweight, appears to be a vital factor in protecting body satisfaction.

4.2e Body dissatisfaction will be greater in obese adults who attribute their weight to internal factors

The hypothesis suggested that internal attributions for an uncontrollable event (ie obesity) should be linked with a more negative appraisal of oneself. This was based on an

assumption that if one believes themself to be personally responsible for ones weight gain, then if the individual is overweight, and believes this to be a bad thing, they will blame themself, which could have an effect upon self-esteem and body dissatisfaction. Furthermore, studies have shown that an internal attributional predicts diet-breaking behaviour (Ogden & Wardle, 1990). The results indicated the opposite, with those with an external locus of control indicating higher levels of body dissatisfaction. Those with an external locus of control also had more avoidant behaviour, and lower self-esteem, but less negative attitudes towards obese people.

Those who were obese were more likely to have an external weight locus of control. This seems to confirm much of the early research, however recent research has also indicated that obese people have internal locus of control when compared to non-obese people (Mills, 1994). Thomason (1983) suggested that obese persons maintain an external locus of control in certain specific attitude areas (ie self-control and social systems).

One theory explaining why the present study did not get the predicted results is that previous studies have tended to measure general locus of control, whereas the present study looked specifically at weight locus of control. A more detailed study would be needed to test this hypothesis further.

4.2f Body dissatisfaction will be correlated with low self-esteem

In all weight groups there was an association between higher body dissatisfaction and lower self-esteem, as was reported by Thompson and Heinberg's study (1993) from a sample of female college students. Furthermore, self-esteem was significantly lower in

the obese group than either the overweight or the normal weight groups.

The issue of self-esteem and weight is complex, with many studies finding no association between self-esteem and weight in community samples, which contrasts with clinicians reporting low self-esteem in clinical samples. The present study suggests that low self-esteem may be prevalent, but not consistent among the clinically obese, which might explain some of the variable results. It can be speculated as to whether lower self-esteem results in higher body dissatisfaction, or visa versa. However, the fact that self-esteem is lower in the early onset obesity group, suggests body dissatisfaction leads to low self-esteem. It does appear to be plausible that society's negative evaluation of obese people, and the general belief that obesity can be avoided, would result in a negative self-evaluation.

4.2g Having a partner who is unsupportive about the obese person's weight and shape will result in greater body dissatisfaction.

Seventy-five percent of obese men compared with 64% of obese women described their partner as being supportive of their weight, although this was not significant. Those with a unsupportive partner had significantly greater body dissatisfaction than those with supportive partners. Generally, those with supportive partners suffered from less psychological distress: they avoided fewer social situations; and had more positive attitudes about obese people. However, there was no difference between the self-esteem of those with, and those without supportive partners. These results support the prediction that partner positivity results in the overweight person feeling more positive. Although

the alternative, that people who's own attitude is more positive induce positivity in their partner.

Sobal, Rauschenbach and Frongillo (1995) examined the relationship between obesity and marital quality. Requiring participants to fill out questionnaires on a number of measures including weight, marital unhappiness, and martial problems, they concluded that weight was not associated with most aspects of marital quality. However, they did find that obese women were happier in their marriage than the non-obese, while obese men had more marital problems than the non-obese.

The relationship between having a partner who is unsupportive about one's weight and body dissatisfaction has not received any empirical investigation. The present study's hypothesis that suggested an unsupportive partner would result in body dissatisfaction was proved to be correct. Having a supportive partner appears to protect the individual from a number of factors. Therefore, a supportive partner appears to be instrumental in body satisfaction among the obese.

4.2 h Negative attitudes held by the obese person about obesity about obese people generally will be associated with higher body dissatisfaction

Having negative attitudes generally about obese people appears to be held by the participants who were: female, most overweight, younger when they became overweight, frequently teased about their weight, had external attributions about weight, with low self-esteem, and an unsupportive partner. It is interesting that these participants also suffer from the most psychological distress among the obese group. Thus, why is it that there

is no sense of group identity, but condemnation for the people that they are?

It may be that they are the most aware of societies negativity, stereotypes and prejudice because they have been subjected to it for so long, so the most overweight know the risks of being overweight more than anyone else. Furthermore, it may be that when asking normal weight people to sit down and think about their beliefs about overweight people they edit their real beliefs. But that in reality, when they are with their friends, or an overweight person annoys them, they quickly resort to obvious insults ("Fat cow" etc.) Thus, in a questionnaire you rarely get to the true behaviour of individuals.

Previous studies have not asked obese people for their attitudes about how obesity is caused, nor what was responsible for their obesity. Price et al (1989) asked paediatricians what were their perceptions of the aetiology of childhood obesity. Approximately 80% of the paediatricians believed obesity was the result of excessive eating or poor eating behaviours, with 68% believing it was caused by a sedentary lifestyle. Approximately 50% believed lack of self-control played a major role in the aetiology of obesity and 41% believed psychological problems (ie. poor self-image) resulted in obesity. None of the paediatricians believed hormone problems were the major factor in obesity.

The paediatricians beliefs about the causes of obesity differed from the obese participants beliefs in the present study. Far less of the obese participants believed excessive calories and lack of exercise were the cause of obesity, although the obese men felt these factor were far more significant than the obese women. Furthermore, the obese participants believed that hormone problems were far more significant in causing obesity than the

paediatricians. Generally, however, the paediatricians believed most of the factors were far more significant in causing obesity than did the obese participants.

Among the obese participants there was a striking difference between the men and women's beliefs about the causes of obesity. Men believing that excessive eating and lack of exercise largely accounted for obesity, with women attributing psychological factors, and genetic and social factors as playing more of a major role in the aetiology of obesity. Interestingly, individual's general beliefs about the causes of obesity tended to correlate with their beliefs about their own weight gain. Explanations for this suggest that the World influences their personal beliefs about themselves. Alternatively, individual's act a scientists and make hypotheses about the World based on their own experiences (ie Personal Construct Theory; Kelly, 1955).

