PREVALENCE, CORRELATES AND MODERATORS OF EATING PATHOLOGY IN NEW ZEALAND WOMEN, ADOLESCENT AND PREADOLESCENT GIRLS.

A thesis submitted in partial fulfilment of the

requirements for the Degree

of Doctor of Philosophy in Psychology

in the University of Canterbury

by J. M Rosewall

University of Canterbury

2009

Acknowledgements

First and foremost, I wish to sincerely thank my supervisor Dr David Gleaves for his support and guidance throughout this project. I greatly appreciate the immense time and patience you have given me over these past few years. Your willingness to share your expertise and spend many hours guiding me through this process has been invaluable. I also wish to thank Dr Janet Latner, my secondary supervisor, for all the help and encouragement she has given me from the inception of this project to now - even across the miles.

Thanks also to Gwenda Willis who has, among others, kindly given of her time to help with many aspects of this study. Gwenda, your generosity, time and expertise has helped me immeasurably. I only hope I can return the favour soon.

Special thanks also go out to the many women and girls who participated in this project. I am grateful for your willingness to participate and honesty in sharing your personal experiences. I am also grateful for the many other individuals who have assisted me with data collection and preparation, in particular, Amy Chisholm.

I wish to thank Mum, Dad, Megan and Lauren for their love, support and belief in me throughout my university studies. Mum, I am indebted to the help you have provided both practically and emotionally. It has meant so much to have you journey closely with me throughout every aspect of this project. Thanks also to my extended family and fantastic friends who have never ceased to encourage me. Your sincere interest and graciousness as I talked for many hours about this research has been appreciated.

Finally to Ben, I truly could not have achieved this without you. You have been so kind, thoughtful and accommodating. We did it together.

Abstract

Despite the fact that eating disorders (EDs) and their subclinical variants are important health concerns, very little research has examined eating pathology and body image, including the factors that may contribute to their development, in New Zealand. Based on the Sociocultural Model of Eating Pathology, this thesis comprises four studies that aimed to identify the factors that may interact with different parts of this model to predict eating pathology. As part of each study, the cross-cultural validity of the assessment measures used was also examined. Across all four studies, the prevalence rates of eating pathology and associated pathology were comparable to overseas estimates. Participants for Study One were 243 adolescent girls recruited from secondary school in Christchurch, New Zealand. Participants completed questionnaires assessing eating pathology, body dissatisfaction, negative affect, perfectionism, self-esteem, teasing and perceived sociocultural pressure. Regression analyses demonstrated that body dissatisfaction, socially prescribed (SP) perfectionism and negative affect uniquely predicted eating pathology in the adolescent sample. Moderator analyses indicated that high levels of SP and self-oriented (SO) perfectionism, negative affect, perceived pressure from others and the media, and low levels of self-esteem all increased the effect of body dissatisfaction on eating pathology among adolescents. Study Two examined the same risk factors among 170 preadolescent girls from primary schools in Christchurch, New Zealand, and found that body dissatisfaction, SP perfectionism and teasing independently predicted eating pathology. High levels of SO and SP perfectionism, perceived media pressure and low levels of self-esteem strengthened the body dissatisfaction-eating pathology relation. The goal of Study Three was to test the factors that serve to amplify the risk of internalising societal standards of thinness among 202 university

women recruited from the University of Canterbury, New Zealand. The participants completed questionnaires measuring perfectionism, sociocultural pressure to be thin, anorectic cognitions and anti-fat attitudes. Results indicated that social pressure and information about appearance standards independently predicted thin ideal internalization but no statistically significant moderators were found. Finally, taking another approach to studying women at high or low risk for eating problems, Study Four sought to examine and describe the characteristics of women with a high body mass index (BMI; kg/m^2) who were not dissatisfied with their bodies and also women who were dissatisfied with their bodies but were not engaging in pathological eating behaviour. Participants were 166 university women recruited from the University of Canterbury who completed the Personality Assessment Inventory (1991) and questionnaires relating to body dissatisfaction and eating pathology. Both of the above-mentioned groups were characterised by lower overall distress, such as lower levels of anxiety, depression and borderline features. Overall, this research suggests that disordered eating and body image concerns occur among New Zealand women, adolescent and preadolescent girls at rates similar to Europe and North America. There was reasonable support for the validity of many of the assessment measures used. The research also highlights some factors that may influence the development of eating pathology among these populations and provides possible leads for future longitudinal research and, ultimately, prevention efforts.

