

THE RELATIONSHIP OF BODY IMAGE, BODY MASS INDEX AND  
SELF-ESTEEM TO EATING ATTITUDES IN A NORMAL SAMPLE

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## List of Abbreviations

<b>BESAA</b>	Body Esteem Scale for Adolescents and Adults
<b>BMI</b>	Body Mass Index
<b>BSQ</b>	Body Shape Questionnaire
<b>ChEAT</b>	Children's Eating Attitude Test
<b>CHQ</b>	Child Health Questionnaire
<b>EAT</b>	Eating Attitudes Test
<b>EDE</b>	Eating Disorder Examination
<b>EDI</b>	Eating Disorder Inventory
<b>RSE</b>	Rosenberg Self-Esteem Scale

## **ABSTRACT**

The purpose of this study was to examine how body image, Body Mass Index (BMI), self-esteem and eating attitudes were related in a non-clinical sample of New Zealand women. The sample consisted of 36 women ranging in age from 17 to 55 years of age. Body image was assessed using the Body Shape Questionnaire, BMI was calculated based on measures of height and weight; eating attitudes was assessed with the Eating Concern subscale of the Eating Disorders Examination and self-esteem was assessed using the Rosenberg Self-Esteem Scale. The results of this study conclude that elevated BMI is associated with higher dissatisfaction with body image, and there is a positive correlation between body image and eating attitudes. Self-esteem and eating attitudes were significantly correlated with lower self-esteem being associated with increased disturbance in eating attitudes. Self-esteem and BMI were found to significantly contribute to eating attitudes on their own as well as together. Body image on its own also made a significant contribution to eating attitudes. Previous research informs us of the negative implications of dissatisfaction with body image, elevated BMI, disturbed eating attitudes and low-self-esteem and this study examines the links between these variables in order to add further information to what contributes to each of the variables. These findings were discussed in light of sociocultural theories of eating disorders and their implications to women from non-clinical populations.

# 1. INTRODUCTION

## *1.1 Overview*

The complex relationships between body image, Body Mass Index (BMI), self esteem and eating attitudes have been the subject of considerable research. Many women have disturbed eating attitudes and subsequently disturbed eating behaviours such as excessive dieting and striving for thinness. The associated body image dissatisfaction may or may not be associated with elevated body mass. In turn, each of these variables is linked to self-esteem with differences in this between non-clinical and clinical populations.

In addition to their effects on eating pathology, eating attitudes, body image dissatisfaction, elevated BMI, and low self-esteem have been noted to affect many areas of psychological functioning in women including depression and anxiety. Other effects include lack of confidence, teasing and impairment in social functioning. These effects are seen in non-clinical as well as clinical women and are not confined to women with high BMI.

Disordered eating attitudes and behaviour, elevated body mass and body dissatisfaction are common in Western populations as being thin is highly valued in this society, particularly among women (Stice, Shaw & Nemeroff, 1998). Stice (1994) has proposed a sociocultural model of eating pathology. The sociocultural perspective links disordered eating to current cultural trends, emphasising thinness as an essential component of beauty (Striegel-Moore, Silberstein & Rodin, 1986). Stice's (1994) model posits that internalised sociocultural pressures to be thin adversely affect eating



attitudes (Stice, 1994). These sociocultural pressures are transmitted by families, peers and the mass media but if women do not subscribe to these attitudes it is not as likely that the societal pressures will negatively affect their attitudes to eating (Stice, 1994). This internalisation of sociocultural pressures is said to produce body dissatisfaction in some women (Stice, 1994).

With rising obesity rates (Reynolds & Himes, 2007) and ideal body weights becoming increasingly thinner (Weisman, Gray, Mosimann & Ahrens, 1992) women are internalising an ideal that is difficult or impossible to achieve and they can experience associated body image dissatisfaction (Rodin, Silberstein & Striegel-Moore, 1985). This associated body image dissatisfaction can lead to risky weight control strategies or to eating pathology (Stice, 1994).

The Western thin ideal and the body dissatisfaction associated with it are important risk factors for eating pathology (Twamley & Davis, 1999). It may be the case that some pathological eating behaviours are so normative in this culture that women engage in these behaviours regardless of their feelings about their body or that some women use pathological eating behaviours successfully enough that they improve their body image (Twamley & Davis, 1999).

In this thesis the association of body image, BMI and self-esteem to eating attitudes is of interest in non-clinical New Zealand adult women. The New Zealand sample is of interest because of the lack of past research in this population. The non-clinical population is of interest because information on this group can be generalised to a wide range of women.

This non-clinical population is at risk for socio-cultural pressures of the thin ideal and associated eating pathology and body image disturbance. Specifically, dissatisfaction with body image which may or may not be coupled with elevated BMI, together with low self-esteem can have an impact on eating attitudes and behaviour. This subsequently affects women's quality of life and their psychological and social functioning.

The following sections introduce and define concepts central to this thesis. The constructs' assessment and relation to each other will be discussed. Research in clinical as well as non-clinical populations and both child and adolescent and adult populations are addressed in order to compare and contrast the groups and to outline the rationale for the present study.

## ***1.2 Eating Attitudes, Body Image, Body Mass Index and Self-Esteem; their Assessment and Interrelationships***

### ***1.2.1 Eating Attitudes***

Eating attitudes can include thoughts about dieting, striving for thinness and preoccupation with food. Abnormal or disturbed eating attitudes are attitudes that surround food that are unhealthy or different from that of the general population (Jones, Bennett, Olmsted, Lawson & Rodin, 2001).

A New Zealand study of non-clinical adolescent girls found a high rate of disturbed eating attitudes (Dixon, Adair & O'Conner, 1996). The development of these

disturbed eating attitudes was found to be associated with parental encouragement to diet. In a study of adolescents' eating attitudes and body image it was found that adolescent females scored high on measures of attitudes associated with disordered eating (Furnham, Badmin & Sneade, 2002). Furnham et al. (2002) used a socioeconomically diverse population with the majority of participants in the normal weight range.

Disturbed attitudes to eating and subsequent eating behaviours pose a significant health problem, in particular, a link to eating disorders (Powell & Kahn, 1995). Fear of negative evaluation predicts disturbed eating attitudes in African American and Hispanic girls (Vander Wal & Thomas, 2004) as was measured by the Children's Eating Attitudes Test (ChEAT) (Maloney, McGuire & Daniels, 1988).

### *1.2.2 Eating Attitude Assessment*

Two commonly used measures of disturbed eating attitudes are the Eating Disorders Inventory (EDI) (Garner, Olmstead & Polivy, 1983) which has been used by Geller et al. (1998) and Kenny and Adams (1994) and the Eating Attitudes Test (EAT) (Garner & Garfinkel, 1979) which Ba•, A•ci H•lya, Karabudak and Kiziltan (2004), Furnham et al. (2002), Lake, Staiger & Glowinski (2000) and Mumford & Choudry (2000) have used. The EDI is a 64 item self-report scale designed to measure attitudes, personality features and eating disorder symptoms relevant to anorexia and bulimia nervosa (Garner et al. 1983). The EAT is a self-report measure used to examine eating disorders and was designed to examine symptoms of eating disorders (Garner & Garfinkel, 1979). Another measure of eating attitudes is the Eating Disorder Examination (EDE) (Fairburn & Cooper, 1993). The EDE is a semi-structured

interview for the assessment of specific eating disorders psychopathology (Cooper, Cooper & Fairburn, 1989). There is a questionnaire version of the EDE named the Eating Disorder Examination- Self-report version (EDE-Q) (Fairburn & Beglin, 1994). The EDE-Q is more commonly used and is seen in Wilson, Trip and Boland (2005).

Eating attitudes in children have been assessed by Rolland, Farnil and Griffiths (1997) and Vander Wal and Thomas (2004) with the ChEAT (Maloney et al., 1988). The ChEAT is a measure of children's eating attitudes and dieting behaviours (Vander Wal & Thomas, 2004).

### *1.2.3 Body Image*

Body image has been defined as “a person's mental image and evaluation of his or her physical appearance and the effect of these perceptions and attitudes on behaviour” (De Panfilis, Rabbaglio, Rossi, Zita & Maggini, 2003 p.239). The way a person perceives his/her body is influenced by a variety of factors including the degree of importance their physical appearance has to their overall sense of self (Spurgas, 2005). It has been noted that many women experience a discrepancy between their actual and perceived body shape (Markham, Thompson & Bowling, 2005).

Research highlights the impact a disturbance in body image can have on an individual's quality of life (Cash & Fleming, 2002; Newman, Sontag & Salvato, 2006). In a non-clinical student sample, body image attitudes have been found to have a negative effect on self-reported self-esteem, interpersonal confidence, eating and exercise behaviours, grooming activities, sexual behaviours and experiences and

emotional stability (Cash & Fleming, 2002). In adolescents, poor body image is associated with self-reported low self esteem, elevated anxiety, depression and somatisation in a community sample (Newman et al., 2006). Body image dissatisfaction has also been found to correlate with eating disorders (Furnham et al., 2002).

Disturbance in body image is believed by adolescents to affect their social relationships (O'Dea & Abraham, 1999b). Non-clinical adolescents of both genders have been found to believe that physical attractiveness affects their romantic appeal and happiness (O'Dea & Abraham, 1999b), and to negatively affect social functioning and peer relationships (Newman et al. 2006).

#### *1.2.4 Body Image Assessment*

In non-clinical populations, body image is often assessed via self-report measures. Self-report measures are useful because they are non-intrusive, quick and affordable. A person's responses may, however, be influenced by perceived expectations.

There are a number of self-report questionnaires designed for the assessment of body image. Body image dissatisfaction has been assessed using The Body Dysmorphic Disorder Examination-Self-Report which is a measure of body image dissatisfaction and of symptoms of Body Dysmorphic Disorder (Rosen & Reiter, 1996). This questionnaire has been used by Sarwer, Wadden and Foster (1998) with obese women.

In general adult samples The Body Shape Questionnaire (BSQ) (Cooper, Taylor, Cooper & Fairburn, 1987) has been used. Burger and Doiny (2002) and Mumford and Choudry (2000) have assessed body image with the BSQ. The BSQ assesses participants' thoughts, feelings and behaviours regarding body shape and appearance (Burger & Doiny, 2002). This questionnaire has also been used with an adolescent population by Newman et al. (2006). Another self-report questionnaire used in adult and adolescent populations is the Body Esteem Scale for Adolescents and Adults (BESAA) (Mendelson, Mendelson & White, 2001) as used by Wilson et al. (2005). The BESAA is a self-report questionnaire consisting of three subscales: Appearance (general feelings about appearance), Weight (weight satisfaction) and Attribution (judgements about how others view one's appearance) (Mendelson et al., 2001).

Current-ideal discrepancy measures have also been used to measure body dissatisfaction in adult populations. Scales such as The Figure Rating Scale (Stunkard, Sorensen & Schlusinger, 1983) require the individual to nominate their current body size and ideal body size from a series of body figure drawings of increasing size and can be seen in use in research by Kennett and Nisbit (1998). Lindholm and Wilson (1988) note that a number of different methods have been used to assess distortions in body image. The variety of techniques noted include; video image distortion, choice of varying size silhouettes and moving callipers to assess the size of certain body parts.

The pros and cons of using self-report measures to assess body image have been debated. In eating disorder populations, body image is frequently assessed by self-report; however some authors have called for more extensive evaluation. Rosen

(1996) reviewed the extent and method of body image assessment in eating disorder populations. The measurement of body image was found to be inconsistent and often limited to the assessment of dissatisfaction with shape and weight. A more thorough assessment of body image was advocated including assessment of appearance complaints other than weight/shape, distressing preoccupations and feelings of shame or embarrassment, excessive importance given to physical appearance in self-evaluation, avoidance of social situations or exposure of the body, and repetitive body-checking behaviours.

#### *1.2.5 Body Mass Index*

Body Mass Index (BMI) is the ratio of weight to height measured in kilograms/metres<sup>2</sup>. Normal weight is defined as a BMI of 20 - 24.9, overweight as between 25 and 29.9 and obesity as greater or equal to 30 (Palmer, 2003). Obesity is associated with morbidity and mortality as well as hypertension, type 2 diabetes, heart disease, stroke, gallstones and psychological disorders such as eating disorders (Palmer, 2003).

A number of people of all ages and in all communities are affected by rising obesity rates (Broussard et al., 1991) and the social stigma associated which in turn brings the potential for psychological adversity (Newman et al., 2006). Cultural attitudes about weight are widely assumed to be responsible for the differences in the prevalence of anorexia and bulimia nervosa in different ethnic groups and to exacerbate the negative effects of being overweight (Mumford & Choudry, 2000). Women in cultures that encourage slimness are more frequently dissatisfied with their weight and make large efforts to conform to the ideal (Mumford & Choudry, 2000).

### *1.2.6 Self-Esteem*

Self-esteem is the judgement we make about our own worth and the feelings associated with those judgements (Berk, 2001). These evaluations of our own competencies may affect emotional experiences, future behaviour, and long-term psychological adjustment (Berk, 2001). Other definitions of self-esteem include evaluative components such as having a level of global regard for oneself and because of its nature can only be assessed by self-report (Frost & McKelvie, 2004). It has also been defined as how well a person prizes, values, approves or likes him or herself (Blascovich & Tomaka, 1991).

Positive implications of having high self-esteem have been seen. High self-esteem has been found to predict a reduction in depressive symptoms over time and to aid recovery (Roberts & Munroe, 1992). Those with high self-esteem are able to act independently, assume responsibility as well as tolerate frustration and attempt new tasks with confidence (Butler & Gasson, 2005). As well as being associated with less depression, high self-esteem is linked with less neuroticism (Robins, Hendin & Trzesniewski, 2001) and higher levels of self-satisfaction (Diener, 1984).

Low self-esteem has been found to be predictive of increased vulnerability to body-image dissatisfaction (Markham et al., 2005) and lower levels of self-esteem are associated with disturbance in eating attitudes (Ba• et al., 2004). Self-esteem and BMI are also related as BMI may play a causal role in the development of lower self-esteem experienced by many overweight children (Hesketh, Wake & Waters, 2004).