4.2 i Those with greater body dissatisfaction, but not necessarily those who are heaviest, will avoid more social situations

The present study has indicated that obese peoples avoidance of social situations is associated with them being female, with an external weight locus of control, low self-esteem, and having an unsupportive partner. No association was found between the obese person's weight and their avoidance of social situations.

Avoidance of various social situations may perpetuate any interaction between feeling fat and body dissatisfaction. Rosen et al (1991) highlight studies where people with eating disorders alter their lifestyle to accommodate their negative appraisal of their appearance (Garner and Garfinkel, 1985). Social situations where the individual believes their

appearance will be scrutinized will be avoided, furthermore so will wearing revealing clothes, and avoiding physical intimacy. Thus, by avoiding certain anxiety provoking situations distress about their appearance will be reduced. The present study indicated that obese participants also avoid situations in order to protect their anxiety, but the avoidance appears to fuel body dissatisfaction.

4.3 Discussion of Results

In this section of the discussion, each of the variables will be examined using the categorisation of risk factors suggested by Friedman and Brownell (1995); *independent* (same risk effect whether obese or non-obese); *potentiated* (risk more prevalent among the obese); and *interactive* (the individual would have to be obese to have an adverse effect). I shall begin by discussing the interaction of some of the variables examined in this study.

For some people being fat, regardless of society's stigma and prejudice, does not result in psychological distress. For a person to feel fat a number of moderators need to be in place. For example, if there is a large discrepancy between the person's size and what their ideal shape would be (ie size ideal) then they may well feel fatter than if their perceived size and shape ideal were closer. Furthermore, if the individual compares themself to friends and family members who are overweight, they are less likely to feel fat than if one's comparison group, or those admired, are thin. Finally, because of societal pressure for women to be thin, and the greater acceptance of 'largeness' in men, gender is likely to play a role in making women feel fatter than men of the same weight.

Feeling fat can lead on to more serious body dissatisfaction and other factors may play a part here. Teasing about one's size and weight during childhood appears to result in body dissatisfaction (Grilo et al, 1994). Furthermore, the present study indicates that having an unsupportive partner leads to body dissatisfaction. Generally having a low self-esteem also appears to interact with body dissatisfaction, although it is difficult to assess which of these factors come first; whether the person feels generally bad about themself and included in this is body dissatisfaction, or whether body satisfaction is so crucial to self-image that body dissatisfaction leads to generally low self-esteem.

In addition, another factor which appears to moderate body dissatisfaction is attitudes to obese people generally. If someone believes obese people are lazy, unhappy, and less attractive than normal weight people, and they too are overweight, this is associated with greater body dissatisfaction. Finally, gender seems to fall within this transition as well, presumably because of the sheer extent of prejudice and blame that is attached to women who are overweight in the Western society.

Friedman and Brownell's (1995) risk factor model is a helpful way to examine the results. Because of the ubiquity of body dissatisfaction, some variables that account for body dissatisfaction among the obese participants would be expected to account for body dissatisfaction among the normal weight population (ie. independent risk factors). These risk factors include low self-esteem and being female, both of which are associated with body dissatisfaction in all weight groups.

Risk factors that affect the normal weight population, but put obese people particularly

at risk of psychological distress (ie potentiated risk factors) are also incorporated in the hypotheses. Although having a partner who is supportive of your weight will result in lower body dissatisfaction in all weights, among the obese group an unsupportive partner may have more damaging effects upon body dissatisfaction. This is further complicated by the fact that one would assume that if someone was within normal weight range their partner would be likely to support the weight they were, so it may not be an issue for many couples. A further hypothesis that exemplifies a potentiated risk suggests that being overweight as a child increases body dissatisfaction, for although becoming overweight as a child seems to increase the risk of body dissatisfaction, those who become overweight as an adult are also prone to being dissatisfied.

Having more overweight people among family and friends was hypothesised to be an interactive risk factor for body dissatisfaction. This is because presumably because if one was not overweight having lots of overweight friends and family members would not increase body dissatisfaction. However, in the present study there was no support for this suggestion. A further interactive risk factor is being teased during childhood about weight and size. If someone is not overweight as a child then they would not be teased about their size, thus being overweight is a catalyst to being teased about weight and shape. A final example of an interactive risk factor is attribution of overweight to internal factors, which would appear to apply only to overweight people.

Friedman and Brownell (1995) suggest that having established the factors that put an obese individual at risk of negative psychological effects, the next stage is to see whether these risk factors appear within subgroups among the obese population. This is the 'third

generation' of research indicated by Friedman and Brownell.

4.4 Methodological Issues

4.4a Limitations of the design

The present study was a postal questionnaire recruiting participants from a number of different sources. Therefore, although the response rate (51%) was as expected for a questionnaire of this type, still approximately half of those sent out did not respond to the questionnaire. Although it is not predicted that they would be a dramatically different group, those who have some interest in body image would be more likely to respond.

Furthermore, the participants from the community sample were not matched to those in either the obese or overweight group. The main group to be examined was the obese group, but it was felt important to have a group that were not overweight in order to establish that the patterns found among the obese group were unique and worth analysing.

4.4b Sample bias

Although participants from the G.P. surgery were randomly picked, and those from the other five centres were all sent questionnaires within a given time frame, there was a large percentage of females in the sample. This is partly because women are more likely to answer questions about body image, but future research may weight the sample so more men are included in the target population. However, for the dietetic departments very low numbers of men were referred, which either indicates women are heavier, but more a more

likely explanation is that women ask for help in losing weight more frequently than men. Furthermore, overall the sample was predominantly White. Although the participants were recruited from a number of centres, ethnic minorities seem to have not been reached.

In addition, the majority of those completing the questionnaire were attending a weight-loss clinic. The only clinical participants who were recruited who had not necessarily attended a weight-loss treatment service was those recruited from a G.P. practice. Although a number of other G.P. practices were contacted and asked if they would like to take part in the study, all but one declined. This was largely on the grounds that people receiving the questionnaire may be upset by it.