Table of Contents

List of Tables

List of Figures

Appendices

INTRODUCTION

Overview

Eating disorders (EDs), and their subclinical variants, are important health concerns due to their longstanding psychological and physical effects. Women can die from the physical complications associated with an ED; indeed, Anorexia Nervosa (AN) has one of the highest mortality rates of any psychiatric illness (Birmingham, Su, Hlynsky, Goldner, & Gao, 2005; Herzog et al., 2000). The high mortality rate is due to the difficulty of treating women with AN, because of their resistance to change, the likelihood of chronicity and relapse, and suicide (Birmingham et al., 2005; Stice, 2002). Because of the complexities with treating an ED, particularly AN, research into established risk factors for EDs is an important focus for researchers in order to understand what contributes to the development of pathological eating attitudes and behaviours. Many risk factors are thought to influence the development of eating pathology and clinical EDs (Stice, 2002). One promising intervention for these disorders is decreasing risk and reducing the number of women[1] who are susceptible to onset (Striegel-Moore & Smolak, 2001). Interventions may be most effective when they focus on reducing established risk factors of ED development, yet interventions are limited given our lack of understanding of these risk factors (Stice & Shaw, 2004; 1998).

This section describes the EDs and their associated pathology, and defines the Sociocultural Model of Eating Pathology, which guides the theoretical basis for this thesis. This section also introduces some of the established risk factors for developing an ED and considers the influence of these factors at different stages of life.

---

[1] Although men can experience AN and/or BN, women are predominantly affected by these disorders, at a gender rate of 10:1 (Bulik, 1994). For this reason, this research at times refers to women with EDs as opposed to individuals with EDs. This is not to ignore the fact that EDs and associated pathology can and does affect boys and men.

Eating Disorders and Pathology

Definition of Eating Disorders and Pathology

Anorexia nervosa. In the current Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (American Psychiatric Association, 2000), AN is defined as being characterised by an underweight status (15 percent below expected weight), a pathological fear of weight gain even during the severe stages of emaciation, amenorrhea for at least three consecutive menstrual cycles (in postmenarcheal women), and the refusal to maintain a normal weight for one's height and age. The individual also presents with cognitive and affective disturbances in body image, usually an extreme fear of weight gain and 'feeling fat' despite emaciation (Striegel-Moore & Smolak, 2001). There are two subtypes of AN: restricting (AN-R) and binge eating/purging (AN-BP). AN-R is characterised by the absence of regular binge eating or purging behaviours during the AN episode, and in AN-BP the individual with AN has engaged in binge eating or purging behaviours. Typically, AN follows a chronic course and is associated with much co-morbid psychopathology (O'Brien & Vincent, 2003). The estimated New Zealand lifetime prevalence rate for AN is 0.3% (Wells, Bushnell, Hornblow, Joyce, & Oakley-Browne, 1989), which is comparable to the lifetime prevalence rates of most industrialised countries (approximately 0.5%) (Hudson, Hiripi, Pope, & Kessler, 2007; Wakeling, 1996).

Bulimia nervosa. Bulimia Nervosa (BN) is characterised by recurrent binge eating and recurrent compensatory behaviours such as self-induced vomiting or laxative misuse to prevent impending weight gain. Binge eating involves consuming amounts of food that are excessively larger than what most people would eat in a similar period of time, as well as feeling a sense of loss of control over the eating during the binge episode. To warrant a diagnosis of BN, these episodes need to occur

at least twice a week for three months. Like those with AN, individuals with BN report a pervasive overconcern with body shape and weight (APA, 2000). The DSM-IV-TR outlines two BN subtypes: Purging (BN-P) and Nonpurging (BN-NP). In BN-P, the individual has regularly engaged in behaviours such as self-induced vomiting or laxative misuse during the BN episode. In BN-NP, these purging behaviours are absent, however, other compensatory behaviours such as excessive exercise and fasting are present. In New Zealand, the estimated prevalence rates of BN is 2.6% (Bushnell, Wells, Hornblow, Oakley-Browne, & et al., 1990), which is comparable to prevalence rates found internationally (approximately 1-3%) (Hudson et al., 2007).

Eating Disorder not Otherwise Specified. The DSM-IV-TR Eating Disorder not Otherwise Specified (EDNOS) is the DSM-IV-TR category used for those who do not fit all of the criteria for AN or BN but still exhibit enough eating pathology to warrant a diagnosis. For example, an individual who meets all the criteria for AN but still has a normal menstrual cycle, or an individual who meets all of the criteria for BN except the frequency or duration requirements of binge-purge episodes, may be diagnosed with EDNOS. As with other disorders outlined in the DSM-IV-TR, an individual needs to experience distress and impairment to warrant an EDNOS diagnosis. Although intended to be a diagnostic category for residual cases, EDNOS comprises the vast majority of ED cases (Fairburn & Bohn, 2005; Machado, Machado, Gonçalves, & Hoek, 2007). Fairburn and Bohn (2005) reviewed four studies that reported EDNOS prevalence among adult outpatients with an ED and concluded that, overall, approximately two thirds of these individuals had an EDNOS diagnosis.