### *1.2.7 Self-Esteem Assessment*

Self-esteem is assessed by self-report. Research with adult populations frequently utilises the Rosenberg Self-Esteem Scale (RSE) (Rosenberg, 1965). Its use can be seen in research by Kim and Kim (2001), Lowery et al. (2005) and Ba• et al. (2004). The RSE is a uni-dimensional self-report measure of global self-esteem (Rosenberg, 1965). Another measure used in adult populations, but not so common, is The Self-Esteem Rating Scale which was developed as a clinical measure of self-esteem and can indicate problems in self-esteem as well as non-problematic self-esteem (Nugent & Thomas, 1993). This has been used by Palmer (2003). In a child sample Hesketh et al. (2004) used parent report on The Self-Esteem Scale from the Child Health Questionnaire (CHQ) (Waters, Salmon, Wake, Hesketh & Wright, 2000) which is a report of the functional health status of children aged 5-18 years. The self-esteem scale from the CHQ enquires about parents' perceptions of the child's satisfaction with their school ability, athletic ability, friendships, appearance, family relationships and their life overall (Hesketh et al., 2004).

## ***1.3 Relations between Body Image, Body Mass Index, Self-Esteem and Eating***

### ***Attitudes***

#### *1.3.1 Body Image and Body Mass Index*

Body image has been explored in relation to BMI (Cash & Fleming, 2002; Newman et al., 2006). An elevated BMI has been found to be highly correlated with body image and self-dissatisfaction in female college students (Yates, Edman & Aruguete, 2004). Yates et al. (2004) conducted this study with a high achieving college

population. A similar study was conducted in a more representative female college-aged sample with the finding that a higher BMI was associated with a more negative body image (Burger & Doiny, 2002).

BMI was found to be a major factor contributing to body image in a sample of girls (McCabe & Ricciardelli, 2003). BMI was a consistent predictor of body image in the short-term (eight months after the time of assessment) and the long-term (sixteen months after the time of assessment). Elevated BMI predicted weight dissatisfaction for females in the short-term and long-term. This sample was mainly Caucasian but socioeconomically diverse. In a sample of children, elevated BMI was found to be a predictor of increases in body dissatisfaction along with teasing about weight (Paxton, Eisenberg & Neumark-Sztainer, 2006).

Some studies do *not* support a link between BMI and body satisfaction. One study examining adolescent body dissatisfaction found that girls showed higher overall rates of body dissatisfaction than boys but BMI did not predict body dissatisfaction for adolescent boys or girls (Bearman, Presnell, Martinez & Stice, 2006). A strength of this study was its use of an ethnically diverse sample. The participants consisted of Asian, Pacific Island, African American, Caucasian, Hispanic, and Native American individuals, although the majority were Caucasian.

The link between body image and BMI is affected by gender. Women are frequently found to have elevated body image dissatisfaction coupled with a high BMI (Grilo & Masheb, 2005; Kenny & Adams, 1994). In a female college sample, the effect of BMI is not only seen in women with very high weights but also in women who are at the

heavier end of the normal healthy weight range (Kennett & Nisbet, 1998). The relationship between body image and BMI has also been examined in female college students with disordered eating. Wilson et al. (2005) found that BMI was consistently a predictor of disordered eating and dissatisfaction with body image.

Both elevated BMI and body dissatisfaction have been found to be associated with negative consequences (Newman et al., 2006), including weight control strategies such as smoking and dieting as well as body dissatisfaction. Newman et al. (2006) found that poor body image was inversely associated with measures of global self-esteem and to internalizing psychological symptoms such as depression, anxiety and somatisation. Body image has been found to affect social functioning and peer relationships in a relatively small sample of Native American adolescents and to play an essential role in psychological and physical health. It is also central in the developing adolescent self-image.

In summary, the way a person views his or her body can be affected by a number of factors. A link has been found between body image and BMI in normal weight as well as higher weight people. This association has been found to be related to gender, with women being more dissatisfied with their bodies if they have an elevated BMI in some but not all studies. The way a person views his or her body is important as it can impact on overall quality of life. Negative effects of elevated BMI have been found as well as negative effects of body dissatisfaction.

### *1.3.2 Eating Attitudes and Body Image*

A number of studies have found an association between disturbed body image and women's attitudes toward eating (Makino, Hashizume, Yasushi, Tsuboi & Dennerstein, 2006; Spurgas, 2005). Dieting is a more common behaviour among women who report that the way they feel about their body is important to the way they feel about themselves in general (Davis & Cowles, 1991).

Body image and eating attitudes have been examined in individuals of differing ethnicity, socioeconomic status and cultural backgrounds (Lake et al., 2000; Mumford & Choudry, 2000; Spurgas, 2005). Self-report of body mass, body image satisfaction and eating attitudes has shown that elevated body mass is associated with greater dissatisfaction with one's body, which in turn was associated with a greater likelihood of disturbed eating attitudes (Mumford & Choudry, 2000). Mumford and Choudry (2000) used a small sample size including South Asian and Caucasian women.

Lake et al. (2000) conclude that Western culture can have an effect on women's perceptions of body shape. This is a reflection of what we have seen in the sociocultural perspective. Lake et al. (2000) found that Hong-Kong born women reported minimal body dissatisfaction compared to their Australian born counterparts. This study found that the Australian born participants did not have significantly different eating attitudes from Hong-Kong born women. Although there could be other explanations, this could show that the internalisation of the thin ideal did not affect the eating attitudes in this group but did effect body image dissatisfaction. This study did not assess BMI.

The difference in dissatisfaction in body image in Asian cultures compared with Western cultures is evident within eating disorders research. This is apparent in the observation that eating disorders among Asian women are not necessarily accompanied by the expected body image disturbance (Katzman & Lee, 1997) and therefore, the overreliance of fear of fatness as a diagnostic criterion may fail to recognise eating disorders in broader cultural settings (Patton & Szmukler, 1995).

Disturbance in eating attitudes has been seen in children as young as five and has been related to children's perception of parental pressure to eat and restriction of access to food (Carper, Fisher & Birch, 2000). Carper et al. (2000) found that up to one third of children as young as 5 years of age have reported dietary restraint and three quarters have reported disinhibited eating.

Body figure perceptions and eating attitudes in schoolchildren aged 8 to 12 years have been assessed and children's body image has been found to be related to their BMI (Rolland et al., 1997). Rolland et al. (1997) found that most higher weight children had tried to change their weight through changing their eating behaviour. The desire for thinness and the practice of weight control was found to be developing before adolescence for many children, more so among girls (Rolland et al., 1997). There is some debate over the validity of the eating attitudes measure that was used in this study, the ChEAT, on young children (Sasson, Lewin & Roth, 1995). High scores on the ChEAT gained by children in grades three and four have prompted questions about whether children in this age group understand what they are responding to on the questionnaire (Sasson et al. 1995).

To summarise, the internalisation of the thin ideal has exerted a large negative impact on women's perception of their body shape. That the association between BMI, eating attitudes and body image can be seen in young children, suggests that sociocultural pressures and pressures from parents can have a strong impact on children as well as adults and may be an enduring issue. The way an individual views his or her body affects attitudes towards eating and a relationship between body image and eating attitudes has been reported in both child and adult populations.

### *1.3.3 Eating Attitudes and Body Mass Index*

Most studies that assess the relationship between BMI and eating attitudes do so in the context of the link between body image and BMI. Several studies have found a direct link between BMI and eating attitudes.

Recent studies in both adolescent and college samples have explored the association between BMI and eating attitudes (Edman & Yates, 2004; Lynch, Eppers & Sherrodd, 2004). Elevated BMI has been strongly and positively associated with greater food preoccupation in a female adolescent sample which included Native American and Caucasian individuals. In another female adolescent sample a potential link was found between disordered eating attitudes and being overweight (Jones et al., 2001).

In contrast, in a Malaysian population, the link between BMI and eating attitudes was found to be through self-dissatisfaction, which was also referred to as self-loathing (Edman & Yates, 2004). Edman and Yates (2004) assessed self-dissatisfaction with the Self Loathing Sub-Scale (Yates, Edman, Crago, Crowell & Zimmerman, 1999). It was concluded that having low self-satisfaction was a better indicator of disordered

eating attitudes than actual physical size. The study examined a young adult sample with a mean age of 21.46 years, including two ethnic groups, Malay and Chinese.

In Vander Wal and Thomas's (2004) study of grade 4 and 5 girls, body image dissatisfaction predicted disturbed eating attitudes. A direct link was also found between eating attitudes and BMI as having a higher weight was linked to disturbed eating habits (Vander Wal & Thomas, 2004). Rolland et al. have also found children's attitudes to eating to be related to their BMI (Rolland et al., 1997). Thirty percent of girls with elevated BMI in Rolland et al.'s (1997) study had tried to lose weight through restricting their food intake. A large sample of student females across all BMI categories were found to experience a high drive for thinness (Kenny & Adams, 1994), suggesting that women's eating attitudes are influenced by a desire to be thinner.

In summary, elevated BMI has been found to be positively associated with disturbed eating attitudes such as preoccupation with food. Disturbed eating attitudes are also influenced by a desire to be thinner. The link between disturbed eating attitudes and elevated BMI has been seen in children as well as adults. One important link that has been found in contrast to the positive association of eating attitudes and BMI is the involvement of self-dissatisfaction in influencing eating attitudes as opposed to elevated BMI.

#### *1.3.4 Self-Esteem, Body Image, Body Mass Index and Eating Attitudes*

Body image measures have been found to significantly correlate with self-esteem for student women (Lowery et al., 2005). Self-esteem also has an effect on how women

view their bodies compared to other women's bodies (Jones & Buckingham, 2005). Low self-esteem has been found to predict increased vulnerability to body-image dissatisfaction in a student population (Markham et al., 2005) and a significant positive relationship between self-esteem and body image has been found (Frost & McKelvie, 2004).

Several studies have reported gender differences in the relationships of body image, self-esteem and eating attitudes. Body image has been reported to be significantly correlated with self-esteem for males but not for females (Davis & Cowles, 1991). Similarly, adolescent males' self-esteem has been shown to affect body image and dieting behaviour while for females only body image has been seen to be associated with dieting behaviours, not self-esteem (Friestad & Rise, 2004). This study used the Global Negative Evaluation Scale which is a one-dimensional scale and the authors comment that it may be interesting to see the results if a multidimensional scale for assessing self-esteem was used.

Disordered eating attitudes have been shown to be related to body image and to self-esteem. Eating attitudes and body image have been reported to be associated with lower levels of self-esteem in a student population (Ba• et al., 2004). The authors comment that the Eating Attitudes Test, which was used in this study, was initially developed for inpatients with anorexia nervosa and the items may have different meaning for the non-clinical participants used in this study.

Working to improve a person's self-esteem may improve body image and eating attitudes in young female and male adolescents (O'Dea & Abraham, 1999a). O'Dea



and Abraham (1999a) evaluated this finding when conducting an education based intervention that aimed to improve body image by building general self-esteem. This intervention was found to improve body satisfaction, physical appearance ratings and current weight losing behaviours.

Body Mass Index has been shown to be associated with eating attitudes and body image and a link has also been found between self-esteem and BMI in non-clinical populations. Self-esteem and BMI have been shown to be related in a longitudinal study with school age children (Hesketh et al., 2004). Body Mass Index was concluded to play an important causal role in the development of lower self-esteem experienced by many overweight and obese children. One limitation of the Hesketh et al.'s (2004) study was the reporting of self-esteem was from parental report not self-report. Parents may not perceive and therefore under report the true emotional impact of being over weight.

In contrast, several studies have found self-esteem to be unassociated with BMI. Body Mass Index has been found to not significantly predict self-esteem in clinically depressed African Americans (Palmer, 2003). It may be that younger African American females would be more influenced by Western culture and be more likely to show a significant relationship between self-esteem and BMI than this present sample that ranged in age from 17 years of age to 60 years of age (Palmer, 2003). The results of Palmer's (2003) study must be viewed in light of the fact that this study was conducted in depressed women and non-reflective of non-clinical populations. In a study in an eating disorder population it was found that among women who have an

eating disorder the influence of shape and weight on self-esteem was unrelated to actual shape and weight (Geller et al, 1998).

In summary, high self-esteem is important not just for how a person feels about themselves and whether they respect themselves but also their attitudes towards eating and the way they view their body. Some gender differences have been found in adolescent and child populations with males showing more effect of self-esteem on body image, but other adolescent studies have shown the effect of self-esteem on body image to be the same with females. BMI has been shown in non-clinical populations to be linked to self-esteem but this link has not been found so strongly in a clinically depressed population.

#### ***1.4 Summary***

Body image dissatisfaction has been associated with elevated BMI. This is especially so in females and the link is evident in women at the heavier end of the normal range as well as overweight individuals. It has been found that many ethnicities experience body image dissatisfaction in relation to BMI but there is little information from a New Zealand context.

Disturbed eating attitudes have been seen to be associated with body image dissatisfaction. Elevated BMI has been found to be associated with preoccupation with food and disordered eating attitudes. Self-esteem affects a person's attitudes to eating and their satisfaction with their body.

The negative impact these factors can have on individual's life has been shown to affect many areas of their life. Research on body image satisfaction has shown that dissatisfaction with body image can have an impact on an individual's quality of life including an individual's self esteem, interpersonal confidence, and eating and exercise behaviours. Eating attitudes have also been found to have negative impact on individual's lives. Finally, elevated BMI has been related to a variety of negative weight control methods such as onset or frequency of smoking and excessive dieting.

### *1.5 Present Study*

The relationships among body image, BMI, self-esteem and eating attitudes in women have been examined above. Most of this research has been conducted on predominately female, child, adolescent or college samples. This thesis sets out to examine the relationships among body image, BMI, self-esteem and eating attitudes in a non-clinical sample of adult women of varying ages and ethnicity, recruited from the community.

#### *1.5.1 Rationale for Present Study*

The information gained from this study will inform us of the relationships between body image, BMI, self-esteem and eating attitudes in a New Zealand sample, which has not been a population included in recent research. The main focus of this study will be how body image and self-esteem affect eating attitudes. This focus is because of the close relationship between disordered eating attitudes and other eating pathology.

Previous research has found the variables of interest in this study to be present in non-clinical populations. Although this previous research has found these variables to be related to each other, there have been some conflicting results. These include a non-significant relationship between BMI and self-esteem (Palmer, 2003) and a non-significant relationship between BMI and body image dissatisfaction (Bearman et al., 2006). This study will contribute to determining whether there are significant relationships between these latter variables and which relationships between these variables contribute to dissatisfaction with body image, elevated BMI, low self-esteem and disturbed eating attitudes in this population.