4.4c Limitations of the measures

Many measures used were not ideal because they were taken from either the eating disorders literature, or studies with health professionals. Measures for obese populations are not available. Furthermore, the body dissatisfaction scales did not really capture the emotional intensity of some obese people's distress. This was illustrated by comments written of some of the questionnaires:

> "I hate the way I look. I hate the clothes I wear. I rarely go out socially except to work. As a 'middle-class' woman, living and working in a middle class area, I find it difficult to be the fattest woman at work, the fattest mother in the playground. I am rarely photographed as I always hate the result. I hate being so self-obsessed and resent what it is doing to me. It has definitely restricted my life and to a certain extent, that of my children."

> "Please get me thin."

"I've been told by my family and friends that all I ever do is run myself down. I cannot stand the sight of myself, and all my thoughts are mainly negative."

4.5 Clinical Implications of the Study

Increasing our understanding of the heterogeneity of obesity is important for both clinicians and patients. Recognition by health professionals that body dissatisfaction varies among obese patients is important in avoiding generalisations about the levels of body dissatisfaction experienced by individual patients. Furthermore, recognition that there are some protective factors (ie. having a supportive partner, and late onset of obesity) is important in the assessment of body dissatisfaction. Finally, understanding that body dissatisfaction has wide ranging implications for psychological distress (ie. increased avoidance of social situations) may help in prioritising it in the treatment of obesity.

Variations in body dissatisfaction among people of the same weight is important when deciding upon treatment options. In group-based treatments for obese people it may be helpful to mix people with varying levels of body dissatisfaction. It may be highly beneficial for obese people with high body dissatisfaction to discuss beliefs about themselves with others of the same weight who are more satisfied with their body image. Finally, teaching obese people about the causes of obesity may help in changing their beliefs and attitudes towards obese people in general, which in turn positively may impact on their body dissatisfaction.

4.6 Future Research

Future research appears to be able to go in a number of different directions. Developing and validating a measure that accurately examines the whole range of body dissatisfaction among the obese seems vital. Although the measures used in the present study go some of the way in distinguishing between levels of distress among weight and shape, the intensity of comments written by some of the participants, brings in to question whether their distress has accurately been assessed.

Another direction for future research is in examining other variables that put obese people at increased psychological distress. For example, the impact of bingeing behaviour on levels of distress, or frequency of dieting. A small number of obese participants in the present study indicated that they had never dieted, and they appeared to have significantly less psychological distress than the dieters. Because of the small number the analyses were not taken further, but they do seem to be an interesting group given the levels of antagonism towards the obese, and the pressures from society to be slim.

Finally, Friedman and Brownell (1995) suggested a 'third generation' of research where longitudinal studies examined causal links between factors and psychological distress. Linked to this the present study suggests that a possible model of body dissatisfaction among the obese could be tested. Although the present study was not designed for this purpose, a possible model is illustrated in Figure 1. With a larger sample size, this could be tested.

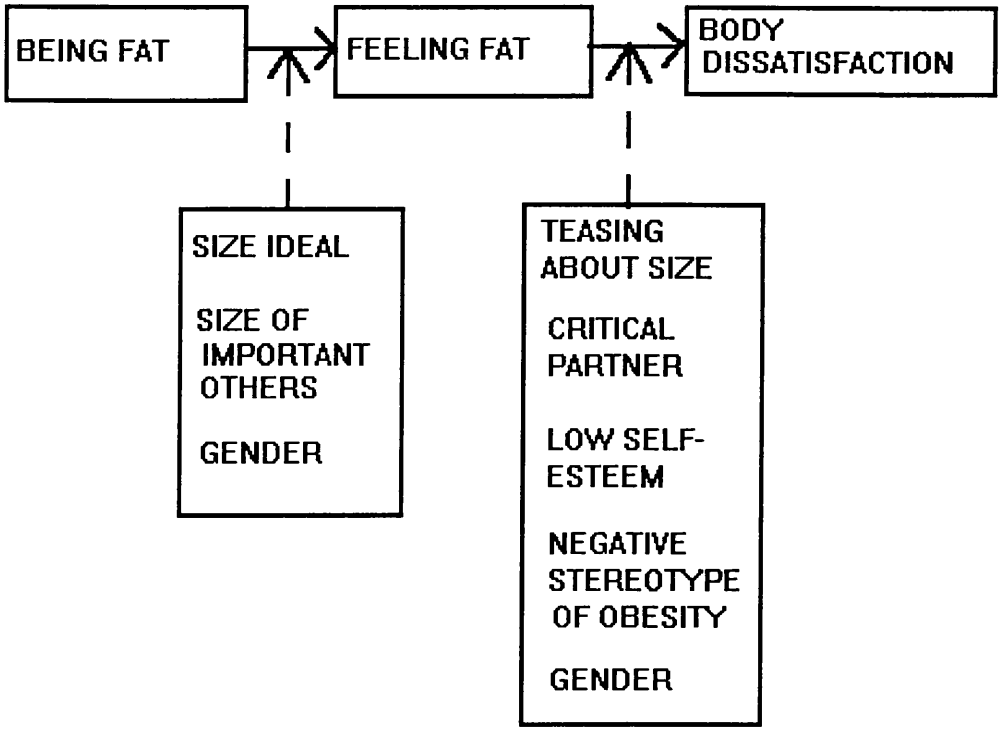

Figure 1: A Possible Model of Body Dissatisfaction Among the Obese

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APPENDIX 1:
ETHICAL APPROVAL LETTERS

UCL
HOSPITALS

The University College London Hospitals

The Joint UCL/UCLH Committees on the Ethics of Human Research

Committee Alpha Chairman: Professor Andre McLean

Please address all correspondence to:
Mrs Iwona Nowicka
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Professor Jane Wardle
Assistant Director
ICRF
Health Behaviour Unit
Department of Epidemiology & Public Health
2-16 Torrington Place

26 November 1996

Dear Professor Wardle

Study No: **96/3498** *(Please quote in all correspondence)*
Title: **Obesity and body image: an investigation of the causes of body dissatisfaction in obesity**

I am writing to let you know that I have looked at the above project and have given it Chairman's Approval. You may therefore go ahead with your study.