Subthreshold EDs. In addition to these disorders are subthreshold variants of EDs that include restrictive dieting, unhealthy eating attitudes and purging, which are

equally important to address because of their psychological effects (Attie & Brooks-Gunn, 1989; Garner, Olmsted, Bohr, & Garfinkel, 1982; Thompson, Coovert, & Stormer, 1999). Although relative to clinical EDs the physical complications associated with subthreshold EDs are not as severe; subthreshold EDs can increase in severity and frequency and may serve as prodromal to an ED (Gralen, Levine, Smolak, & Murnen, 1990; O'Dea, 1995). Further, some have argued that eating disturbances may be best viewed on a behavioural continuum ranging from dieting to sub-threshold to diagnosable EDs (Fear, Bulik, & Sullivan, 1996; Gleaves, Brown, & Warren, 2005). As such, subthreshold eating behaviours within this continuum, such as purging and dieting, often predate the onset of clinical EDs. Subthreshold EDs also affect a broader amount of the population. For example, in a New Zealand study of adolescent girls, 12% reported having sometimes vomited to lose weight and 54% reported dieting to lose weight, most of whom began dieting before the age of 13 (Fear et al., 1996).

Restrictive dieting. One particularly common weight control strategy is dieting. The term dieting describes the restriction of caloric intake to change or maintain body shape or weight (Wilson, 2002). Although some have suggested that elements of dieting may be appropriate in the context of a healthy weight management plan; many researchers argue that dieting is detrimental to one's emotional and physical wellbeing (see French & Jeffery, 1994, for a review). Moreover, the weight loss that ensues from dieting is generally fleeting, with weight regain to or above the original level being the norm (Brownell & Rodin, 1994; Stice, Fisher, & Lowe, 2004). Restrictive dieting is a common pathological eating behaviour and, although Wilson (1993) suggested that dieting is a necessary albeit exclusive precursor to EDs, research on its contributory role is mixed. Some research has found that dieting is

related to an increase in later ED symptoms (Braet, Tanghe, Bode, Franckx, & Winckel, 2003; Levine, Ringham, Kalarchian, Wisniewski, & Marcus, 2001). For example, Patton, Selzer, Coffey, Carlin and Wolfe (1999) examined adolescent girls over a three-year period and found that those who dieted at a serious level were 18 times more likely to develop an ED and adolescent girls who dieted at a moderate level were five times more likely to develop an ED than were non-dieters.

Restrictive dieting may also accompany binge eating in order to offset the effects of caloric intake. Studies suggest that dieting increases negative affect that, in turn, increases the risk of binge eating tendencies as a means of enhancing mood (Stice, 2002; Stice & Bearman, 2001). Conversely, Presnell and Stice (2003) found that caloric restriction and exercise actually resulted in significant reductions in bulimic symptomatology. In his meta-analytic review, Stice (2002) noted that prospective studies tend to identify a link between restrictive dieting and bulimic symptomatology, yet experimental lab-based findings that manipulate caloric intake have provided inconsistent support for this relationship. He concluded that manipulated caloric deprivation tends to be related to increased lab-assessed caloric intake and related to decreased eating pathology in the natural environment. Recent research that sought to address this inconsistency concluded that fasting (defined as cessation of eating for 24 hours for weight control purposes) may be a more robust predictor of bulimic pathology than less severe dieting behaviours that are measured by elevated scores on self-report dieting scales (Stice, Davis, Miller, & Marti, 2008).

The prevalence of dieting among adolescent girls is high. However, the general measurement of dieting has some limitations, with some researchers arguing that studies examining dieting may merely measure the intention to diet as opposed to the frequency of caloric restriction (Nichter, Ritenbaugh, Nichter, Vuckovic, & et al.,

1995). For example, Nichter and colleagues (1995) found that 44% of the girls in their study reported dieting but only 8.6% of their food records suggested dieting behaviour, demonstrating that self reported dieting behaviours may not accurately reflect actual dieting.

Research has also suggested that the same measurement problem exists in preadolescence, challenging the assessment of dietary restraint in younger people (Field, Wolf, Herzog, Cheung, & Colditz, 1993). Schur, Sanders and Steiner (2000) observed that children do not always understand dieting to be caloric restriction and, therefore, conducted semi-structured interviews with preadolescent children (aged 8 to 13) to investigate their knowledge of dieting. Schur and colleagues (2000) found that the children were well educated about what constitutes dieting which they described as exercise combined with the avoidance of particular foods. Recent research has investigated this relationship between restraint and reported food intake and has subsequently found evidence for an understanding of dietary restraint in girls by age nine (Shunk & Birch, 2004).