The relations between these variables are of interest because of the impact the internalisation of the thin ideal has been seen to have on Western women. Women living in the culture of this present sample are more likely to experience dissatisfaction with body image and disturbed eating attitudes. These disturbances in eating attitudes and body image can lead to eating pathology and a reduction in quality of life.

#### *1.5.2 Hypotheses for the Present Study*

This thesis sets out to explore the relationships between body image, BMI, self-esteem and eating attitudes and the moderating effects of body image and self-esteem. Figure 1 shows a schematic of the relationships between body image, BMI, self-esteem and eating attitudes which are examined in this study including the moderating effects of self-esteem and body image.

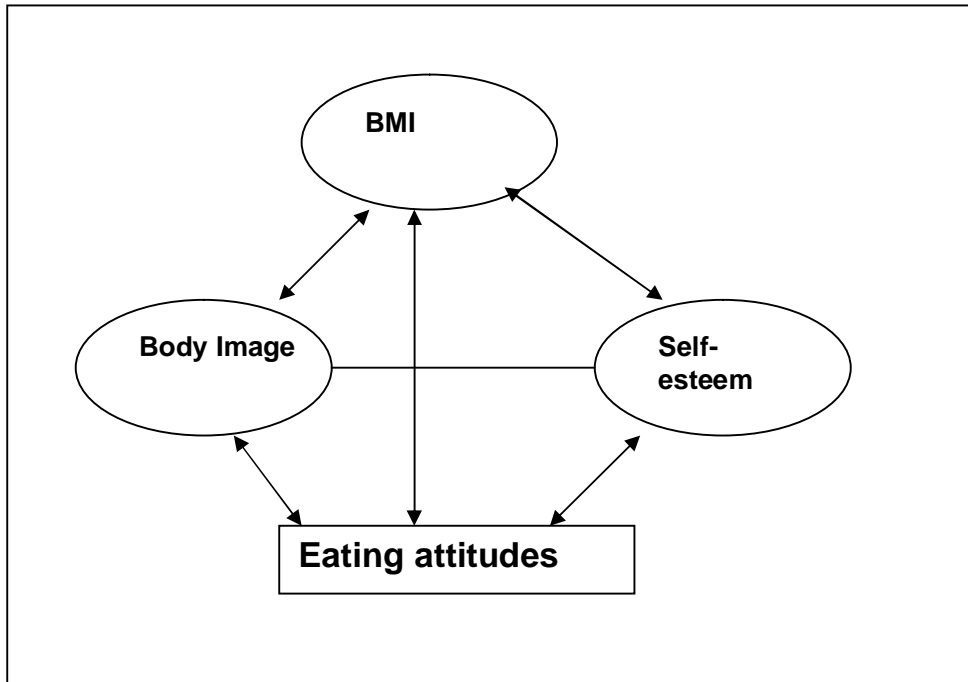


Figure 1: Schematic of the Study

### 1.6 Hypotheses

- *Hypothesis One:* Elevated Body Mass Index will be associated with higher dissatisfaction with body image.
- *Hypothesis Two:* Dissatisfaction with body image will have a negative effect on eating attitudes.
- *Hypothesis Three:* Elevated Body Mass Index and disturbed eating attitudes will be related.
- *Hypothesis Four:* Elevated Body Mass Index and low self-esteem will be related.
- *Hypothesis Five:* Disturbed eating attitudes and low self-esteem are related.
- *Hypothesis Six:* The effect of body image dissatisfaction on eating attitudes will be moderated by the level of self-esteem.

## **2. METHOD**

### ***2.1 Participants***

Inclusion criteria for the study were female gender, aged between 17 and 55 years with a BMI (kg/m<sup>2</sup>) above 17.5. Participants were recruited via posters displayed at the University of Canterbury and University of Otago, Christchurch, in public libraries, local buses and selected General Practices and advertisements in local newspapers. The mean age of the sample was 31.4 years with a standard deviation of 11.1.

Exclusion criteria included recent large weight loss or gain (6.2 kilograms or more within the last three months), major physical illness, past or present eating disorder, psychotic illness, or major developmental disorder, use of psychotropic medications including regular sleeping tablets or injectable insulin.

### ***2.2 Procedure***

All potential participants were screened by telephone initially (approximately five minutes) to explain the study and to ensure they met all inclusion and no exclusion criteria. An information pack was sent out to each participant containing the study's information sheet and consent form.

Participants then attended for a full day assessment at the Clinical Research Unit, Department of Psychological Medicine, University of Otago, Christchurch. Written informed consent to participate in the study was obtained. Participation in the study was voluntary, and participants understood that they could withdraw at any time. A

payment of NZ\$100 was offered in either shopping mall or petrol vouchers to compensate for their time.

During the morning the participants completed a neurobiological assessment and self-report questionnaires assessing self-esteem, current social and psychological functioning and eating behaviours and attitudes. Participants' weight and height were measured and BMI was calculated. Lunch was provided, after which participants completed a neuropsychological assessment and a structured clinical interview with one of the researchers. Data from the neurobiological and neuropsychological assessment are not part of this current thesis.

### ***2.3 My Role***

My role in this research project included the following tasks. Some of the tasks were conducted as a part of a wider study and included assessments that did not relate directly to the current thesis. First I created and distributed posters for recruitment. I contacted eligible participants to explain the study, schedule assessments and outline what they needed to do to prepare for the assessment which included fasting the night before and completing a food diary. I posted out information packs a week before the participants scheduled assessment. On the day of the assessment my role was to administer a neuropsychological battery along with a structured clinical interview as a part of the wider study. Following the assessment I entered data from the structured interview along with biological data and calculated the level of inter-rater reliability agreement. I carried out the statistical analyses of data pertaining to the research questions I proposed and wrote up the results.

## ***2.4 Ethical Approval***

Ethical approval for this study was granted by the Upper South A Regional Ethics Committee (see Appendix A).

## ***2.5 Measures Relevant to this Thesis***

### ***2.5.1 Assessment of Eating Attitudes***

*The Eating Disorders Examination (EDE) (Fairburn & Cooper, 1993):*

The EDE is a semi-structured interview for the assessment of specific eating disorders psychopathology. It is designed to assess the core attitudinal and behavioural features of individuals with eating disorders. The EDE has four sub-scales: restraint, eating concern, shape concern and weight concern. Items are rated on a 7 point Likert scale, with higher scores indicating greater psychopathology.

The EDE has been shown to have good levels of inter-rater reliability (.80 for all scales) and good content, construct and discriminative validity (Fairburn & Cooper, 1993). Rosen, Vara, Wendt and Leitenberg (1989) examined the validity of the EDE in a female student non-clinical population along with bulimia nervosa patients and restrained controls. They found the EDE had moderate concurrent validity with measures of dietary restraint and overeating for these populations. The EDE weight and shape concern subscales had good concurrent validity with other measures of the same construct including the Body Shape Questionnaire (Cooper et al., 1987) and body size distortion (Willmuth, Leitenberg, Rosen, Fondacaro & Gross, 1985) which is a body size estimation task in which the participants' distortion of different body types is determined.



Only the Eating Concern subscale of the EDE was used in the analyses for this present study as an assessment of eating attitudes. The Eating Concern subscale was used because it most closely assesses eating attitudes compared to the other subscales. The Eating Concern subscale assesses preoccupation with thoughts of eating, fear of losing control while eating, concern about eating in front of other people, secretive eating and guilt about eating.

### *2.5.2 Assessment of Body Image*

*Body Shape Questionnaire (BSQ) (Cooper, Taylor, Cooper & Fairburn, 1987):*

The BSQ is a 34-item self-report questionnaire assessing dissatisfaction with weight or shape and preoccupation with and distress about body shape. Participants rate items on a scale from 1 (never) to 6 (always) and higher scores reflect greater dissatisfaction. This scale was developed on clinical populations including patients with anorexia nervosa and bulimia nervosa as well as women without an eating disorder from a community sample (Cooper et al. 1987). The BSQ has been found to be a reliable and valid measure of body image as it has been shown to have good test-retest reliability (.88), concurrent validity with other measures of body image; including the Body Dysmorphic Disorder Examination (Rosen, Reiter & Orosan, 1995) and the Multidimensional Body-Self Relations Questionnaire (Brown, Cash & Mikulka, 1990), and criterion validity for clinical use (Rosen, Jones, Ramirez & Waxman, 1996).

### *2.5.3 Assessment of Self-Esteem*

#### *Rosenberg Self-Esteem Scale (RSE) (Rosenberg, 1965):*

The RSE is a ten item uni-dimensional self-report measure of global self-esteem using a Likert response format ranging from strongly agree to strongly disagree, with higher scores indicating higher self-esteem (Gray-Little, Williams & Hancock, 1997). The RSE has been shown to have high test-retest reliability .82 in a college sample (Gray-Little et al., 1997). The RSE has high test-retest reliability (.88) and low social desirability (.22) indicating honest reporting in a community sample (Robins et al. 2001).

### *2.5.4 Assessment of Body Mass Index (BMI)*

BMI is a measure of body mass and is calculated using a ratio of weight in kilograms/height in metres squared (kilograms/metres<sup>2</sup>).

## **2.6 Data Analyses**

Data were first entered into Paradox relational database and then imported into the Statistical Package for the Social Sciences (15.0) (SPSS, 2006). All data analyses were performed using SPSS. The analyses included descriptive statistics, correlations and multiple linear regression analyses. A *p* value of <0.05 was adopted for all analyses in the study.

Descriptive statistics were used to determine the characteristics of the sample such as age, ethnicity, employment, marital status and education. Data were examined using normal probability curves.

Pearson's product moment correlation coefficients and Spearman's rank order correlation coefficients were calculated to assess the relationship between measures of body image, BMI, self-esteem and eating attitudes. A Pearson product moment correlation was used for normally distributed data and Spearman's rank order correlations were used for non-normally distributed data.

Regression analyses were conducted to determine the amount of variance in eating attitudes self-esteem, body image, and BMI accounted for. In the regression models self-esteem, body image and BMI were entered as independent variables and their contribution to eating attitudes, the dependent variable, was examined.

A regression analysis was conducted to assess the moderating effect of self-esteem on the relationship between body image and eating attitudes. Specifically an interaction was calculated between self-esteem and body image and this interaction along with body image and self-esteem were then entered as independent variables with eating attitudes as the dependent variable to determine their contribution.

To explore the best predictor of eating attitudes an exploratory regression analysis was conducted with self-esteem, body image BMI and the hypothesised interaction of body image and self-esteem. These variables were entered as independent variables

with eating attitudes as the dependent variable to determine their contribution to eating attitudes.

### ***2.7 Reliability***

Inter-rater reliability of the structured interview (EDE) was assessed for 10% of the 25 interviews conducted by the author of this thesis. Every fifth interview was audio-taped and three of these interviews were co-rated by one of the senior investigators on the study. The total subscale scores from each rater for the three participants were compared to assess agreement. A statistical analysis could not be conducted owing to a limited sample size.

### **3. RESULTS**

#### ***3.1 Description of the Sample***

Participants were 36 women recruited from the Christchurch community in response to advertising posters that were distributed around the city. Table 1 shows demographic characteristics of the sample. Two thirds of the sample identified as New Zealand European, with smaller numbers identifying as Maori (8.3%), or other (25%, Canadian, German, British, French, Malaysian and European) (see Table 1). The mean age of the sample was 31.4 years (SD 11.1) and ranged from 17 years to 55 years of age. The majority of the sample had a university education with a mean of 15.6 years of education (SD 3.1). The sample consisted of mainly never married (55.6%) and married (41.7%) individuals with a small number identifying themselves as separated (2.7%). Over half were students (52.8%) and over one third were employed (38.9%). A small number were on an unemployment benefit (8.3%).

#### ***3.2 Distribution of Scores***

Data were examined for normality using the eating attitudes measure, the Eating Concern subscale of the EDE, was positively skewed with the majority of the participants reporting no pathology. A previous study has reported normal distributions for the EDE Eating Concern Subscale (Cooper, et al., 1989) indicating that the present sample had a particularly large number of participants with no eating pathology. Because of the non-normal distribution of the Eating Concern subscale, non-parametric analyses were used for correlational analyses using this scale. The Eating Concern subscale data was transformed for regression analyses. The self-esteem, BMI and body image measures were found to be normally distributed and parametric statistics were used.

*Table 1: Summary of Demographic Information*

<b>Demographic</b>	<b>Mean (SD) or %</b>
<b>Age</b>	31.4 (11.1)
<b>Ethnicity</b>	
<i>NZ European</i>	66.7% n=(24)
<i>Maori</i>	8.3% n=(3)
<i>Other</i>	25% n=(9)
<b>Education (Years)</b>	15.6 (3.1)
<b>Marital status</b>	
<i>Married*</i>	41.7% n=(15)
<i>Separated</i>	2.7% n= (1)
<i>Never married</i>	55.6% n= (20)
<b>Employment</b>	
<i>Unemployment benefit</i>	8.3% n= (3)
<i>Student</i>	52.8% n=(19)
<i>Employed</i>	38.9% n=(14)

*\*Married or living together for one or more years*

### ***3.3 Comparisons with Published Norms on Measures***

Table 2 presents the means, standard deviations and ranges for each EDE subscale; Restraint, Eating Concern, Shape Concern and Weight Concern, the RSE and BSQ.

In comparison with published norms for a non-clinical population (Cooper et al. 1989) the present sample's EDE Restraint and Eating Concern subscale scores are within one standard deviation of the published norms, with mean scores slightly lower

than the normed population scores. The Shape Concern and Weight Concern subscale scores are within one standard deviation of the Cooper et al. (1989) sample but slightly higher than the normed population scores.

Published norms of the RSE for United States of America, Canadian and New Zealand samples (Rusticus, Hubley & Zumbo, 2004) were all within one standard deviation but slightly higher than the mean RSE score found in this present sample.

The mean of the BSQ in the present sample was lower but within one standard deviation of non-clinical norms reported by Cooper et al. (1987).