Please note that it is important that you notify the Committee of any adverse events or changes (name of investigator etc) relating to this project. You should also notify the Committee on completion of the project or indeed if the project is abandoned. **Please remember to quote the above number in any correspondence.**

Yours sincerely

Andre McLean
Chairman

Northamptonshire Health
Authority

Our Ref: JB/MS/96/93

Tel: Chairman (01604) 235488
Secretary (01604) 615363

10 January 1997

Ms Emily Fox
Clinical Psychologist in Training
Department of Clinical Health Psychology
1-19 Torrington Place
LONDON
WC1E

Dear Ms Fox

96/93 OBESITY AND BODY IMAGE: AN INVESTIGATION OF THE CAUSES OF BODY DISSATISFACTION IN OBESITY

I am pleased to inform you that Formal Ethical Approval has been granted by the Committee for this study to proceed.

As you will be aware from your telephone conversation with my secretary, members of the Committee felt that the introductory letter to participants should make reference to the fact that it is a research study into people who are obese. Would you please let me have a copy of the amended letter in due course.

To complete our records regarding your project, I would be grateful if you could complete and return the form accompanying this letter.

Please let me know if the study has to be terminated or any ethical considerations arise which need to be discussed further by the Committee.

Yours sincerely

Jonathan Bibby
Chairman, Northampton Medical Research
/Ethics Committee

c.c. Professor Jane Wardle

Enc.

East London and The City **HEALTH AUTHORITY**

All correspondence to be addressed to:
THE SECRETARY, ELCHA RESEARCH ETHICS COMMITTEE
61 PHILPOT STREET, LONDON , E1 2 J H *Tel*: 0171-377-7325

Ms E Fox
Department of Clinical Health Psychology
University College of London
Gower Street
London WC1E 6BT

Our ref: MS/sb/p97051s 11 March, 1997

Dear Ms Fox

Re: P/97/051s - Obesity and Body Image: An investigation of the causes of body dissatisfaction in obesity

I can confirm that the Standing Advisory Group of the ELCHA Research Ethics Committee has considered the above protocol, and further to your subsequent telephone conversation with the Research Ethics office confirming access to patients via obesity clinics, your study has been approved.

Please note the following conditions to the approval:

1. The Committee's approval is for the length of time specified in your application. If you expect your project to take longer to complete (i.e. collection of data), a letter from the principal investigator to the Chairman will be required to further extend the research. This will help the Committee to maintain comprehensive records.

2. Any changes to the protocol must be notified to the Committee. Such changes may not be implemented without the Committee or Chairman's approval.

3. The Committee should be notified immediately of any serious adverse events or if the study is terminated prematurely.

4. You are responsible for consulting with colleagues and/or other groups who may be involved or affected by the research, such as extra work for laboratories.

5. You must ensure that, where appropriate, nursing and other staff are made aware that research in progress on patients with whom they are concerned has been approved by the Committee.

Exeter Research Ethics Committee
Department of Medical Affairs
Kenn Ward
Royal Devon & Exeter Hospital
(Wonford)
Barrack Road
EXETER
EX2 5DW

Tel: 01392 402369
Fax: 01392 402369

Our Ref: PG/SAC

7 March 1997

Ms E Fox
Clinical Psychologist in Training
Sub-department of Clinical
Health Psychology
University College of London
Gower Street
LONDON WC1E 6BT

Dear Ms Fox

Study 892 Obesity and Body Image: An Investigation of the Causes of Body Dissatisfaction in Obesity

This study has been reviewed under the Exeter Research Ethics Committee's "Fast Track Procedure" and I am happy to give approval on research ethics grounds. This will be reported to the Committee in due course.

It is recommended and it would be helpful to the Ethics Committee if you would be kind enough to supply us with a report of the outcome of the study or, if it extends over a period greater than a year, interim annual reports in addition. If publications arise, we would also be very grateful for copies.

You are reminded that it is incumbent on you to inform the Chairman of the Ethics Committee of any serious adverse event that takes place during the conduct of this investigation. This notification should be made to the Chair within 24 hours of the event.

The Committee wishes you every success with this project.

Yours sincerely

Dr P H Gentle
Chairman
Exeter Medical Research Ethics Committee

APPENDIX 2:
INFORMATION LETTERS TO PARTICIPANTS

UNIVERSITY COLLEGE LONDON MEDICAL SCHOOL

DEPARTMENT OF EPIDEMIOLOGY AND PUBLIC HEALTH

1-19 Torrington Place
London WC1E 6BT

Telephone 0171 387 7050
Direct line 0171 391
Fax 0171 813 0242

UCL
MEDICAL
SCHOOL

NUTRITION & HEALTH CLINIC
HEALTH BEHAVIOUR UNIT
Direct tel: +44 (0)171-209-6636
Direct fax: +44 (0)171-813-2848

March 1997

Dear

I am writing to give you an update on the weight management groups that you took part in, and to mention the options for your participation in future research.

The groups went very well, and we are hoping to extend and develop them here at UCL, where we have now moved to. Unfortunately we have run out of funding to do most of the follow-ups at present, but we will soon be contacting some of you to organise follow-ups. Additionally we may soon be able to run some one day sessions to deal with particular aspects of the problems of weight and eating. In the meantime, we have started a charity called *Weight Concern*, to develop research into the causes, consequences, treatment and prevention of weight problems, and to offer help to overweight people.