Inconsistent evidence on the influence of dieting may be due to the lack of precision in its definition. It may be possible that unhealthy dieting not healthy dieting is associated with increased risk of AN or BN (Butryn & Wadden, 2005) or indeed, as Stice and colleagues (2008) concluded, severe fasting as opposed to less severe dieting may be the problem. French, Perry, Leon and Fulkerson (1995) found that the majority of adolescent dieters engaged in healthy weight control behaviours (moderate exercise and improved nutrition) as opposed to unhealthy weight control behaviours (fasting, diet pills and vomiting). The authors suggested that girls engaged in these behaviours in the context of a healthy lifestyle and that the behaviours did not lead to drastic weight loss. Although aiming for a healthy lifestyle seems to be

innocuous, caution must still be exercised to ensure that appropriate behaviours do not develop into extreme and risky behaviours and occur in the context of moderation (French et al., 1995).

Developmental Course of EDs

The majority of AN cases have an onset during adolescence and the age of onset for BN cases is typically later in adolescence or early adulthood (Bulik, 1994). Adolescence is a vulnerable time for girls given the challenges that arise, such as the onset of dating, desire for peer approval and pubertal changes. Specifically, the normative body changes that occur during this time may lead to weight and shape consciousness and, combined with common teenage challenges, may contribute to the development of an ED (Attie & Brooks-Gunn, 1989; Fear et al., 1996; Gralen et al., 1990; Levine & Smolak, 1992). In addition, the Western sociocultural pressure to be thin, conveyed through the media, may encourage adolescent girls to view weight loss as a way of increasing their self-worth and to gain control of their eating and of other aspects of their behaviour. Successful weight loss is reinforced by social approval, increased control and self-esteem until shape and weight become an individual's primary measure of self-worth (Fairburn, Shafran, & Cooper, 1999). Wertheim, Koerner and Paxton (2001) found that by the time girls reach approximately age 14, their eating behaviour is relatively stable, suggesting that if an individual develops pathological eating behaviours, she is likely to continue these behaviours. Targeting prevention strategies at younger individuals before this critical stage could help to prevent the onset of AN or BN.

Although the majority of research on established risk factors for EDs has examined women and adolescents, an increasing number of recent studies have shown that pathological eating behaviours can develop earlier in childhood. Although clinical

EDs are rare in childhood, research has indicated that weight control strategies such as dieting can be observed in girls as young as five (Collins, 1991; Flannery-Schroeder & Chrisler, 1996; McCabe & Ricciardelli, 2001; Oliver & Thelen, 1996; Vander Wal & Thelen, 2000; Wood, Becker, & Thompson, 1996). Maloney, McGuire and Daniels (1988) found that 9% to 14% of preadolescent girls scored above the threshold in the Children's version of the Eating Attitude Test (Maloney et al., 1988), indicating severe eating disturbances. Moreover, Maloney and colleagues (1988) found that 20% to 56% of young girls dieted as a means of losing weight, 44% reported exercising to lose weight, 6% reported binge eating and 2% reported self-induced vomiting as a means of controlling their weight. Many children have internalised the societal ideal of thinness, are aware of the connection between body weight and eating, and believe that dieting is the primary means for achieving the ideal body (Flannery-Schroeder & Chrisler, 1996; Lowes & Tiggemann, 2003; Ricciardelli & McCabe, 2001a).

Not surprisingly, a longitudinal study by Marchi and Cohen (1990) found that early eating disturbances were predictive of later eating problems. Dieting behaviours are more likely to increase with age (Edlund, Halvarsson, Gebre-Medhin, & Sjoeden, 1999). In their study, Edlund and colleagues (1999) reported that 28.9%, 51.3 %, 49.1% and 66.2% of girls aged 10, 12, 14 and 16 dieted, respectively. Unhealthy eating behaviours are particularly dangerous for children, who need to receive adequate nutrition for normal physical development (Lask & Bryant-Waugh, 2000; Wood et al., 1996). Children who engage in these pathological eating behaviours may later develop more serious eating problems such as AN or BN. These findings elucidate the need to deter these unhealthy practices by encouraging healthy body image and eating attitudes in young children.

Summary of Eating Pathology and Rationale for this Research

Rates of EDs in New Zealand have been found to be comparable to other Western countries. Despite this fact, very few studies have examined eating pathology and body image in New Zealand, including research into the factors that may contribute to the development of unhealthy eating attitudes and behaviours. Given the complexities of treating EDs, reducing risk may be a useful intervention target and should focus on not only targeting women and adolescent girls, but children as well. Furthermore, given that subthreshold EDs are more common than AN or BN and are accompanied by a similar amount of psychological distress, they are as important to understand (Fairburn & Bohn, 2005; Johnson & Wardle, 2005). Numerous risk factors have been implicated in the etiology of eating pathology. The Sociocultural Model of Eating Pathology (Stice, 1994), which will be discussed next, has gained recent attention as it seeks to explain why, in our current social climate, some women develop EDs and some do not. Further, research has started to explore the individual risk factors that may interact with various parts of this model. Although there are factors that seem to play a formative role in the development of EDs, for example body dissatisfaction, unanswered questions regarding the impact of these individual factors exist.