*Table 2: Mean, Standard Deviation and Range of EDE Subscales, Rosenberg Self-Esteem Scale and Body Shape Questionnaire*

<b>Measure</b>	<b>Mean score (SD)</b>	<b>Range</b>
Restraint (EDE)	0.79 (1.15)	0-3.6
Eating Concern (EDE)	0.19 (0.40)	0-1.8
Shape Concern (EDE)	1.08 (1.17)	0-4.38
Weight Concern (EDE)	0.79 (0.81)	0-2.8
Rosenberg Self Esteem Scale	33.5 (4.87)	23-45
Body Shape Questionnaire	67.3 (20.4)	36-103

### ***3.4 Inter-Rater Agreement***

Inter-rater agreement was assessed by dual-rated interviews for three participants for the Restraint, Eating Concern, Shape Concern and Weight Concern subscales of the EDE. A statistical analysis of inter-rater agreement could not be calculated due to the small number of subjects. Table 3 presents each participant's subscale total scores of the EDE as rated by the two raters (Rater A and Rater B).

The inter-rater agreement for all four subscales was high. There was perfect agreement for the Eating Concern subscale. The Restraint and Shape Concern subscales had with perfect agreement for all but one participant. The final subscale, Weight Concern had agreement for one participant and near agreement for the other two participants.

*Table 3: EDE Subscale Scores for Two Raters for Three Participants*

<b>Subscale (EDE)</b>	<b>Participant One Rater A</b>	<b>Participant One Rater B</b>	<b>Participant Two Rater A</b>	<b>Participant Two Rater B</b>	<b>Participant Three Rater A</b>	<b>Participant Three Rater B</b>
Restraint	0.0	0.0	0.0	1.2	0.0	0.0
Eating Concern	0.0	0.0	0.0	0.0	0.0	0.0
Shape Concern	0.0	0.0	0.0	0.0	.13	.25
Weight Concern	1.2	1.4	0.0	0.0	0.2	0.4

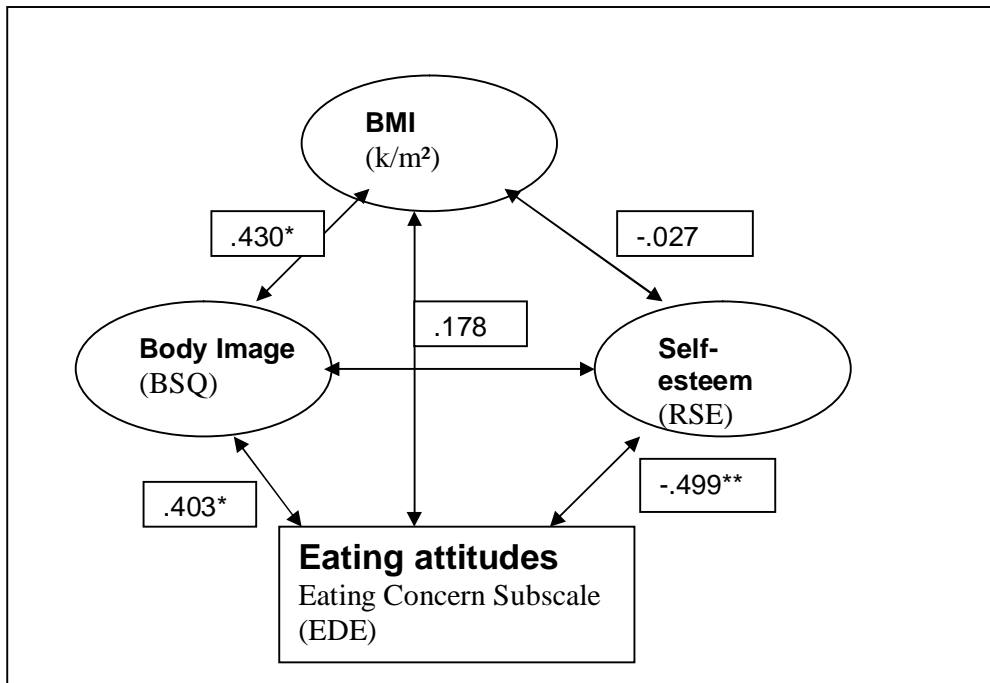
### *3.5 Correlational Analyses to Examine Hypotheses One to Five*

Pearson-product moment correlations were calculated to examine the association between the variables, BMI and body image dissatisfaction as measured by the BSQ because these measures had a normal distribution. Spearman rank order correlations were calculated to examine the association between the BSQ, BMI and the EDE Eating Concern Subscale as the Eating Concern subscale was not normally distributed. The results of these correlations are shown in Figure 2.

The results show that elevated BMI is associated with greater dissatisfaction with body image ( $r = .430, p = .013$ ), and greater dissatisfaction in body image is positively correlated with disturbed eating attitudes ( $r = .403, p = .020$ ). Lower self-esteem is



negatively correlated with disturbed eating attitudes ( $r = .499, p = .003$ ). The associations between BMI and eating attitudes and BMI and self-esteem were not found to be significant.



\* $p < .05$ , \*\*  $p < .01$

Figure 2: Correlations among BMI, Body Image, Self-Esteem and Eating Attitudes

*Hypothesis One: Elevated Body Mass Index will be associated with higher dissatisfaction with body image.*

The results of the correlation analysis support Hypothesis One as a significant positive correlation was found between elevated BMI and body image dissatisfaction.

*Hypothesis Two: Dissatisfaction with body image will have a negative effect on eating attitudes.*

Hypothesis Two was supported by this analysis, as a significant positive correlation was found between dissatisfaction with body image and disturbed eating attitudes.

*Hypothesis Three: Elevated Body Mass Index and disturbed eating attitudes will be related.*

The results of this correlation analysis did not support Hypothesis Three as no significant correlation was found between high BMI and disturbed eating attitudes.

*Hypothesis Four: Elevated Body Mass Index and low self-esteem will be related.*

Hypothesis Four was not supported in this present study as no significant correlation was found between BMI and self-esteem.

*Hypothesis Five: Disturbed eating attitudes and low self-esteem are related.*

Hypothesis Five was supported as a significant negative correlation was found between eating attitudes and self-esteem.

### ***3.6 Regression Analyses to Examine Hypothesis Six***

An initial enter regression analysis was fitted to assess how much variance in eating attitudes was accounted for by each of the independent variables; BMI, body image and self-esteem. BMI, body image and self-esteem were specified as independent variables in an enter regression model with eating attitudes as the dependent variable. The results are shown in Table 4.

*Table 4: Enter Regression Model Examining the Relation of Body Image, Self-Esteem and BMI to Eating Attitudes*

	<b>Variables entered</b>	<b><i>p</i></b>	<b>•</b>
Model One	BMI (k/m <sup>2</sup> )	.034	.355
<i>R</i> <sup>2</sup> = .126, Adjusted <i>R</i> <sup>2</sup> = .100			
Model Two	Body image (BSQ)	.016	.403
<i>R</i> <sup>2</sup> = .162, Adjusted <i>R</i> <sup>2</sup> = .137			
Model Three	Self-esteem (RSE)	.009	-.449
<i>R</i> <sup>2</sup> = .202, Adjusted <i>R</i> <sup>2</sup> = .176			

Model One shows the variance in eating attitudes accounted for by BMI alone and Model Two shows the variance in eating attitudes accounted for by body image. Model Three shows the variance in eating attitudes accounted for by self-esteem alone.

Table 4 shows that BMI alone was found to make a significant contribution to eating attitudes accounting for 10% of the variance in eating attitudes ( $p = .034$ ). Body image also made a significant contribution to eating attitudes ( $p = .016$ ) accounting for 13.7% of variance in eating attitudes. Finally, self-esteem was found to make a significant contribution to eating attitudes accounting for 17.6% of the variance in eating attitudes ( $p = .009$ ). Self-esteem ( $\bullet = -.449$ ) was found to be account for more variance in eating attitudes than body image ( $\bullet = .403$ ). BMI was seen to make the least contribution to eating attitudes ( $\bullet = .355$ ).

A positive relationship was seen between BMI and eating attitudes showing that higher BMI is associated with increasing disturbance in eating attitudes. A positive relationship was also found between body image and eating attitudes which indicated

that as body image dissatisfaction increased so did disturbance in eating attitudes. A negative relationship was found between self-esteem and eating attitudes showing that lower self-esteem was associated with increasing disturbance with eating attitudes.

*Hypothesis Six: The effect of body image dissatisfaction on eating attitudes will be moderated by the level of self-esteem.*

To examine Hypothesis Six, body image, self-esteem and the interaction between body image and self-esteem were specified as independent variables in a stepwise multiple regression model with eating attitudes as the dependent variable. In the final regression model self-esteem remained as the single independent predictor. Body image and the interaction between body image and self-esteem did not remain in the model as they were not making a significant contribution to eating attitudes. The results are presented in Table 5.

*Table 5: Final Stepwise Regression Model Examining the Relation of Body Image, Self-Esteem and the Interaction of Body Image and Self-Esteem to Eating Attitudes*

	<b>Variables entered</b>	<b><i>p</i></b>	<b>•</b>
Final Model	Self-esteem (RSE)	.009	-.453

*R<sup>2</sup>= .206, Adjusted R<sup>2</sup>= .179*

*Notes: Variables were entered into the model at *p* • .05.*

Table 5 shows that Self-esteem was found to be the only significant predictor of eating attitudes and accounted for 17.9% of variance in eating attitudes (*p* = .009). A negative relationship was found with lower self-esteem associated with increasing disturbed eating attitudes.

This regression analysis did not support Hypothesis Six as the interaction between body image and self-esteem did not make a significant contribution to eating attitudes. This model did show us that self-esteem was the only significant predictor of eating attitudes.

### 3.6.1 Best predictor of eating attitudes: Exploratory Analysis

A regression analysis was conducted to explore the best predictors of eating attitudes. The independent variables; body image, self-esteem, BMI and the hypothesised interaction between body image and self-esteem were entered into a stepwise multiple regression model with eating attitudes as the dependent variable. Body image and the interaction between body image and self-esteem did not remain in the model as they did not make a significant contribution to eating attitudes. The results are shown in Table 6.

*Table 6: Final Stepwise Regression Model Examining the Relation of Body Image, Self-Esteem, BMI and the Interaction of Body Image and Self-Esteem to Eating Attitudes*

	<b>Variables entered</b>	<b><i>p</i></b>	<b><math>\beta</math></b>
Final Model	Self-esteem (RSE)	.028	-.448
	BMI (k/m <sup>2</sup> )		-.353
<i>R<sup>2</sup>=.330, Adjusted R<sup>2</sup>= .284</i>			

*Notes: Variables were entered into the model at  $p < .05$ .*

Table 6 shows the contribution of self-esteem and BMI to eating attitudes. In the final model BMI and self-esteem were found to be the only significant predictors of eating attitudes and accounted for 28.4% of the variance in eating attitudes ( $p = .028$ ). This model shows that self-esteem ( $\beta = -.448$ ) accounted for more variance in eating

attitudes than BMI ( $r = -.353$ ). A negative relationship was found with lower self-esteem and BMI associated with increased disturbed eating attitudes.

## 4. DISCUSSION

### *4.1 Findings*

The present study explored the relation between body image, BMI, self-esteem to eating attitudes in a non-clinical population of New Zealand women. The results of this study support three of the six hypotheses proposed.

Elevated BMI was shown to be associated with higher dissatisfaction with body image. This supports Hypothesis One that elevated Body Mass Index will be associated with higher dissatisfaction with body image. This indicates that when a person's BMI is elevated they are likely to have more dissatisfaction with their body image. A positive relationship was found between body image and eating attitudes which supports Hypothesis Two that postulates that dissatisfaction with body image will have a negative effect on eating attitudes and shows that higher body image dissatisfaction is associated with higher disturbed eating attitudes.

Hypotheses Three and Four, that elevated Body Mass Index and disturbed eating attitudes will be related and that elevated Body Mass Index and low self-esteem will be related, were not supported by this study as no significant correlation was found. Hypothesis Five, disturbed eating attitudes and low self-esteem are related, was confirmed as a significant negative correlation was found between self-esteem and eating attitudes indicating that low self-esteem is related to disturbed eating attitudes.

The regression analyses revealed that BMI alone made a significant contribution to eating attitudes as well as body image, and self-esteem alone. Self-esteem was found to make the largest contribution to variance in eating attitudes. An exploratory analysis revealed that self-esteem and BMI together made a significant contribution to variance in eating attitudes.

The sixth hypothesis, the effect of body image dissatisfaction on eating attitudes will be moderated by the level of self-esteem, was not confirmed in the regression analyses as the interaction between self-esteem and body image was not shown to be a significant predictor of eating attitudes. This analysis did find that self-esteem was a significant predictor of eating attitudes.

#### ***4.2 Comparisons to Other Research***

The results of this study are consistent with research focussing on body image, BMI, self-esteem and eating attitudes. The results of this present study are in line with the majority of research on body image (Burger & Doiny, 2002; McCabe & Ricciardelli, 2003; Paxton et al., 2006; Wilson et al., 2005; Yates et al. 2004). These researchers have all found that dissatisfaction with body image is associated with elevated BMI.

This consistent result with other studies may be attributable to the fact that populations that were similar to the present sample were used in these studies. All but two studies used a college population (Burger & Doiny, 2002; Wilson et al., 2005; Yates et al. 2004) which is similar to this sample as the majority of the participants in the present study were university educated. The other two studies used child and



adolescent populations (McCabe & Ricciardelli, 2003; Paxton et al., 2006) but we have seen that dissatisfaction in body image is seen in children as well as adults. These samples also included participants of similar ethnicity to those included in this sample as the majority of participants in the studies were Caucasian, as was true for this sample.

The measures used in each study for the assessment of body image differed but BMI was assessed in the same way for all cited studies as well as this present study. The use of different measures for the assessment of body image did not lead to different results, showing that the specific measure is not important so long as it is psychometrically sound.

The results are in contrast, however, to results found in other research where BMI was not found to predict body image dissatisfaction (Bearman et al., 2006). This conflicting result may be attributable to the fact that this Bearman et al. (2006) used a body image dissatisfaction measure that had been modified in order to include items that were relevant for both males and females. It is possible that this may have introduced some measurement artefact.

Consistent results were found with current research focussing on eating attitudes and body image (Makino et al., 2006; Mumford & Choudry, 2000; Spurgas, 2005). Such researchers have found a positive relationship between these variables. This consistency is interesting when comparing it to the study conducted by Makino et al., (2006). Makino et al.'s (2006) study was conducted with a different sample from the present study as it involved Japanese women living in Tokyo. This could be a

reflection of the influence Westernisation is having in Japan and may be an indication of the Western thin ideal translating into this culture.