One of our students is doing a study of body image among overweight adults as part of our programme of work. If you were able to complete her questionnaire that would be very helpful, although please don't feel under any obligation. We also enclose a second copy in case you have a friend or relative who is overweight too, to whom you could pass it on. There are two freepost envelopes for returning them.

We shall be doing more research studies as well as running a treatment clinic in the future, and We wondered if you would be interested in receiving information or being involved. If you would like to, please fill in your name and address on the enclosed sheet and mail it back with the questionnaire in the freepost envelope.

We hope that you are well and always look forward to hearing from you,

With best wishes,

Yours sincerely,

Lorna

Lorna Rapoport
Senior Dietitian

Professor Jane Wardle

Encls.

Our Ref: GW/ML
Your Ref:

14 January 1997

NORTHAMPTON HEALTHCARE
Taking Health Services to People

Please Reply To:
Nutrition & Dietetic Services
Northampton General Hospital
Cliftonville
NORTHAMPTON
NN1 5BD

(01604) 235729 Direct Line
(01604) 34700 (Main Switchboard)

Confidential

An Investigation into Body Satisfaction

Dear Participant

This department has agreed to take part in a research study examining various factors that contribute to the way overweight people feel about themselves. I am writing to ask whether you would like to take part.

The aim of the study is to investigate the factors that contribute to the way people feel about their bodies. It is hoped that by conducting this study, it will be possible to understand the variation more fully and help in the treatment of body dissatisfaction.

If you would like to take part in this study, please fill in the enclosed questionnaire. You do not have to take part in this study if you do not want to. If you decide to take part you may withdraw at any time without having to give a reason. Your decision whether to take part or not will not affect your care and management. The questionnaire is completely confidential. It will take approximately 10 minutes to fill in.

If you have any questions, please contact Emily Fox, at the address on the front of the questionnaire. Thank you for taking the time to read this letter, and in advance for filling out the questionnaire.

Yours sincerely

Miss Gill Wheeler BSc(Hons) SRD
Manager, Nutrition and Dietetic Services

Enc

An Investigation of the Causes of Body Dissatisfaction

EAST LONDON AND THE CITY HEALTH AUTHORITY

Information to Participate in a Research Project

We invite you to take part in a research study which we think may be important. The information which follows tells you about it. It is important that you understand what is in this leaflet. It says what will happen if you take part and what the risks might be. Try to make sure you know what will happen to you if you decide to take part. Whether or not you do take part is entirely your choice. Please ask any questions you want to about the research and we will try our best to answer them.

We are involved in a research study which hopes to examine various factors that contribute to the way people feel about themselves. The aim of this study is to find out more clearly how people, in general, feel about their body shape. It is hoped that the information from this study will provide new ways of helping people with their body shape.

If you agree to take part in this study, we would be grateful if you could complete a questionnaire. The questionnaire asks some questions about how you feel about your weight, yourself and whether your weight effects your life in general. The questionnaire is anonymous, and when complete will not be shown to anyone but the researchers. It will take approximately 10 minutes to fill in.

If you have any questions you should ask Dr Kopelman, or a member of his team, before you start the questionnaire. Thank you for taking the time to read this letter, and in advance for filling out the questionnaire.

You don't have to join the study. You are free to decide not to be in this trial or drop out at any time. If you decide not to be in the study, or drop out, this will not put at risk you ordinary medical care. You will always be able to contact an investigator to discuss your concerns or get help:

Emily Fox
Health Behaviour Unit
Dept. of Epidemiology & Public Health
University College London
2-16 Torrington Place
LONDON WC1E 6BT

Dr P. Kopelman
Medical Unit
Royal London Hospital
LONDON E1 1BB

Dr P. Kopelman
(Reader in Medicine/
Honoury Consultant Physician)

Dr J. Wardle
(Assistant Director,
Health Behaviour Unit)

Emily Fox
(Clinical Psychologist in
Training, UCL)

St. Leonard's Medical Practice

34 Denmark Road Exeter Devon EX1 1SF

Enquiries 01392 51661
Appointments 01392 72134
Health Visitor 01392 78005

Professor Denis Pereira Gray OBE MA FRCGP Dr Russell Steele FRCGP DRCOG Dr Kieran Sweeney MA MRCGP Dr Philip Evans MPhil MRCGP DRCOG

2nd April 1997

Dear

We would be grateful for your help with a research study which we think may well be important. This study aims to find out more clearly how people in general, feel about their body shape, and how this effects the individuals's self-esteem. The information gained from this study will help to provide a greater understanding in the treatment of body dissatisfaction. The questionnaire asks some questions about how you feel about your weight, yourself and whether your weight effects your life in general.

You have been selected because the most recent weight we have for you in the practice shows that you are overweight for your height. We are sending this questionnaire to a sample of patients and it does not imply that you have a problem with your weight. The questionnaire is also being sent to patients elsewhere who are not overweight.

Whether you take part in this research is entirely your choice. Of course, if you choose not to take part this will not in any way affect your care in the practice.

If you can help, please complete the questionnaire enclosed and return it in the FREEPOST envelope to Emily Fox who is the researcher on this project. It will take approximately 10 - 15 minutes to fill in and is anonymous. Your own doctor will not see your questionnaire.

If you have any questions please contact your own doctor at the surgery or Emily herself on 0171 2096642 Thank you for taking time to read this letter.

Yours sincerely

Dr Kieran Sweeney

NORTHAMPTON
HEALTHCARE
Taking Health Services to People

4 February 1997

Confidential

An Investigation into Body Satisfaction

Dear Participant
I recently wrote to you inviting you to take part in a study examining how people feel about themselves. If you would like to take part in the investigation, but have either lost the questionnaire, or forgotten to return it, I enclose another which you can send back in the Freepost envelope. If you have already returned the questionnaire, forgive this reminder.

You do not have to take part in this study, and your decision will not affect your future care and management. The questionnaire is completely confidential, and will take approximately ten minutes to fill in.

If you have any queries, please contact Emily Fox at the address on the front of the questionnaire. Again, thank you for taking time to read this letter, and in advance for filling out the questionnaire.