The overarching goals of this research were to examine the prevalence of established risk factors for eating pathology, the correlates of these risk factors and most importantly, the moderators of these risk factors. One aim of this research was to fill some lingering gaps in New Zealand eating pathology research in order to understand these problems among New Zealand females and to compare these findings with risk factor studies abroad. A second aim of this research was to test the factors that interact with various parts of the Sociocultural Model of Eating Pathology,

which suggests eating pathology is due to one's social environment. Testing for potential moderator factors could isolate the factors that may increase or decrease the likelihood of these negative outcomes. This research employed a variety of methodologies to statistically study this issue with the hope that the findings of this research could provide potential targets for longitudinal research and, ultimately, prevention efforts. A better knowledge of these individual risk factors to eating pathology, within the context of our wider social environment, may ultimately help prevent these insidious and devastating disorders.

The Sociocultural Model of Eating Pathology

The emergence of thinness as a Western female beauty ideal has been associated with the growing rate of body dissatisfaction and eating pathology among women and girls. In particular, this beauty ideal has been communicated through the mass media, for example, television and magazines. Although the ideal body weight for women has become gradually slimmer and increasingly portrayed in the media (Wiseman, Gray, Mosimann, & Ahrens, 1992), this ideal is unachievable for the majority of women. Ironically, this trend has occurred during a time when the average child and adolescent is getting heavier (Wang & Lobstein, 2006). In the time period 1979-1988, 60% of Miss America contestants and 69% of Playboy centrefolds weighed 15% or more below than their expected weight for women their height (Wiseman et al., 1992), thus meeting one of the four diagnostic criteria for AN. Despite very few being able to meet this unrealistic standard, women are being informed by magazine articles and weight loss advertising that body shape is "infinitely malleable" (McCarthy, 1990; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999, p. 87).

The Sociocultural Model of Eating Pathology purports that body dissatisfaction and eating disturbances are associated with the pressure to be thin from one's social environment (Stice, 1994; Striegel-Moore & Smolak, 2001). Social pressures that reinforce the thin ideal can come from a variety of sources including the media, parents and peers, and imply that thinness leads to social rewards such as acceptance and happiness (Cash, 1990). These messages remind women how far they are from the ideal shape through a range of sources including weight-related teasing, encouragement to diet and the exhortation of ultra-thin models (Thompson & Stice, 2001). Those who value this media message and perceive a discrepancy between their appearance and the thin ideal may be more likely to engage in eating disordered behaviour in order to reduce this discrepancy (Wertheim, Paxton, Schutz, & Muir, 1997). The lack of EDs in cultures where the thin media ideal is absent further supports this model (McCarthy, 1990). For example, prior to the introduction of television to Fiji, pathological eating behaviours were absent and body image concerns were rare (Becker, 2004; Becker, Burwell, Herzog, Hamburg, & Gilman, 2002). In terms of this model, exposure to and awareness of the thin ideal are unlikely to solely influence body dissatisfaction or disturbed eating given that many women are exposed to the media but do not engage in eating pathology (Cusumano & Thompson, 2001; Heinberg & Thompson, 1995; Polivy & Herman, 2002). Therefore, researchers have started to focus on internalisation of the thin ideal and the role it plays in influencing later body dissatisfaction and eating pathology.

Conceptually, the process of internalisation is a subconscious process of 'buying into' societal values as a personal standard through learning or socialization, and in the case of the thin ideal, accepting this unhealthy and unrealistic ideal (Tester & Gleaves, 2005; Thompson, Heinberg et al., 1999). Women are encouraged to compare

themselves to the unrealistic and unhealthy thin ideal, and because the ideal is unattainable for most, the disparity between actual and ideal shape among those who have internalised these values, engenders body dissatisfaction. In turn, high levels of body dissatisfaction increases the risk for disturbed eating behaviours, such as excessive dieting or purging, in order to attain the thin ideal (see Figure one) (Fingeret & Gleaves, 2004; Stice, 1994). Evidence for the Sociocultural Model has been demonstrated in children (Blowers, Loxton, Grady-Flesser, Occhipinti, & Dawe, 2003; Hermes & Keel, 2003), adolescent (Stice & Whitenton, 2002) and young adult populations (Stice, Schupak-Neuberg, Shaw, & Stein, 1994); (see Cafri, Yamamiya, Brannick, & Thompson, 2005, for a review). It is likely that individual factors interact with different parts of this model and thus amplify the effects of each relationship. Research is beginning to isolate the factors that may prevent women from progressing to the subsequent stages of this Sociocultural Model, in order to understand what may ultimately protect women from developing an ED (e.g., Downey & Chang, 2007; Tester & Gleaves, 2005; Twamley & Davis, 1999; Tylka, 2004; Warren, Gleaves, Cepeda-Benito, del Carmen Fernandez, & Rodriguez-Ruiz, 2005). These moderating factors will discussed at later points in this thesis.