Mumford & Choudry's (2000) and Spurgas's (2005) studies were conducted with similar women but had more varying ethnicities than this present study. The consistent result between these studies and the present study may be a reflection of the wider culture rather than the ethnicity of the individual.

In contrast to the results of this present study, elevated BMI has been strongly and positively associated with disturbed eating attitudes in previous research (Jones et al., 2001; Lynch et al., 2004). This significant result, that is in contrast to the present study's non-significant result, may be attributable to the fact that these studies have used much larger sample sizes. Jones et al. (2001) used a large sample size of nearly 2500 participants and Lynch et al. (2004) also used a large sample size of 2000 participants. This may have contributed to the statistical power of their study and increased the likelihood of getting a significant result.

The findings of this present study were a reflection of the finding by Edman & Yates (2004) that in an adult sample, physical size was not the best indicator of disturbed eating attitudes. This may also be to do with sample size as Edman and Yates's (2004) study included 267 participants which is a much smaller sample size than Jones et al. (2001) & Lynch et al. (2004) used. Edman and Yates's (2004) and this present study's smaller sample size may have decreased the likelihood of gaining a significant result.

The non-significant result of the relationship between BMI and self-esteem is in line with the majority of previous research. Body Mass Index has been shown to not be a significant predicting factor in self-esteem (Geller et al., 1998; Palmer, 2003).

It is interesting that a consistent result was found between this present study and Geller et al. (1998) and Palmer's (2003) findings. These two studies used clinical populations including a clinically depressed population (Palmer, 2003) and an eating disorder group and psychiatric group (Geller et al., 1998). The fact that the present study found consistent results shows the similarities between these variables in both clinical and non-clinical populations.

There is contrasting research to this, however, in the finding that self-esteem and BMI are related in school age children (Hesketh et al., 2004). This may be a reflection of the child sample that was used in Hesketh et al.'s (2004) study. The effect of BMI on self-esteem may not have the same impact on children as it does on adults.

The previous research has also focussed on self-esteem in relation to other variables. Self-esteem and its relationship to body image (Lowery et al., 2005) and eating attitudes (Ba• et al., 2004) have been examined and a positive association has been found. However, the moderating effect of self-esteem on body image in relation to eating attitudes examined in this study has not been addressed in the research.

The relationship between self-esteem and eating attitudes as found by Ba• et al. (2004) is a reflection of the result found in the present study, that low self-esteem and disturbed eating attitudes are related. The similar result may be a reflection of the fact

that Ba• et al.'s (2004) study used a similar college educated population and used the same measure of self-esteem, the Rosenberg Self-Esteem Scale.

### *4.3 Psychological Theories*

The sociocultural perspective is an approach to understanding human behaviour that focuses on how cultural values influence individual values and behaviour (Jackson, 2002). This perspective encompasses a variety of theoretical approaches that share the premise that cultural values are important in understanding how individuals are perceived by others and how they perceive themselves (Jackson, 2002). If a culture values attractiveness, then individuals in that culture will value attractiveness in themselves and in others.

Stice (1994) has outlined how society, including family, peers and mass media, causes pressure to conform to a thin ideal and subsequent internalisation of this thin ideal. These internalised pressures have been seen to adversely affect eating attitudes and to produce dissatisfaction with body image in women but if women do not subscribe to these attitudes then it is not as likely that the societal pressures will affect their eating attitudes (Stice, 1994). Cafri, Yamamiya, Brannick and Thompson (2005) explain that it is not just being aware of a thin ideal that is important but it is incorporating such a standard into how a person thinks he or she should look.

The sociocultural model emphasises that the current societal standard for thinness in women is often out of reach for the average woman and as the average woman has become larger over recent years the ideal has become progressively thinner (Weisman et al., 1992). As the image of beauty that is promoted changes, women in Western

societies show increasing evidence of dissatisfaction with their bodies and a pressure to conform to this ideal (Miller & Pumariega, 2001).

Sociocultural models of eating disorders have emphasised Western culture's female beauty ideal of extreme thinness as a specific risk factor for the development of an eating disorder (Striegel-Moore & Bulik, 2007). This influence is through three steps. First is the exposure to the thin ideal, second is the internalisation of the ideal and third the experience of a discrepancy between the self and ideal. This in turn leads to body dissatisfaction and disturbed eating attitudes and behaviours such as dietary restraint and restriction (Striegel-Moore & Bulik, 2007).

It is not only women who have eating disorders that have been negatively affected by sociocultural pressures. The societal preference to be thin has created a corresponding societal preoccupation with dieting and weight loss and society's current preference for slimness has affected eating behaviour and attitudes towards food (Polivy & Herman, 1987). Eating disordered patients and weight preoccupied dieters do share some pathological behaviours such as a serious dissatisfaction with one's body and intense concern with dieting, weight and thinness which characterise eating disorders (Polivy & Herman, 1987).

The results of this study can also be viewed in relation to sociocultural theories such as the role Western culture plays on body image, eating behaviours and attitudes as has been discussed by Stice (1994). Even in women from a non-clinical population, these variables interact. Even in the absence of measurable psychopathology and overt eating disorders, eating attitudes are influenced by body image dissatisfaction, and

low self-esteem. And this relationship possibly holds even in the absence of elevated BMI.

This study was conducted in a New Zealand population and the majority of the participants were New Zealand European. It is interesting then to note then, that the measures of eating pathology and body image satisfaction completed by this sample were within a standard deviation of norms found in other Western populations. This could mean that non-clinical New Zealand women are affected by the same sociocultural ideals as women from other Western countries.

#### ***4.4 Strengths and Limitations***

##### *4.4.1 Strengths*

A number of the first women that were recruited for this study had low BMI's, ate healthily and were comfortable with their bodies. Subsequent advertisements aimed to recruit women with higher BMI's and more dissatisfaction with their body image. This later advertising contributed to a sample that consisted of women who had normally distributed BMI's and were within a standard deviation of normative data for body image, self-esteem and eating attitude disturbance and were more representative of the population as a whole.

A methodological strength of this study was the use of reliable and valid psychometric instruments. One measure in particular was the EDE. This measure has been found to be a consistently reliable measure and is clinician rated. Being clinician rated means that the participant can clarify the meaning of questions. The self-report measures of self-esteem and body image also have strong psychometric properties.

The use of these measures strengthens the conclusions made from these results because the information gained from the measures is likely to be directly measuring the construct of interest.

The participants were recruited from the Christchurch community and the majority identified themselves as New Zealand European (66.7%), with Maori totalling 8.3%. Data on the ethnic breakdown of Christchurch (Statistics New Zealand Census, 2006) show that the majority of Christchurch residents are New Zealand European (75%) and Maori number 8%. This sample consisted of a similar ethnic breakdown to the actual Christchurch population and shows that ethnically, this sample is representative.

#### *4.4.2 Limitations*

Despite the strengths of this study some limitations need to be noted. The first limitation of the present study was the small sample size. A larger sample would give more power to the associations found between the variables. Some of the non-significant results may have reached significance if a larger sample size had been used. The small sample size also limited some analyses we could conduct such as being unable to conduct a statistical analysis of the inter-rater reliability. Increased numbers would have also made it possible to separate high and low BMI from which more conclusions could have been made about the effects of the respective BMI levels.

The small sample size also meant that the conclusions made from the regression analyses need to be viewed with caution. Thus the regression analyses to examine

Hypothesis Six, the effect of body image dissatisfaction on eating attitudes will be moderated by the level of self-esteem must be seen as exploratory.

Second, the sample consisted of a majority of participants that had completed a university education with the average years of education being 15.6 years. This means that the population is more representative of university educated individuals than women from the general community and limits the generalisability of the results. Women from college samples have been found to be much more likely to engage in unhealthy weight loss behaviours than women from groups with less education (Frank, Serdula & Adame, 1991). Higher socioeconomic groups are also the most likely to be dieting (French & Jeffery, 1994) and a proportion of these dieters engage in unhealthy eating behaviours.

Third, the conclusions that are based on correlation analyses need to be viewed with some caution. A relationship between these variables can be determined but this does not provide information on the causal mechanisms.

The fourth limitation is the lack of a quality of life measure. It has been seen in past research that dissatisfaction with body image, elevated BMI, low self-esteem and disturbed eating attitudes can have an effect on a woman's quality of life. A measure of quality of life would have added to the results as a direct relationship between what the women in the present sample experience in body image, BMI, self-esteem and eating attitudes could be related to their quality of life.



#### ***4.5 Future Research***

There were several limitations in this present study that could be addressed in future research. Firstly, the study could benefit from replication with a larger sample. This would add to the generalisability of the results and to the conclusions that could be made from regression analyses. It would also be of use to replicate the regression analyses with a large enough sample to confirm the results found in this study. It may also be beneficial to recruit the sample from different regions of the country to examine whether the results could be generalised to other settings and to New Zealanders as a whole.

Further replication of this study would also benefit from examining these measures longitudinally. This would add knowledge by determining whether body image, self-esteem and eating attitudes change over a women's adult life. Further research could also look at a comparison group as well. It would be interesting to see if the outcomes of these measures were different in different populations, for example men versus women or children versus adults. A comparison could also be done with a sample of younger women.

#### ***4.6 Implications of the Present Study***

This research has shown us that dissatisfaction with body image, elevated BMI, low self-esteem and disturbed eating attitudes are related. This knowledge could have implications for mental health professionals as it has been seen that if a person has body image dissatisfaction it is possible that they will have disturbed eating attitudes, if a person has an elevated BMI they could have dissatisfaction with body image and if a person has low self-esteem or elevated BMI they may have disturbed eating

attitudes. This would be important for being aware of related problems other than the problem the individual presents with.

It is also clear that body image dissatisfaction and disturbance in eating attitudes can be associated with eating pathology. A person presenting with body image dissatisfaction and disturbance in eating attitudes may be internalising the societal pressures to be thin which have been found to be associated with, and to lead to eating pathology. It is important for clinicians to be aware that if a person presents with these issues then an assessment for an eating disorder may be warranted.

It is important to be aware that a person that has body image dissatisfaction, elevated BMI, low self-esteem or disturbed eating attitudes may also have associated negative consequences. Past research has shown us a negative impact of having body image dissatisfaction, elevated BMI, low self-esteem and disturbed eating attitudes. Negative effects of body image dissatisfaction include; elevated anxiety, depression, and somatisation as well as decreased social functioning, peer relationships and self-satisfaction. Negative effects of elevated BMI include physical illness, psychological illness (such as eating disorders) and social stigma. Negative effects of low self-esteem include depression and neuroticism, lower independence, low frustration tolerance and lower self-satisfaction. Finally, disturbed eating attitudes are associated with eating disorders and fear of negative evaluation.

#### ***4.7 Conclusion***

The effect of sociocultural pressures to be thin and its subsequent negative effects on eating pathology and quality of life means there is a need to understand the psychological processes that underpin the development of these issues. The present study has contributed to knowledge of the relations between body image, BMI, self-esteem and eating attitudes in a community based sample of women of varying ages. This present study found that women's attitudes to eating are influenced by their level of satisfaction with their body image and their level of self-esteem and in turn the women's satisfaction with their body is influenced by their BMI. High BMI was found to *not* be related to either eating attitudes or self-esteem. The impact of body image on women's eating attitudes was found not to be moderated by their level of self-esteem. Self-esteem, body image and BMI were found to make a significant contribution to eating attitudes on their own. Self-esteem and BMI together were also found to make significant contributions to eating attitudes. This study underlines the importance of being aware of the relations between body image, BMI, self-esteem and eating attitudes and the potential for sociocultural influences to adversely affect non-clinical as well as clinical populations.

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## **APPENDIX A**

- **Consent Form**
- **Consent Form for Audio-Recording**
- **Information Sheet**
- **Ethics Approval**



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### Eating and Wellbeing Study

You are invited to take part in a study of eating and wellbeing being conducted by Virginia McIntosh, Janet Carter, Jenny Jordan, Andrea Bartram, Sarah Rowe, Caroline Bray, Chloe Hudson, Ruchika Talwar and Peter Joyce. The purpose of this study is to learn more about the differences between healthy women and those with binge eating problems in their levels of hormones related to appetite and satiety, cognitive, psychological and personality functioning.

I have read and I understand the information sheet dated 4 January 2006 for those taking part in this study.

I have been given the opportunity to discuss this study. I am satisfied with the answers I have been given.

I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time.

I understand that my participation in this study is confidential and that no material that could identify me will be used in any report on this study.

I understand the compensation provisions for this study.

I have had time to consider whether to take part.

I know whom to contact if I have any questions about this study.

I consent to the researchers storing a specimen of my blood (or other tissue) for its later use as a part of this study or other research approved by the Regional Ethics Committee..... YES/NO

I consent to any remaining samples being disposed of using standard disposal methods at the end of the study..... YES/NO

I consent to being recontacted regarding the use of my stored blood for any additional study..... YES/NO

I wish to have any remaining samples disposed of with appropriate karakia at the end of the study..... YES/NO

I wish to receive a copy of the results of this study..... YES/NO

I understand there will be a significant delay between the information I provide and receiving the results.

I agree to my GP being informed of my participation in this study..... YES/NO

GP's name \_\_\_\_\_

Address \_\_\_\_\_

I would be willing to be contacted to discuss participation in future research in this are..... YES/NO

I \_\_\_\_\_ (print full name) hereby consent to take part in this study.

Date: \_\_\_\_\_ Phone number: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature of witness: \_\_\_\_\_

Project explained by: \_\_\_\_\_ Role: \_\_\_\_\_

Consent Form for Audio-Recording Assessments for the Eating and Well Being Study

The research investigators for the Eating and Wellbeing study would like to audio-record the diagnostic interview part of this assessment. The purpose of this is to assess the reliability of the interviewer. The tape will be viewed by the interviewer's supervisors with the purpose of assessing the interviewer's performance and will not be viewed to analyse your responses. The tape will be destroyed after reliability has been established.