Yours faithfully

Miss Gill Wheeler BSc (Hons) SRD
Manager, Nutrition and Dietetic Services

Enc

Northampton Community Healthcare NHS Trust
Trust Headquarters, Clare House
St. Edmunds Hospital, Wellingborough Road
Northampton, NN1 4DS
Tel. 01604 37221 Fax 01604 602413

St. Leonard's Medical Practice

34 Denmark Road Exeter Devon EX1 1SF

Enquiries 01392 51661
Appointments 01392 272134
Health Visitor 01392 278005

Professor Denis Pereira Gray OBE MA FRCGP Dr Russell Steele FRCGP DRCOG Dr Kieran Sweeney MA MRCGP Dr Philip Evans MPhil MRCGP DRCOG

18th April 1997

Confidential

An Investigation into Body Satisfaction

Dear ,

I recently wrote to you inviting you to take part in a study examining how people feel about themselves. If you would like to take part in the investigation, but have either lost the questionnaire, or forgotten to return it, I enclose another which you can send back in the Freepost envelope. If you have already returned the questionnaire, forgive this reminder.

You do not have to take part in this study, and your decision will not affect your future care and management. The questionnaire is completely confidential, and will take approximately ten minutes to fill in.

If you have any queries, please contact Emily Fox at the address on the front of the questionnaire. Again, thank you for taking time to read this letter, and in advance for filling out the questionnaire.

Yours faithfully,

Dr Philip Evans.
St Leonards Medical Practice.

APPENDIX 3:
SAMPLE QUESTIONNAIRE

CONFIDENTIAL

BODY SATISFACTION SURVEY

The aim of this study is to find out more clearly how people, in general, feel about their body shape. It is hoped that the information from this study will provide new ways of helping people with their body size.

Your answers will remain completely anonymous.

Thank you for your time.

If you have any questions, please contact:

Emily Fox
Health Behaviour Unit
Department of Epidemiology and Public Health
University College London
2-16 Torrington Place
London
WC1E 6BR

HERE IS A LIST OF STATEMENTS DEALING WITH YOUR GENERAL FEELINGS ABOUT YOURSELF. PLEASE CIRCLE THE RESPONSE MOST APPROPRIATE TO YOU.

1. **On the whole, I am satisfied with myself.**
Strongly disagree Disagree Agree Strongly agree

2. **At times I think I am no good at all.**
Strongly disagree Disagree Agree Strongly agree

3. **I feel that I have a number of good qualities.**
Strongly disagree Disagree Agree Strongly agree

4. **I am able to do things as well as most other people**
Strongly disagree Disagree Agree Strongly agree

5. **I feel I do not have much to be proud of.**
Strongly disagree Disagree Agree Strongly agree

6. **I certainly feel useless at times.**
Strongly disagree Disagree Agree Strongly agree

7. **I feel that I'm a person of worth, at least on an equal plane with others.**
Strongly disagree Disagree Agree Strongly agree

8. **I wish I could have more respect for myself.**
Strongly disagree Disagree Agree Strongly agree

9. **All in all, I am inclined to feel that I am a failure.**
Strongly disagree Disagree Agree Strongly agree

10. **I take a positive attitude toward myself.**
Strongly disagree Disagree Agree Strongly agree

IF YOU FEEL, OR HAVE EVER FELT OVERWEIGHT, PLEASE INDICATE THE EXTENT TO WHICH YOU AGREE WITH THESE STATEMENTS.

1. **My own efforts to lose weight are not very important, my weight loss really depends on others.**
Strongly disagree Disagree Uncertain Agree Strongly agree

2. **My own contribution to my weight doesn't amount to much.**
Strongly disagree Disagree Uncertain Agree Strongly agree

3. **I have little or no control over my weight**
Strongly disagree Disagree Uncertain Agree Strongly agree

4. **It doesn't matter how much help you get in managing your weight in the end it's your own efforts that count.**
Strongly disagree Disagree Uncertain Agree Strongly agree

THESE QUESTIONS ARE ABOUT YOUR BEHAVIOUR.

1. **I wear baggy clothes.**
Never Rarely Sometimes Often Very often Always

2. **I wear clothes I do not like.**
Never Rarely Sometimes Often Very often Always

3. **I wear darker colour clothing.**
Never Rarely Sometimes Often Very often Always

4. **I wear a special set of clothing, ie. *my fat clothes*.**
Never Rarely Sometimes Often Very often Always

5. **I restrict the amount of food I eat.**
Never Rarely Sometimes Often Very often Always

6. **I eat fruits, vegetables and other low calorie foods.**
Never Rarely Sometimes Often Very often Always

7. **I fast for a day or longer.**
Never Rarely Sometimes Often Very often Always

8. **I avoid going out socially if the people I am with will discuss weight.**
Never Rarely Sometimes Often Very often Always

9. **I avoid going out socially if the people I am with are thinner than me.**
Never Rarely Sometimes Often Very often Always

10. **I avoid going out socially if it involves eating.**
Never Rarely Sometimes Often Very often Always

11. **I weigh myself.**
Never Rarely Sometimes Often Very often Always

12. **I am inactive.**
Never Rarely Sometimes Often Very often Always

13. **I look at myself in the mirror.**
Never Rarely Sometimes Often Very often Always

14. **I avoid physical intimacy.**
Never Rarely Sometimes Often Very often Always

15. **I wear clothes that will divert attention from my weight.**
Never Rarely Sometimes Often Very often Always

16. **I avoid going clothes shopping.**
Never Rarely Sometimes Often Very often Always

17. **I wear 'revealing' clothes (e.g., swimming costumes, t-shirts or shorts).**
Never Rarely Sometimes Often Very often Always

18. **I get dressed up or made up.**
Never Rarely Sometimes Often Very often Always

PLEASE MARK EACH STATEMENT BY CIRCLING THE MOST APPROPRIATE RESPONSE.