The following sections will discuss the risk factor and moderator research on the components of this model, namely sociocultural factors, and the two individual factors, 1) body image dissatisfaction and 2) thin ideal internalisation. Of course, there are additional established individual risk factors that are important to consider. Therefore, following discussion of the abovementioned factors, individual factors beyond the Sociocultural Model and pertinent to this research will be reviewed.

Established Sociocultural Risk Factors for Eating Pathology

The role of sociocultural factors in influencing body dissatisfaction and later eating pathology has been well supported in the literature (Cafri et al., 2005; Stice, 2002). Specifically, Stice (1994) put forward three different types of sociocultural factors: media, parents and peers. It is thought that these risk factors are mainly communicated to an individual via pressure, which may come in the form of comments or actions, and modelling behaviours pertaining to weight loss or body dissatisfaction (Stice, 1998). These three sources of sociocultural influence will each be discussed in turn.

Media Influence

Due to the pervasive nature of television and magazines, the mass media are one of the strongest communicators of the idealised body. In a New Zealand study, media consumption was associated with increased awareness and internalisation of the thin ideal (Miller & Halberstadt, 2005). Indeed, Levine and colleagues (1994) found that among teenage girls who read magazines on a regular basis, 70% reported that magazines provided them with important beauty and fitness information. Exposure to media content promoting ideal weight, shape and appearance is associated with body dissatisfaction through encouraging women to compare themselves to the unrealistic and unhealthy thin ideal (Cusumano & Thompson, 2001; Field et al., 2001; Harrison & Cantor, 1997; Levine & Smolak, 1996; Noordenbos, 1994; Paxton, Schutz, Wertheim, & Muir, 1999; Stice & Bearman, 2001; Stice et al., 1994). Because of the strong conjectured relationship between internalisation, body dissatisfaction and eating pathology, media influence is an important risk factor for eating pathology. The media not only reinforce the thin ideal but may also erroneously instruct women on how to

achieve the thin ideal, through restrictive dieting and overexercising (Fairburn & Cooper, 1982; Levine & Smolak, 1998).

Whereas the media portray the thin ideal as leading to social rewards such as success and happiness (Harrison, 2000), the media portray overweight individuals in a negative light. Becker and colleagues (2002) examined the impact of media one month and 38 months after television signals arrived in Nadroga, Fiji, by comparing two groups of Fijian adolescent girls. This area was chosen because there had only been one reported case of AN by the mid 1990's and because of the lack of television until 1995. Furthermore, Fiji culture has traditionally encouraged full-bodied figures and large appetites. Their research found that among the adolescent group studied after one month (mean age = 17.3), 0% had induced vomiting, 13% were at risk of developing an ED and few spoke of dieting. In comparison, among another adolescent group studied after 38 months (mean age = 16.9), 11% had induced vomiting, 29% were at risk for an ED, 69% said they had been on a diet and 74% said they felt too fat. These findings demonstrate the relationship between the Western media ideal of thinness and eating disordered behaviour after rapid socio-economic development.

Research has implicated the importance of the type of media consumed in addition to the quantity consumed (Hofschire & Greenberg, 2002). Tiggemann and Pickering (1996) suggested that increased exposure to thin idealised images on the television, as opposed to mere television exposure, may lead to increased body dissatisfaction and drive for thinness. Stice and Shaw (1994) found that after a three minute exposure to ultra-thin models taken from a women's magazine, participants reported higher levels of body image dissatisfaction, in comparison to those exposed to average sized models. Further, studies have found that increases in body dissatisfaction after exposure to the thin media ideal are significantly stronger for

women who had more pronounced initial levels of body dissatisfaction and who had elevated levels of thin ideal internalisation (Groesz, Levine, & Murnen, 2002; Heinberg & Thompson, 1995; Posavac, Posavac, & Posavac, 1998). These findings may also suggest that women who are dissatisfied with their bodies and have the desire to be thinner, internalise and seek out such televised media images (Polivy & Herman, 2002; Stice et al., 1994). On the other hand, Harrison and Cantor (1997) found that television exposure predicted body dissatisfaction among college women, regardless of the viewers' interest in fitness and dieting content. This finding emphasises the often subconscious process of internalisation.