- I consent to being audio taped for the purpose of assessing the reliability of the interviewer's ratings\_\_\_\_\_ Yes/No
- I understand that it will only be listened to by Chloe Hudson, Ruchika Talwar and the study supervisors Janet Carter, Jennifer Jordan or Virginia McIntosh\_\_\_\_\_ Yes/No
- I understand that the tape will be destroyed after reliability has been established\_\_\_\_ Yes/No

Signed: \_\_\_\_\_ Date \_\_\_\_\_

Witnessed by: \_\_\_\_\_ Date \_\_\_\_\_

(Print name)

\_\_\_\_\_  
(Sign)

# The Christchurch School of Medicine & Health Sciences

DEPARTMENT OF PSYCHOLOGICAL MEDICINE

**Telephone** (03) 372 0400

**Fax** (03) 372 0407

Clinical Research Unit  
Terrace House  
4 Oxford Tce  
Christchurch

## **Eating and Wellbeing Study**

### **Information Sheet**

#### **Introduction**

You are invited to take part in a study of eating and wellbeing being conducted by Virginia McIntosh, Jenny Jordan, Janet Carter, Andrea Bartram, Sarah Rowe, Helen Kleindienst, Peter Joyce, Chloe Hudson and Ruchika Talwar. The major focus of the Eating and Wellbeing Study is to investigate nutritional, endocrine, cognitive and psychological functioning in healthy women volunteers. This study is a companion study to the Binge Eating Psychotherapy Study which is a therapy trial designed to compare the effectiveness of three psychotherapies (talking therapies) for binge eating problems or bulimia nervosa.

You will be part of a group of healthy adult women who will carry out a series of similar assessments to the women with binge eating problems who are participating in the Binge Eating Psychotherapy Study. We will be comparing the results of the two groups' blood samples (particularly levels of hormones related to nutritional status), cognitive task results, self-report questionnaires and interview information.

#### **More about this study**

What are the aims of this study? The purpose of this study is to learn more about the similarities and differences between women with and without binge eating problems. A binge is eating a large amount of food in a short time and feeling out of control while doing so. In particular we will compare hormones levels (including insulin, glucagon, cholecystokinin, leptin and ghrelin) that are potentially related to the regulation of appetite and satiety, as well as cognitive, psychological and personality functioning. Some of these hormones are measured from a small sample of stored blood. With your permission, we may contact you regarding the use of this stored blood sample for additional future study.

Who can participate in this study? Any adult woman (over 16 years old) with no history of binge eating disorder, bulimia nervosa or anorexia nervosa who is medically well and above a body mass index (weight (kgs)/height (m)<sup>2</sup>) of 17.5 (i.e. not severely underweight) may participate in this study. If you are on certain medications you may not be able to take part.

How many participants will be involved? We hope to study 50 women who do not have binge eating problems and around 200 with binge eating disorders.

Where will the study be held? This study will be held in the Clinical Research Unit, Terrace House, near Christchurch Hospital, Cnr. Antigua Street & Oxford Terrace. The Clinical Research Unit is jointly funded by the Canterbury District Health Board (CDHB) and the University of Otago's Christchurch School of Medicine and Health Sciences.

What is the time span for the study? The assessments for this study will occur between 8.30 and 5.00pm on a single day.

What will happen during the study?

If you are interested in taking part in this study a Research Assistant will first ask you some screening questions over the telephone to see if you are eligible to take part, and to give you detailed information about the study. If you are eligible to take part in the study and you wish to do so, the researcher will obtain your written consent to participate in the study. After you have given consent to participate we will ask you to do some self-monitoring and organize the assessment day with you. These are explained in more detail below:

1) Self-monitoring task. We will ask you to record your eating for three days prior to the assessment day.

2) Assessment day (8.30am-5.00pm)

a) Neuroendocrine assessment. The neuroendocrine assessment examines aspects of your body's hormones (including insulin, glucagon, cholecystokinin, leptin and ghrelin) that are potentially related to the regulation of appetite and satiety. This assessment will involve coming to the clinical research unit at Terrace House at 8.30am, without having eaten breakfast. During this assessment we will take a series of blood samples while you will be resting comfortably with a needle inserted in a vein. After the first blood samples you will be given a glucose drink, to be drunk within a 5 minute period. We are also interested in your report of hunger, fullness, mood over this time and will ask you to complete self-report questionnaires about eating attitudes, current relationships, and aspects of your childhood and personality during this time. We will be taking about half as much blood as if you have had donated blood and your body will replace this very quickly. The blood sampling will finish at 12.30pm

b) Lunch break. There will be a half an hour lunch break (we will provide a light lunch).

c) Cognitive tasks. We will then ask you to do some cognitive tasks (planning, thinking and memory) on the computer. Most of these will involve trying to remember various patterns that have been shown to you on a computer screen, or finding where certain patterns are hidden on the screen. Other tasks will involve listening to information that is read to you, then recalling it after a time delay. The tasks take approximately 90 minutes - 2 hours.

e) Interview. Following a short break, you will be asked some questions regarding demographic information and the presence or absence of psychiatric disorders (This takes approximately 90 minutes).

Will my GP know I am in the study? If you would like your blood test results sent to your GP we will forward this on

## **Risks and Benefits**

What are the risks of participation?

Blood tests can sometimes cause minor discomfort and bruising around the area where the needle is inserted.

What are the benefits of participation?

We hope that this study will increase our understanding of the relationship between binge eating and different levels of nutrition-related hormones, and the relationship of these factors to cognitive function, personality and general psychological functioning in women with binge eating disorders and those with no eating disorders.

Reimbursement for time and expenses



In view of the time commitment involved in the assessments (approximately 7.5 hours in total for the baseline assessments, as well as the time taken to do the self-monitoring), we will also offer a payment of \$100.00. If you are in receipt of a benefit from Work and Income New Zealand, this payment may result in a reduction of your benefit payment. You should contact Work and Income New Zealand to clarify whether your benefit will be affected by receiving payment for your participation in this research before you consent to participate. If you prefer, we can offer a \$100.00 gift voucher for Westfield Mall.

### **Participation**

- Your participation in this study is entirely voluntary (your choice).
- You do not have to answer all questions and you may stop an interview or assessment at any time.
- If you agree to take part, you are free to withdraw from this study at any time, for any reason.
- You may bring a friend, family or whanau support to hear about the study, including the risk and/or benefits and any other explanations you require.

### **Disposal of blood samples**

After the study is concluded, blood samples will be disposed of. There are two methods of disposal and participants may choose to have their remaining samples disposed of using standard disposal methods (disposal in accordance with NZS 4304:2002 'Healthcare Waste Management') or if preferred, disposed of with appropriate karakia, at the end of the study.

### **Confidentiality**

We will take all precautions to maintain confidentiality. All forms and computer files will be marked with numbers only, not names. No material that could personally identify you will be used in any reports based on this study. The data from this study will be available only to the study investigators. All data will be stored in secure areas.

### **Results**

How can I obtain results of this research? When this study is over, you may have a summary of the key results. Detailed results will be published in international scientific journals.

### **Compensation**

In the unlikely event of a physical injury as a result of your participation in this study, you may be covered by ACC under the Injury Prevention, Rehabilitation and Compensation Act. ACC cover is not automatic and your case will need to be assessed by ACC according to the provisions of the 2002 Injury Prevention Rehabilitation and Compensation Act. If your claim is accepted by ACC, you still might not receive any compensation. This depends on a number of factors such as whether you are an earner or non-earner. ACC usually provides only partial reimbursement of costs and expenses and there may be no lump sum compensation payable. There is no cover for mental injury unless it is a result of physical injury. If you have ACC cover, generally this will affect your right to sue the investigators.

If you have any questions about ACC, contact your nearest ACC office or the investigator.

**This study has received ethical approval from the Upper South A Regional Ethics Committee.**

Where can I get more information about the study? Sarah Rowe may be contacted by telephone or by letter: "Eating and Wellbeing Study", Clinical Research Unit, University Department of Psychological Medicine, Terrace House, 4 Oxford Terrace, Christchurch, 8140. Ph. 372 0400.

## **Ethics Form**

**APPENDIX B**  
**Self-Report Questionnaires**

**Body Shape Questionnaire**

ID#

Please read each question and place the appropriate number in the box next to the question. How have you been feeling about your appearance over the PAST FOUR WEEKS?

	Never	Rarely	Some- times	Often	Very often	Always
1. Has feeling bored made you brood about your shape? .....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2. Have you been so worried about your shape that you have been feeling that you ought to diet?.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3. Have you thought that your thighs, hips or bottom are too large for the rest of you? .....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4. Have you been afraid that you might become fat (or fatter)?...	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5. Have you worried about your flesh not being firm enough? .....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6. Has feeling full (e.g. after eating a large meal) made you feel fat?.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7. Have you felt so bad about your shape that you have cried? .....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
8. Have you avoided running because your flesh might wobble?.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
9. Has being with thin women made you feel self-conscious?.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Never    Rarely    Some-  
times    Often    Very  
often    Always

---

- |     |  |                          |                          |                          |                          |                          |                          |
|-----|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 10. | Have you worried about your thighs spreading out when sitting down? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | Has eating even a small amount of food made you feel fat? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | Have you noticed the shape of other women and felt that your own shape compared unfavourably? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | Has thinking about your shape interfered with your ability to concentrate (e.g. while watching television, reading, listening to conversations)? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. | Has being naked, such as when taking a bath, made you feel fat? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. | Have you avoided wearing clothes which make you particularly aware of the shape of your body? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. | Have you imagined cutting off fleshy areas of your body? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. | Has eating sweets, cakes, or other high calorie food made you feel fat? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

	Never	Rarely	Some- times	Often	Very often	Always
18. Have you felt excessively large and rounded? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Have you felt ashamed of your body?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Has worry about your shape made you diet?...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Have you felt happiest about your shape when your stomach has been empty? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Have you thought that you are the shape you are because you lack self-control? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Have you worried about other people seeing rolls of flesh around your waist or stomach? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Have you felt that it is not fair that other women are thinner than you? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Have you vomited in order to feel thinner? ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. When in company have you worried about taking up too much room (e.g. sitting on a sofa or in a bus seat)? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Have you worried about your flesh being dimply?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Never Rarely Some-times Often Very Often Always

- 
28. Have you pinched areas of your body to see how much fat there is?.....
29. Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming pools)?.....
30. Have you taken laxatives in order to feel thinner?.....
31. Have you been particularly self-conscious about your shape when in the company of other people? .....
32. Has worry about your shape made you feel you ought to exercise?..
-

## Rosenberg Self Esteem Scale

### SELF ESTEEM

Self esteem does not mean conceit or being very conscious of your own importance or presence. It simply means valuing yourself in the way that you value others: considering yourself worthwhile, recognising that you are unique individual and that you count just as much as anybody else.

Please read each statement carefully and place in the square the answer which represents your degree of agreement with each statement.

- 1 = STRONGLY AGREE**
- 2 = AGREE**
- 3 = DISAGREE**
- 4 = STRONGLY DISAGREE**

- 
- |   |                          |
|---|--------------------------|
| 1. On the whole, I am satisfied with myself .....                                     | <input type="checkbox"/> |
| 2. At times I think I am no good at all.....  | <input type="checkbox"/> |
| 3. I feel that I have a number of good qualities.....                                 | <input type="checkbox"/> |
| 4. I am able to do things as well as most people.....                                 | <input type="checkbox"/> |
| 5. I feel I do not have much to be proud of.....                                      | <input type="checkbox"/> |
| 6. I certainly feel useless at times.....   | <input type="checkbox"/> |
| 7. I feel that I am a person of worth, at least on an equal<br>plane with others..... | <input type="checkbox"/> |
| 8. I wish I could have more respect for myself.....                                   | <input type="checkbox"/> |
| 9. All in all, I am inclined to feel that I am a failure.....                         | <input type="checkbox"/> |
| 10. I take a positive attitude toward myself.....                                     | <input type="checkbox"/> |



**The Eating Disorder Examination**  
*Interview Schedule*

ID #

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**INTRODUCTION**

To begin with I would like to get a general picture of your eating habits over the last 4 weeks.

Have your eating habits varied much from day to day?

Have weekdays differed from weekends?

Have there been any days when you haven't eaten anything?

---

---

What about the previous 2 months?

---

---

**PATTERN OF EATING**

I would like to ask about your pattern of eating. Over the past 4 weeks which of these meals or snacks have you eaten on a regular basis?

- Breakfast (meal eaten shortly after waking) .....
- Mid-morning snack.....
- lunch (mid-day meal.....
- mid-afternoon snack .....
- evening meal .....
- evening snack.....
- nocturnal snack (i.e. a snack eaten after the subject has been to sleep.....

Rate each meal and snack separately, usually accepting the subject's classification (within the guidelines above). Ask about weekdays and weekends separately. Meals or snacks should be rated even if they lead on to a "binge". "Brunch" should generally be classed as lunch. With this item, rate up (i.e., give a higher rating) if it is difficult to choose between two ratings. Rate 8 if meals or snacks are difficult to classify (e.g., due to shift work).

0 - Meal or snack not eaten

1 -

- 2 - Meal or snack eaten on less than half the days
- 3 -
- 4 - Meal or snack eaten on more than half the days
- 5 -
- 6 - Meal or snack eaten every day

**RESTRAINT OVER EATING (Restraint subscale)**

**Over the past 4 weeks have you been consciously trying to restrict what you eat, whether or not you have succeeded?**

**Has this been to influence your shape or weight?.....**

Rate the number of days on which the subject has *consciously attempted* to restrict his or her food intake, whether or not he or she has succeeded. The restraint should have been intended to influence shape, weight, or body composition, although this may not have been the sole or main reason. It should have consisted of planned attempts at restriction, rather than spur-of-the-moment attempts such as the decision to resist second helping.

- 0 - No attempt at restraint
- 1 -
- 2 - Attempted to exercise restraint on less than half the days
- 3 -
- 4 - Attempted to exercise restraint on more than half the days
- 5 -
- 6 - Attempted to exercise restraint every day

**AVOIDANCE OF EATING (Restraint subscale)**

**Over the past 4 weeks have you gone for periods of 8 or more waking hours without eating anything?**

**Has this been to influence your shape or weight?**

.....

Rate the number of days on which there has been at least 8 hours abstinence from eating food (soup and milkshakes count as food, whereas drinks in general do not) during waking hours. It may be helpful to illustrate the length of time (e.g. 9 A.M. to 5 P.M.). the abstinence must have been at least partly *self-imposed* rather than being due to force of circumstances. It should have been intended to influence shape, weight, or body composition, although this may not have been the sole or main reason.