1. **Overweight people are as happy as non-overweight people.**
Strongly disagree Disagree Agree Strongly agree

2. **Most overweight people feel that they are not as good as other people.**
Strongly disagree Disagree Agree Strongly agree

3. **Most overweight people are more self-conscious than other people.**
Strongly disagree Disagree Agree Strongly agree

4. **Overweight workers cannot be as successful as other workers.**
Strongly disagree Disagree Agree Strongly agree

5. **Most non-overweight people would not want to marry anyone who is overweight.**
Strongly disagree Disagree Agree Strongly agree

6. **Severely overweight people are usually untidy.**
Strongly disagree Disagree Agree Strongly agree

7. **Overweight people are usually sociable.**
Strongly disagree Disagree Agree Strongly agree

8. **Overweight people are just as self confident as other people.**
Strongly disagree Disagree Agree Strongly agree

9. **Most people feel uncomfortable when they associate with overweight people.**
Strongly disagree Disagree Agree Strongly agree

10. **Overweight people are often less aggressive than non-overweight people.**
Strongly disagree Disagree Agree Strongly agree

11. **Most overweight people have different personalities than non-overweight people.**
Strongly disagree Disagree Agree Strongly agree

12. **Most overweight people resent normal weight people.**
Strongly disagree Disagree Agree Strongly agree

13. **Overweight people are more emotional than other people.**
Strongly disagree Disagree Agree Strongly agree

14. **Overweight people are just as healthy as non-overweight people.**
Strongly disagree Disagree Agree Strongly agree

15. **Overweight people are just as sexually attractive as non-overweight people.**
Strongly disagree Disagree Agree Strongly agree

16. **Overweight people tend to have family problems.**
Strongly disagree Disagree Agree Strongly agree

17. **One of the worse things that could happen to a person would be for him/her to become overweight.**
Strongly disagree Disagree Agree Strongly agree

THE FOLLOWING QUESTIONS SHOULD BE ANSWERED WITH RESPECT TO THE PERIOD OF TIME WHEN YOU WERE GROWING UP (AGES 5-16). PLEASE RATE HOW OFTEN YOU THINK YOU HAVE BEEN THE OBJECT OF SUCH BEHAVIOUR.

1. **People made fun of you because you were heavy.**
Never Rarely Sometimes Often Very Often

2. **People made jokes about you being too heavy.**
Never Rarely Sometimes Often Very Often

3. **People laughed at you for trying at sports because you were too heavy.**
Never Rarely Sometimes Often Very Often

4. **People called you names like "fatso".**
Never Rarely Sometimes Often Very Often

5. **People pointed at you because you were overweight?**
Never Rarely Sometimes Often Very Often

6. **People sniggered about your size when you walked into a room alone.**
Never Rarely Sometimes Often Very Often

7. **People made fun of you by repeating something that you said because they thought you were stupid.**
Never Rarely Sometimes Often Very Often

8. **People made fun of you because you were afraid to do something.**
Never Rarely Sometimes Often Very Often

9. **People said you behaved stupidly.**
Never Rarely Sometimes Often Very Often

10. **People laughed at you because you didn't understand something.**
Never Rarely Sometimes Often Very Often

11. **People teased you because you didn't get a joke.**
Never Rarely Sometimes Often Very Often

THE NEXT QUESTIONS ARE ABOUT YOUR EATING.

1. **I eat when I am upset.**
Never Rarely Sometimes Often Very often Always

2. **I stuff myself with food.**
Never Rarely Sometimes Often Very often Always

3. **I feel satisfied with the shape of my body.**
Never Rarely Sometimes Often Very often Always

4. **I have gone on eating binges where I felt that I could not stop.**
Never Rarely Sometimes Often Very often Always

5. **I think about bingeing (overeating).**
Never Rarely Sometimes Often Very often Always

6. **I eat moderately infront of others and stuff myself when they're gone.**
Never Rarely Sometimes Often Very often Always

7. **I have the thought of trying to vomit in order to lose weight.**
Never Rarely Sometimes Often Very often Always

8. **I eat or drink in secrecy.**
Never Rarely Sometimes Often Very often Always

HERE ARE A LIST OF STATEMENTS THAT HAVE BEEN IDENTIFIED AS BEING SOME CAUSES OF OBESITY. PLEASE TELL ME WHETHER YOU AGREE WITH EACH STATEMENT.

1. **Obesity is a result of excessive calorie consumption.**
Strongly disagree Disagree Agree Strongly agree

2. **Obesity is a result of a poor control over eating.**
Strongly disagree Disagree Agree Strongly agree

3. **Obesity is inherited from your parents.**
Strongly disagree Disagree Agree Strongly agree

4. **Obesity is a result of lack of exercise.**
Strongly disagree Disagree Agree Strongly agree

5. **Obesity is a result of stress.**
Strongly disagree Disagree Agree Strongly agree

6. **Obesity is a result of a lack of self-control.**
Strongly disagree Disagree Agree Strongly agree

7. **Obesity is a result of underlying psychological problems.**
Strongly disagree Disagree Agree Strongly agree

8. **Obesity is a result of the accessibility of 'junk food'.**
Strongly disagree Disagree Agree Strongly agree

9. **Obesity is a result of poverty.**
Strongly disagree Disagree Agree Strongly agree

10. **Obesity is a result of pressures to eat from family and friends.**
Strongly disagree Disagree Agree Strongly agree

11. **Obesity is a result of hormone problems.**
Strongly disagree Disagree Agree Strongly agree

12. **Obesity is a result of becoming pregnant.**
Strongly disagree Disagree Agree Strongly agree

13. **Obesity is a result of stopping smoking.**
Strongly disagree Disagree Agree Strongly agree

If you are, or ever have been overweight, please indicate which of these factors do you believe has had the greatest effect on your weight? **Please specify the numbers.**

_____

THE FOLLOWING QUESTIONS ARE ABOUT YOUR PARTNER, FRIENDS AND FAMILY. PLEASE CIRCLE THE MOST APPROPRIATE RESPONSE.