Preadolescent children are also influenced by media ideals of thinness. Dohnt and Tiggeman (2006) found that the media were likely to contribute to body image disturbance in 5 to 8 year old girls. Girls who watched television shows that endorsed appearance, for example *Friends*, were more likely to be dissatisfied with their bodies (Dohnt & Tiggemann, 2006). They found that the older the girls were, the more likely they were to be exposed to magazines and television shows promoting the thin ideal. Although Field and colleagues (1999) found that girls who were regular readers of fashion magazines were more likely to report a desire to lose weight and diet, television viewing is considered a stronger predictor of eating pathology (Harrison & Hefner, 2006). Among children, it seems the relationship between media exposure and body dissatisfaction is not always contingent upon internalising the thin ideal (Harrison, 2000). Children may model the dieting behaviours they see on television, without yet internalizing the thin ideal, because these behaviours are seen as a normal part of adult life and may even be portrayed as glamorous. Consequently, they may internalise the thin ideal at a later stage in life (Levine & Harrison, 2004).

Parental Relationship

A maladaptive parent-adolescent relationship has been associated with an increased prevalence and maintenance of body dissatisfaction, dieting and eating problems in adolescent girls (Archibald, Graber, & Brooks-Gunn, 1999; Byely, Archibald, Graber, & Brooks-Gunn, 2000; Field et al., 2001; Levine et al., 1994; McCabe & Ricciardelli, 2003b; Pike & Rodin, 1991; Polivy & Herman, 2002; Swarr & Richards, 1996; Wertheim, Mee, & Paxton, 1999). Typically, three social factors have been purported to contribute to the familial influence on eating pathology: unhealthy parent-child relationship, parental modelling of dysfunctional eating behaviours, and direct attitudes or opinions via teasing and comments (Phares, Steinberg, & Thompson, 2004). Research with adolescent girls (mean age =12.6) has found that peer and media influences were more important than parental influences (Shroff & Thompson, 2006). Shroff and Thompson (2006) suggested that parental factors might be more salient when girls are younger and more concerned by their parents' opinions.

Unhealthy parent-child relationship. Swarr and Richards (1996) found that adolescent girls (13-15 years old) who had a healthy relationship with their parents experienced fewer weight and eating concerns concurrently. The girls also had healthier eating attitudes at a two-year follow up. Perceived closeness, friendliness and time spent with their mother and father, all predicted eating concerns two years later. Similarly, Byely and colleagues (2000) found that girls' perceptions of negative family relations significantly predicted eating pathology over time. Research has demonstrated bidirectional effects between parental relationships, dieting and body image, and longitudinal direct effects of parental relationships on dieting and body image (Archibald et al., 1999). These findings indicated that a negative parent-

adolescent relationship might be associated with greater dieting in young adolescent girls longitudinally.

Parental modelling. Parental modelling of eating behaviour can adversely affect daughters' own eating behaviour. Pike and Rodin (1991) suggested that girls (mean age =16) might learn disordered eating behaviours through maternal modelling. The authors compared mothers who had a child with a pattern of disordered eating with mothers whose child did not exhibit disordered eating behaviour (non-clinical control group). According to the authors, mothers of girls with disordered eating had higher rates of weight concerns and disordered eating behaviours, both historically and concurrently, compared with mothers of daughters in a non-clinical control group. Further, mothers of girls with disordered eating were more likely than mothers of the non-clinical group to be critical of their daughters' weight and appearance, thought that their daughters should lose weight and thought that their daughters were less attractive than their daughters' self-ratings, even after controlling for daughters' actual weight. However, it is difficult to rule out the possible role of genetic transmission in this study, in light of the strong body of research supporting genetic factors in eating pathology (Bulik, 2004). That is, there may be a genetic reason for the similarity between mothers and daughters' eating pathology.

In a retrospective study of college age women, perceptions of maternal modelling of negative body-image attitudes and behaviours, and preoccupation with being overweight during childhood accounted for current body and weight concerns (Rieves & Cash, 1996). Wertheim and colleagues (1999) found that only when parents engaged in extreme weight loss strategies, such as fasting and crash dieting, did the parents' own weight loss behaviours predict the daughters' restraint. This finding demonstrates that daughters eating behaviour may be related to the severity of

the parents' weight loss behaviours. A study using younger participants (mean age = 12.3) found that mothers' dieting behaviour was not predictive of daughters' dieting, suggesting that these modelling behaviours may be more salient during later adolescence or that the effect of modelling might be delayed (Byely et al., 2000).