- 0 - No such days
- 1 -
- 2 - Avoidance on less than half the days
- 3 -
- 4 - Avoidance on more than half the days
- 5 -
- 6 - Avoidance every day

**EMPTY STOMACH (Restraint subscale)**

**Over the past 4 weeks have you wanted your stomach to be empty?  
Has this been to influence your shape or weight?**

Rate the number of days on which the subject has had a *definite desire* to have a completely empty stomach for reasons to do with dieting, shape, or weight. This should not be confused with a desire for the stomach to feel empty or be flat.

.....

- 0 - No definite desire to have an empty stomach
- 1 -
- 2 - Definite desire to have an empty stomach on less than half the days
- 3 -
- 4 - Definite desire to have an empty stomach on more than half the days
- 5 -
- 6 - Definite desire to have an empty stomach every day

**FOOD AVOIDANCE (Restraint subscale)**

**Over the past 4 weeks have you tried to avoid eating any foods that you like, whether or not you have succeeded?  
Has this been to influence your shape or weight?**

.....

Rate the number of days on which the subject has actively *attempted* to avoid eating specific foods (which he or she likes) whether or not he or she succeeded. The goal should have been to *avoid the foods altogether* and not merely to restrict their consumption. Drinks do not count as food. The avoidance should have been intended to influence shape, weight, or body composition, although this may not have been the sole or main reason.

- 0 - No attempts to avoid food
- 1 -
- 2 - Attempted to avoid food on less than half the days
- 3 -
- 4 - Attempted to avoid food on more than half the days
- 5 -
- 6 - Attempted to avoid food every day.

**DIETARY RULES (Restraint subscale)**

**Over the past 4 weeks have you tried to follow certain definite rules regarding your eating, for example, a calorie limit, pre-set quantities of food, or rules about what you should eat or when you should eat?**

.....

**Have there been occasions when you have been aware that you have broken a dietary rule that you have set for yourself?.....**  
.....

How have you felt about breaking them? How would you have felt if you had broken one of your dietary rules?

.....  
What are these rules? Why have you tried to follow them? Have they been designed to influence your shape or weight?

.....  
Have they been definite rules or general principles? Examples of definite rules would be "I must not eat eggs" or "I must not eat cake", whereas you could have the general principle "I should try to eat healthy food".

.....  
Dietary rules should be rated as present if the subject has been attempting to follow "definite" (i.e. specific) dietary rules regarding his or her food intake. The rules should have been self-imposed, although originally they may have been prescribed. They should have concerned what the subject should have eaten or when eating should have taken place. They might consist of a calorie limit (e.g., below 1,200 kcals), not eating before a certain time of day, not eating certain types of food, or not eating at all. They should have been specific rules and not general guidelines, and there may have been distress should they have been broken. If the subject is aware that he or she has occasionally broken a personal dietary rule, this suggests that one or more specific rules has been present. In such cases the interviewer should ask in detail about the transgression in an attempt to identify the underlying rule. The rules should have been intended to influence shape, weight, or body composition, although this may not have been the sole or main reason. It should be noted that "*dietary rules*" are regarded as *having been present if there have been clear attempts to obey specific dietary rules*.

Rate 0 if no dietary rule can be identified. If there has been more than one rule straddling different time periods within the 4 weeks, these periods should be summated to make the rating.

- 0- Has not attempted to obey such rules
- 1-
- 2 - Attempted to obey such rules on less than half the days
- 3 -
- 4 - Attempted to obey such rules on more than half the days
- 5 -
- 6 - Attempted to obey such rules every day

**PREOCCUPATION WITH FOOD, EATING, OR CALORIES  
(Eating Concern subscale)**

**Over the past 4 weeks have you spent much time between meals thinking about food, eating, or calories?**

**Has thinking about food, eating, or calories interfered with your ability to concentrate? How about concentrating on things that you are interested in, for example, reading, watching television, or following a conversation?**

.....

Concentration is regarded as impaired if there have been *intrusive thoughts about food, eating, or calories that have interfered with activities*. Rate the number of days on which this has happened, whether or not bulimic episodes occurred.

- 0 - No concentration impairment
- 1 -
- 2 - Concentration impairment on less than half the days
- 3 -
- 4 - Concentration impairment on more than half the days
- 5 -
- 6 - Concentration impairment every day

**FEAR OF LOSING CONTROL OVER EATING  
(Eating Concern subscale)**

Over the past 4 weeks have you been afraid of losing control over eating?

.....

Rate the number of days on which *definite fear* has been present, irrespective of whether the subject feels he or she has been in control. *“Loss of control”, involves a sense that one will not be able to resist or stop eating.* (If the subject feels unable to answer this question because he or she has already lost control rate 8.)

- 0 - No fear of losing control
- 1 -
- 2 - Fear of losing control present on less than half the days
- 3 -
- 4 - Fear of losing control present on more than half the days
- 5 -
- 6 - Fear of losing control every day.

**BULIMIC EPISODES AND OTHER (Diagnostic subscale)  
EPISODES OF OVEREATING**

**GUIDELINES FOR INTERVIEWERS**

Four forms of episodic “overeating” are distinguished. The distinction is based upon the presence or absence of two characteristics:

- (i) Loss of control (required for both types of “bulimic episodes”)
- (ii) The consumption of what would generally be regarded as a “large” amount of food (required for “objective bulimic episodes” and “objective overeating”).

		<i>Amount Eaten</i>	
<i>Loss of Control</i>		Large	Not large, but objectively experienced as being too much
	Yes	Objective binge	Subjective binge
	No	Objective overeating	Subjective overeating

The interviewer should ask about each form of overeating. It is important to note that *the forms of overeating are not mutually exclusive*. It is possible for subjects to have had several different forms over the preceding month. With some subjects it is helpful to explain the classificatory scheme. Then, using the probe questions given below, the number of each type of episode may be determined and checked back with the subject.

*Definitions of Key Terms*

**“Loss of control”.** The interviewer should ask the subject whether he or she experienced a sense of loss of control over eating *at the time* that the episode occurred. If this is clearly described, loss of control should be rated as present. Loss of control may be rated positively even if the episode had been planned. If the subject uses terms such as “driven to eat” or “compelled to eat”, loss of control should be rated as present.

For chronic cases only: If the subject reports no sense of loss of control yet describes having not been able to stop eating once eating had started or having not been able to prevent the episode from occurring, loss of control should be rated as present. If subjects report that they are no longer trying to control their eating because overeating is inevitable, loss of control should be rated as present.

If the interviewer is in doubt, loss of control should be rated as absent.

**Large amount of food.** The decision whether or not the amount eaten was large should be made by the interviewer and does not require the agreement of the subject. Large may be used to refer to the amount of any particular type of food or the overall quantity of food consumed. *The interviewer should take into account what would be the usual amount eaten under the circumstances.* This requires some knowledge of the eating habits of the subject’s general (but not necessarily) immediate social group. What else was eaten during the day is not of relevance to this rating. The speed of eating and whether or not the subject subsequently spits out or vomits the food are not of relevance.

If the interviewer is in doubt, the amount should not be classified as large.

**The number of episodes of overeating.** When calculating the number of episodes of overeating, the subject’s definition of separate episodes should be accepted unless (within a period of eating) there was an hour or more when the subject was not eating. In this case the initial episodes should be regarded as having been completed. When estimating the length of any gap, do not count the time spent vomiting. *Note that purging (self-induced vomiting or laxative misuse) is not used to define the end of individual episodes of overeating.*

*Guidelines for Rating the Overeating Section*

First, ask the asterisked questions to identify episodes of perceived or true overeating that have occurred over the previous 28 days.

Second, obtain detailed information about each form of overeating to decide whether it involved eating large amounts of food and whether or not there was loss of control (as defined above). Then establish for each form of overeating the number of days on which it occurred and the total number of occasions. It is advisable to make comprehensive notes.

Finally, check with the subject to ensure that no misunderstandings have arisen.

QUESTIONS FOR RATING ITEMS

*The asterisked questions must be asked in every case.*

*Main Probe Questions*

**\* I would like to ask you about any episodes of overeating that you may have had over the past 4 weeks.**

**\* Different people mean different things by overeating. I would like you to describe any times when you have felt that you have eaten too much in one go.**

**\* Have there been any times when you have felt that you have eaten too much, but others might not agree?**

*If there have been no such times, skip to "social eating".*

*NB. For subjective bulimic episodes to be eligible, they must have been viewed by the patient as having involved an excessive amount of food.*

Subsidiary Probe Questions

To assess the amount of food eaten:

Typically what have you eaten at these times?  
What were others eating at the time?

To assess loss of control:

Did you have a sense of loss of control at the time?

For chronic cases only:

Could you have stopped eating once you had started?  
Could you have prevented the episode from occurring?

**For objective bulimic episodes, subjective bulimic episodes, and episodes of objective overeating make the following two ratings:**

**Objective bulimic episodes**

- (i) Number of days (rate 00 if none).....
- (ii) Number of episodes (rate 000 if none).....

**Subjective bulimic episodes**

- (i) Number of days (rate 00 if none).....
- (ii) Number of episodes (rate 000 if none).....

**Objective overeating episodes**

- (i) Number of days (rate 00 if none).....
- (ii) Number of episodes (rate 000 if none).....

In general, it is best to calculate the number of days first and then the number of episodes. Rate 999 if the number of episodes is so great that their frequency cannot be calculated. Episodes of subjective overeating are not rated.

*Ask about the preceding 2 months.*

For **objective bulimic episodes**, rate the number of episodes over the preceding 2 months and the number of days on which they occurred. Rate 0 if none and leave blank if not asked.

Days:-	Month 2 .....	<input type="text"/>	<input type="text"/>	
	Month 3 .....	<input type="text"/>	<input type="text"/>	
Episodes:-	Month 2 .....	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Month 3 .....	<input type="text"/>	<input type="text"/>	<input type="text"/>

Also rate the longest continuous period in weeks free (not due to force of circumstances) from objective bulimic episodes over the past 3 months

**DIETARY RESTRICTION OUTSIDE BULIMIC EPISODES (Diagnostic item)**

*Only rate this item if there have been objective bulimic episodes over the past 3 months.*

**Outside the times when you have lost control over eating (refer to objective and subjective bulimic episodes), how much have you been restricting the amount that you eat?**

Typically, what have you eaten?.....

Has this been to influence your shape or weight?.....

Month 1.....	<input type="text"/>
	<input type="text"/>



Month 2.....

Month 3.....

(Ask about actual food intake outside the objective and subjective bulimic episodes. Rate the *average* degree of dietary restriction. This should have been intended to influence shape, weight, or body composition, although this may not have been the sole or main reason.

- 0 - No extreme restriction outside objective bulimic episodes
- 1- Extreme restriction outside objective bulimic episodes (i.e. low energy intake (< 1,200 kcal) due to infrequent eating and/or consumption of low-calorie foods)
- 2 - No eating outside objective bulimic episodes (i.e. fasting)

**SOCIAL EATING (Eating Concern subscale)**

**Over the past 4 weeks have you been concerned about other people seeing you eat?**

---

---

**Have you avoided such occasions?**

.....

(Rate the degree of concern about eating normal or less than normal amounts of food in front of others (e.g. family) and whether this has led to avoidance. This should represent the *average* for the entry month. If the possibility of eating with others has not arisen, rate 8. *Do not consider objective bulimic episodes or episodes of objective overeating*).

- 0 - No concern about being seen eating by others and no avoidance of such occasions
- 1 -
- 2 - Has felt slight concern at being seen eating but no avoidance.
- 3 -
- 4 - Has felt definite concern and has avoided some such occasions
- 5 -
- 6 - Has felt definite concern and has avoided all such occasion

**EATING IN SECRET (Eating Concern subscale)**

**Over the past 4 weeks have you eaten in secret?**

.....

(Rate the number of days on which there has been at least one episode of secret eating. Secret eating refers to eating that is furtive and which the subject wishes to conceal. Avoidance of eating in front of others should be rated under "Social eating". If the possibility of eating with others has not arisen, rate 8. *Do not consider objective bulimic episodes*).

- 0 - Has not eaten in secret

- 1 -
- 2 - Has eaten in secret on less than half the days
- 3 -
- 4 - Has eaten in secret on more than half the days.
- 5 -
- 6 Has eaten in secret every day

**GUILT ABOUT EATING (Eating Concern subscale)**

**Over the past 4 weeks have you felt guilty after eating?  
Have you felt that you have done something wrong? Why?  
On what proportion of the times that you have eaten have you felt guilty?**

.....

(Rate the *proportion of times* on which feelings of guilt have followed eating. These feelings of guilt should relate to the effects of eating on shape, weight, or body composition. *Do not consider objective bulimic episodes*, but do consider other episodes of overeating. *Distinguish guilt from regret*: Guilt refers to a feeling that one has done wrong. *N.B. This rating is based on occasions*).

- 0 - No guilt after eating.
- 1 -
- 2 - Has felt guilty after eating on less than half the occasions
- 3 -
- 4 - Has felt guilty after eating on more than half the occasions
- 5 -
- 6 - Has felt guilty after eating on every occasion

**SELF-INDUCED VOMITING (Diagnostic item)**

***Over the past 4 weeks have you made yourself sick as a means of controlling your shape or weight?***

(Rate the number of days on which there has been one or more episodes of self-induced vomiting as a means of controlling shape, weight, or body composition. Rate 00 if no vomiting.)

.....

(Rate the number of discrete episodes of self-induced vomiting. Accept the subject's definition of an episode. Rate 999 if the number is so great that it cannot be calculated. Rate 000 if no vomiting).

.....

*(Ask about the preceding 2 months if practising self-induced vomiting to influence shape, weight or body composition)*

(Rate the number of discrete episodes of self-induced vomiting over each of the 2 preceding months)

Month 2.....

Month 3.....

.....

**LAXATIVE MISUSE (Diagnostic item)**

**Over the past 4 weeks have you taken laxatives as a means of controlling your shape or weight?**

(Rate the number of days on which laxatives have been taken as a means of controlling shape, weight, or body composition. This should have been the *main* reason, although it may not have been the sole reason. Rate 00 if there was no laxative use or there is doubt whether the laxative taking was primarily to influence shape, weight, or body composition.

.....

Rate the number of individual episodes of laxative misuse (as defined above). Rate 999 if the number is so great that it cannot be calculated. Rate 000 if no such laxative misuse.

.....