1. **Is, or was, your mother overweight?**

YES NO

2. **Is, or was, your father overweight?**

YES NO

3. **How many sisters and brothers do you have?**

_____

4. **How many of them are overweight?**

_____

5. **Approximately, what percentage of your friends are overweight (e.g. 25%, 50% , 80%, etc.)?**

_____

6. Is your partner overweight?

YES NO

7. Is s/he supportive of the weight you are? Please comment*

YES NO

*

_____

_____

FINALLY, BELOW THERE ARE A NUMBER OF QUESTIONS ABOUT YOU.

1. Are you: Male Female

2. How old are you? _____

3. How would you describe your ethnic origin?

_____

4. Are you:

Single Married/ Living together Separated/ Divorced Widowed

5. How many children do you have? _____

6. What is the highest level of education you have completed?

Primary school
Secondary school
O levels/ GCSEs
A levels
Technical or Trade Certificate
Diploma
Degree
Post-graduate degree

7. What is your job? If you are not working now, what is your usual job? Please be specific.

_____

8. If you have a partner, what is his/her job? If s/he is not working now, what is his/her usual job? Please be specific.

_____

9. Are you currently:

employed full-time or part-time
unemployed
full time homemaker
retired
student

10. Do you own or rent your home?

Own/buying it Renting it

11. Does your household have a car?

No Yes More than one

1. Are you dieting to lose weight?

YES* NO

*Please specify_____

2. Are you currently attending a weight-loss clinic?

YES* NO

*Please specify_____

Is this your choice?

YES NO

3. When did you last go on a diet to lose weight?

Never dieted	Less than a month	1-2 months	2-6 months	6-12 months	1-2 years	2 + years

4. What is your current:

Height:_____

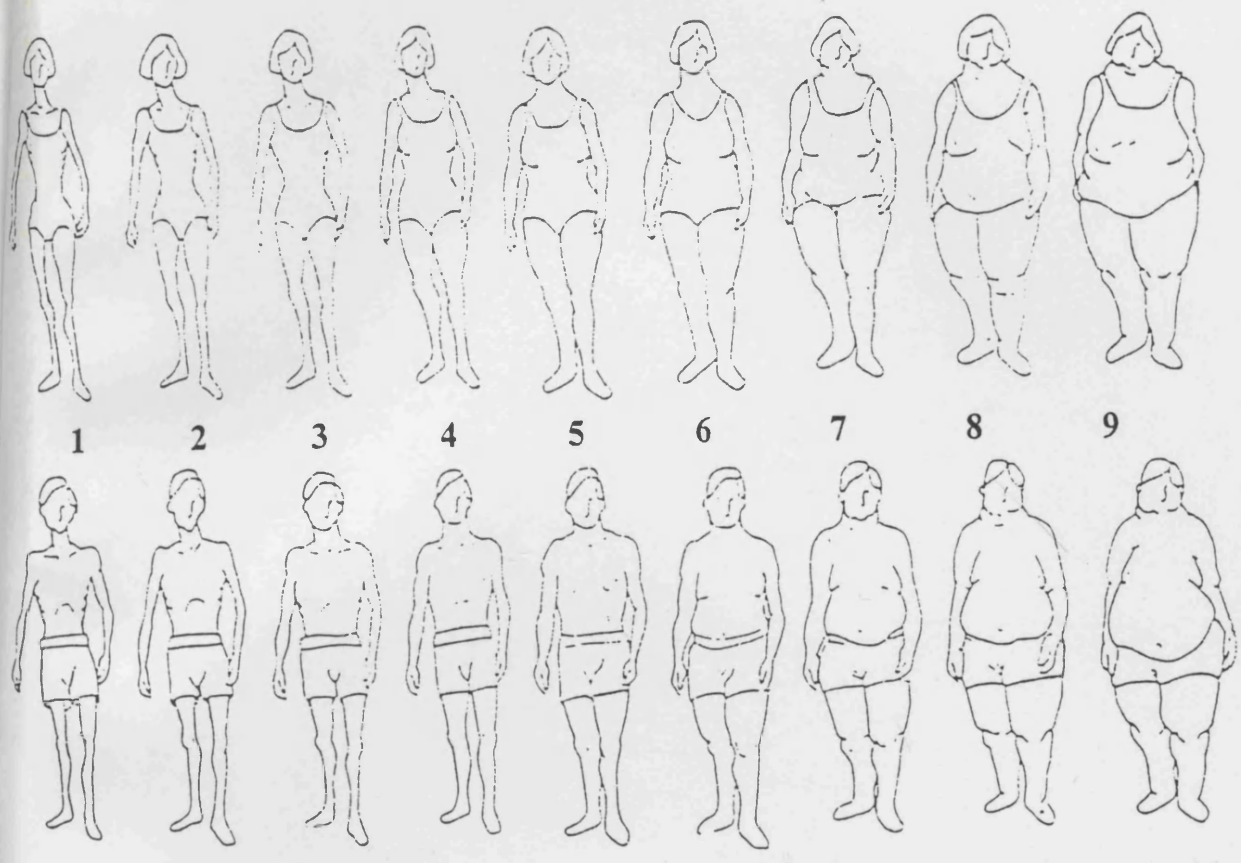
Weight:_____

5. Would you describe yourself as:

Very overweight
Overweight
About right
Underweight
Very underweight

6. If you are, or have been overweight, at what age did this begin?

_____



Looking at the pictures above please:

Could you write down the number of the picture that reflects how you feel most of the time. _____

Could you write down the number of the picture that actually looks most like your shape. _____

Could you write down the number of the picture you would most like to look like. _____

And finally, could you write down the numbers of the pictures you would describe as overweight. _____

THE END.

Thank you very much for filling out the questionnaire.
Please feel free to write any comments overleaf.