Rate the average number of laxatives taken on each occasion. Rate 777 if not quantifiable, e.g., use of bran

.....

Note the type of laxative taken.

.....

*Ask about the preceding 2 months if taking laxatives to influence shape, weight or body composition).*

Rate the number of discrete episodes of laxative misuse over each of the two preceding months. Rate 000 if no such laxative misuse. Rate 999 if not asked.

Month 2.....

Month 3.....

.....

**DIURETIC MISUSE (Diagnostic item)**

**Over the past 4 weeks have you taken diuretics as a means of controlling your shape or weight?**

Rate the number of days on which diuretics have been taken as a means of controlling shape, weight, or body composition. This should have been the *main* reason, although it may not have been the sole reason. Rate 00 if there was no diuretic use or there is no doubt whether the diuretic taking was primarily to influence shape, weight, or body composition.

.....

Rate the number of individual episodes of diuretic misuse (as defined above). Rate 999 if the number is so great that it cannot be calculated. Rate 000 if no such diuretic misuse).

.....

Rate the average number of diuretics taken on each occasion. Rate 999 if not quantifiable).

.....

Note the type of diuretic taken.

---

*Ask about the preceding 2 months if taking diuretics to influence shape, weight or body composition).*

Rate the number of discrete episodes of diuretic misuse over each of the two preceding months. Rate 000 if no such diuretic misuse.

Month 2.....

Month 3.....

---

**INTENSE EXERCISING TO CONTROL SHAPE OR WEIGHT (Diagnostic item)**

**Over the past 4 weeks have you exercised as a means of controlling your weight, altering your shape or amount of fat, or burning off calories?  
Typically, what form of exercise have you taken?**

Rate the number of days on which the subject has engaged in *intense* exercise that was *predominantly* intended to use calories or change shape, weight, or body composition. The decision whether the exercising was "intense" should be made by the interviewer. If in doubt, the exercising should not be classed as intense. Rate 00 if no such exercising.

.....

Rate the *average* amount of time (in minutes) per day spent exercising in this way. Only consider days on which the subject exercised.

.....

---

Ask about the preceding 2 months if there has been exercising of this type.

Rate the number of days on which the subject has exercised in this manner over each of the two preceding months.

Month 2.....    
Month 3.....

---

**ABSTINENCE FROM EXTREME WEIGHT-CONTROL BEHAVIOUR  
(Diagnostic item)**

**Only ask this question if at least one of the key forms of weight-control behaviour has been rated positively at the specified severity level over the past 3 months (at least once weekly for vomiting, laxative use and diuretic use; on more days than not for exercise).**

.....

The five forms of behaviour are as follows:

- fasting
- self-induced vomiting
- laxative misuse
- diuretic misuse
- excessive exercise.

Over the past 3 months has there been a period of 2 or more weeks when you have not.....

Ask as for individual items.

Ascertain the number of consecutive weeks over the past 3 months "free" (i.e. not above threshold levels) from all five forms of extreme weight-control behaviour. Do not use rate abstinence due to force of circumstance.

---

**DISSATISFACTION WITH WEIGHT (Weight Concern subscale)**

**Over the past 4 weeks have you been dissatisfied with your weight?  
Have you been so dissatisfied that it has made you unhappy?**

.....

Only rate dissatisfaction due to weight being regarded as too high. Assess the subject's attitude to his or her weight and rate accordingly. This should represent the *average* for the entire month. Only rate 4, 5 or 6, if there has been distress. Do not prompt with the terms "slight", "moderate" or "marked". rate 9 if the subject is unaware of his or her weight.

- 0 - No dissatisfaction
- 1 -
- 2 - Slight dissatisfaction (no associated distress)
- 3 -
- 4 - Moderate dissatisfaction (some associated distress)
- 5 -
- 6 - Marked dissatisfaction (extreme concern and distress, weight totally unaccepted)

---

**DESIRE TO LOSE WEIGHT (Weight Concern subscale)**

**Over the past 4 weeks have you wanted to lose weight? Have you had a strong desire to lose weight?**

.....

Rate the number of days on which there has been a *strong desire* to lose weight.

- 0 - No strong desire to lose weight
- 1 -
- 2 - Strong desire present on less than half the days
- 3 -
- 4 - Strong desire present on more than half the days
- 5 -
- 6 - Strong desire present every day

**DESIRED WEIGHT**

**What weight would you like to be?** [Rate weight in kilograms. **Rate 888** if the subject is not interested in his or her weight. **Rate 777** if no specific weight would be low enough. **Rate 666** if the subject is primarily interested in his or her shape but has some concern about weight (but not specific weight).]

.....

**REACTION TO PRESCRIBED WEIGHING (Weight Concern subscale)**

**How would you feel if you were asked to weigh yourself once each week for the next 4 weeks?**

.....

Rate the strength of reaction. Positive reactions should be rated 9. Check whether other aspects of the subject's life would be influenced. Ask the subject to describe in

detail how he or she would react and rate accordingly. Do not prompt with the term "slight", "moderate" or "marked". If the subject would not comply with prescribed weighing because it would be extremely disturbing, rate 6.

- 0 - No reaction
- 1 -
- 2 - Slight reaction
- 3 -
- 4 - Moderate reaction (definite reaction, but manageable)
- 5 -
- 6 - Marked reaction (pronounced reaction which would affect other aspects of the subject's life)

**DISSATISFACTION WITH SHAPE (Shape Concern subscale)**

**Over the past 4 weeks have you been dissatisfied with your shape?  
Have you been so dissatisfied that it has made you unhappy?**

.....  
Only rate dissatisfaction with shape and not that concerning body tone. Assess the subject's attitude to his or her shape and rate accordingly. This should represent the *average* for the entire month. Only rate 4, 5 or 6, if there has been associated distress. Do not prompt with the terms "slight", "moderate", or "marked".

- 0 - No dissatisfaction with shape
- 1 -
- 2 - Slight dissatisfaction with shape (no associated distress)
- 3 -
- 4 - Moderate dissatisfaction with shape (some associated distress)
- 5 -
- 6 - Marked dissatisfaction with shape (extreme concern and distress, shape totally unacceptable)

**PREOCCUPATION WITH SHAPE OR WEIGHT**

**(Shape Concern and Weight Concern subscales)**

**Over the past 4 weeks have you spent much time thinking about your shape or weight?**

**Has thinking about your shape or weight interfered with your ability to concentrate? How about concentrating on things you are interested in, for example, reading, watching television, or following a conversation?**

.....  
Concentration is regarded as impaired if there have been *intrusive thoughts about shape or weight that have interfered with activities*. Rate the number of days on which this happened).

- 0 - No concentration impairment
- 1 -

- 2 - Concentration impairment on less than half the days
- 3 -
- 4 - Concentration impairment on more than half the days
- 5 -
- 6 - Concentration impairment every day.

**IMPORTANCE OF SHAPE (Diagnostic item)  
(Shape concern subscale)**

**Over the past 4 weeks has your shape been important in influencing how you feel about (judge, think, evaluate) yourself as a person?**

**If you imagine the things that influence how you feel about (judge, think, evaluate) yourself - (such as your performance at work, being a parent, your marriage, how you get on with other people) - and put these things in order of importance, where does your shape fit in?**

**If, over the past 4 weeks, your shape had changed in any way, would this have affected how you feel about yourself?**

**Is it important to you that your shape does not change?**

.....

Rate the degree of importance the subject has placed on body shape and its position in his or her scheme for *self-evaluation*. To make this rating, comparisons may be made with other aspects of the subject's life that are of importance in his or her scheme for self-evaluation (e.g. quality of relationships, being a parent, performance at work, or leisure activities). The rating should represent the *average* for the entire month. Do not prompt with the terms "some", "moderate", or "supreme". If the subject has regarded both shape and weight as being of equivalent supreme importance, rate 6 on this item and on "Importance of weight".

- 0 - No importance
- 1 -
- 2 - Some importance (definitely an aspect of self-evaluation)
- 3 -
- 4 - Moderate importance (definitely one of the main aspects of self-evaluation)
- 5 -
- 6 - Supreme importance (nothing is more important in the subject's scheme (or self-evaluation)).

Ask about the preceding 2 months.



Rate preceding 2 months. Rate 9 if not asked.

Month 2.....

Month 3.....

---

**IMPORTANCE OF WEIGHT (Diagnostic item)  
(Weight concern subscale)**

**Over the past 4 weeks has your weight been important in influencing how you feel about (judge, think, evaluate) yourself as a person?**

**If you imagine the things that influence how you feel about (judge, think, evaluate) yourself - such as (your performance at work, being a parent, your marriage, how you get on with other people) - and put these things in order of importance, where does your weight fit in?**

**If, over the past 4 weeks, your weight had changed in any way, would this have affected how you feel about yourself?**

**Is it important to you that your weight does not change?**

.....

Rate the degree of importance the subject has placed on weight (i.e. actual or presumed weight) and its position in his or her scheme for *self-evaluation*. To make this rating, comparisons may be made with other aspects of the subject's life that are of importance in his or her scheme for self-evaluation (e.g., quality of relationships, being a parent, performance at work, or leisure activities). The rating should represent the *average* for the entire month. Do not prompt with the terms "some", "moderate", or "supreme". If the subject has regarded both weight and shape as being of equivalent supreme importance, rate 6 on this item and on "Importance of shape".

- 0 - No importance
  - 1 -
  - 2 - Some importance (definitely an aspect of self-evaluation)
  - 3 -
  - 4 - Moderate importance (definitely one of the main aspects of self-evaluation)
  - 5 -
  - 6 - Supreme importance (nothing is more important in the subject's scheme (or self-evaluation)).
- 

Ask about the preceding 2 months.

Rate preceding 2 months. Rate 9 if not asked.

Month 2.....

Month 3.....

---

**FEAR OF WEIGHT GAIN (Diagnostic item)**  
**(Shape concern subscale)**

*Shorten the question if the subject is obviously overweight.*

**Over the past 4 weeks have you been afraid that you might gain weight (or become fat)?**

.....

Rate the number of days on which a *definite fear* has been present. Exclude reactions to actual weight gain.

- 0 - No definite fear of fatness or weight gain.
  - 1 -
  - 2 - Definite fear of fatness or weight gain present on less than half the days
  - 3 -
  - 4 - Definite fear of fatness or weight gain present on more than half the days
  - 5 -
  - 6 - Definite fear of fatness or weight gain present every day
- 

Ask about the preceding 2 months.

Rate preceding 2 months.

Month 2.....

Month 3.....

---

**DISCOMFORT SEEING BODY (Shape concerns subscale)**

**Over the past 4 weeks have you felt uncomfortable seeing your body, for example, in the mirror, in shop window reflections, while undressing, or while taking a bath or shower?**

**Have you avoided seeing your body? Why?**

---

---

The discomfort should be due to the subject's sensitivity about the overall appearance of his or her shape or figure. It should not stem from sensitivity about specific aspects of appearance (e.g., acne) or from modesty.

- 0 - No discomfort about seeing body
- 1 -
- 2 - Some discomfort about seeing body
- 3 -
- 4 - Definite discomfort about seeing body
- 5 -
- 6 - Definite discomfort about seeing body, and has attempted to avoid all such occasions (i.e., the subject has attempted not to see his or her body at all even when washing)

**AVOIDANCE OF EXPOSURE (Shape Concern Subscale)**

**Over the past 4 weeks have you felt uncomfortable about others seeing your body, for example, in communal changing rooms, when swimming, or when wearing clothes that show your shape? What about your partner or friends seeing your body?**

**Have you avoided such situations? Why?** \_\_\_\_\_

---

The discomfort should be due to the subject's sensitivity about the overall appearance of his or her shape or figure. It should not stem from sensitivity about specific aspects of appearance (e.g., acne) or from modesty. If the possibility of "exposure" has not arisen, rate 8.

- .....
- 0 - No discomfort about others seeing body
  - 1 -
  - 2 - Some discomfort about others seeing body
  - 3 -
  - 4 - Definite discomfort about others seeing body
  - 5 -
  - 6 - Definite discomfort about others seeing body, and has attempted to avoid all such occasions

**FEELINGS OF FATNESS (Diagnostic item)**  
**(Shape Concern Subscale)**

Omit this item if the subject is *obviously* overweight and rate 7

**Over the past 4 weeks have you felt fat?**

.....

Rate the number of days on which the subject has "felt fat" accepting his or her use of his expression. Distinguish feeling fat from feeling bloated premenstrually, unless this is experienced as feeling fat.

- 0 - Has not felt fat.
- 1 -
- 2 - Has felt fat on less than half the days
- 3 -
- 4 - Has felt fat on more than half the days
- 5 -
- 6 - Has felt fat every day

---

Ask about the preceding 2 months.

Rate preceding 2 months.

Month 2.....

Month 3.....

---

**FLAT STOMACH (Shape Concern Subscale)**

Omit this item if the subject is *obviously* overweight and rate 7.

**Over the past 4 weeks have you had a definite desire to have a flat stomach?**

.....

Rate the number of days on which the subject has had a *definite desire to have a flat or concave stomach*. Do not rate simply the desire to have a flatter stomach.

- 0 - No definite desire to have a flat stomach
- 1 -
- 2 - Definite desire to have a flat stomach on less than half the days
- 3 -
- 4 - Definite desire to have a flat stomach on more than half the days
- 5 -
- 6 - Definite desire to have a flat stomach every day

**MAINTAINED LOW WEIGHT (Diagnostic item)**

*Rate for subjects who may be underweight.*

**Over the past 3 months have you been trying to lose weight?**

**If no: Have you been trying to make sure that you do not gain weight**

.....  
If weight is low, rate presence of attempts either to lose weight or to avoid weight gain.

- 0 - No attempts either to lose weight or to avoid weight gain over the past 3 months
- 1 - Attempts either to lose weight or to avoid weight gain over the past 3 months for reasons concerning shape or weight
- 2 - Attempts either to lose weight or to avoid weight gain over the past 3 months for other reasons

**MENSTRUATION (Diagnostic item)**

**Have you missed any menstrual periods over the past few months?  
How many periods have you had?**

**Are you taking an oral contraceptive (the "pill")?**

.....  
With post-menarchal females, rate number of menstrual periods over the **past three** expected menstrual cycles. Rate 7 if the subject is pre-menarchal, if she has been taking an oral contraceptive, or if she has been pregnant or breast feeding or has had a hysterectomy.