Parental encouragement. Some researchers have argued that direct encouragement from parents to lose weight has a strong influence on disordered eating behaviour, including the desire to be thinner, weight concerns and dieting behaviours (Ogden & Steward, 2000; Thelen & Cormier, 1995; Wertheim et al., 1999). Wertheim and colleagues (1999) found that, although fathers and mothers both encouraged their daughters to lose weight, mothers were more likely than fathers to instruct their daughters to diet, to criticise their weight and even to engage with them in weight control practices. Furthermore, if the mother was directly encouraging the daughter to diet, encouragement from the father did not add significantly in predicting the daughters' dieting behaviour (Wertheim et al., 1999). McCabe and Ricciardelli (2003b) suggested that parental influence on body satisfaction may indirectly influence weight loss among adolescent girls. In particular, the authors found that feedback from parents influenced their daughters' body dissatisfaction and not their weight loss.

Although the pattern of parental transmission has not been clearly identified, familial factors seem to originate at preadolescence (Byely et al., 2000). Hill and Pallin (1998) found that among 8 year old girls, the perception of maternal dieting was related to increased rates of the girls' dieting behaviour. Moreover, Field et al. (2001) studied adolescents and preadolescents as one group (aged between 9 and 14) and found that girls who perceived their mother was trying to lose weight were more likely to become constant dieters. In Field and colleagues' study, girls' perception of

how their fathers saw them was more important than how they perceived their mothers' opinion of their thinness. Put together, these findings demonstrate the importance of the parent-daughter relationship in body image and eating behaviours during both adolescence and preadolescence and highlight the importance of preventing these adverse interactions between parents and daughters.

Peer Relations

Peer relations and the desire for peer acceptance have been shown to influence disordered eating behaviour and restrictive dieting through encouragement, modelling of behaviour and teasing (Levine et al., 1994; Paxton et al., 1999). Crandall (1988) revealed that negative same-gender peer relationships in late adolescence (19 years old) were associated with increased bulimic symptomatology concurrently. Interestingly, his research demonstrated that binge eating frequency among participants was predicted by the binge eating frequency of their friends. As friendship groups grew more cohesive, girls' binge eating behaviour became more like that of their friends.

Paxton et al. (1999) found that girls (mean age = 15.5) in the same friendship group shared similar levels of dietary restraint, weight concerns, and extreme weight loss behaviour. The girls with higher weight concerns spent more time talking about dieting, more frequently compared their bodies with others, received more weight-related teasing from friends and perceived their friends as being more preoccupied with weight loss. Paxton and colleagues (1999) further found that extreme weight loss and negative body image was predicted by the belief that thinness results in having better friends. Seemingly, girls seek friendships with others who value weight and shape or model the weight concerns of their friends because, perhaps, they want to be like them (Dorian & Garfinkel, 2002). Lieberman, Gauvin, Bukowski and White

(2001) found that popular girls reported greater disordered eating and negative body image.

In terms of beliefs about the value of thinness, in a study of adolescent girls, 44% responded that they would not be popular with the boys unless they were thin (Nichter & Vuckovic, 1994). Similarly, adolescent girls who believed thinness would improve their friendships were more likely to diet and be more concerned with their body (Gerner & Wilson, 2005). Specifically, Gerner and Wilson (2005) found that the belief that thinness would improve their male friendships had the largest contribution to body dissatisfaction, restrained eating and body image. This finding indicates that adolescent girls believe that thinness is important in maintaining successful friendships more so with males, perhaps because of the perceived value that male peers put on female appearance.

Although few studies have investigated peer influences during childhood, children can also be negatively affected by peer encouragement. For example, Phares and colleagues (2004) found a significant relationship between peer influences and body image disturbance, especially among girls. Similarly, Dohnt and Tiggemann (2006) found that peer desire for thinness was temporally antecedent to body dissatisfaction. However, in a longitudinal study (follow up 10 months) peer relations were not related to dieting cross-sectionally or over time (Saling, Ricciardelli, & McCabe, 2005). Perhaps peer influence is more closely related to body dissatisfaction than it is to eating pathology. Alternatively, the effects of peer influence may be salient during adolescence because of the increased value put on male friendships during that time (Gerner & Wilson, 2005).

Weight-related Teasing

Weight-related teasing has been associated with a greater risk for body dissatisfaction, eating disturbances and weight-control behaviours (Cattarin & Thompson, 1994; Hayden-Wade et al., 2005; Lunner et al., 2000; Polivy & Herman, 2002; Thompson, Coovert, Richards, Johnson, & et al., 1995). Specifically, Thompson, Fabian, Moulton, Dunn and Altabe (1991) found that weight-related teasing was associated with worse outcomes, such as depression and low self-esteem, than was general appearance-related teasing. Research shows that women and girls with eating disturbances have a greater history of appearance-based teasing than those who do not display problem eating (Brown, Cash, & Lewis, 1989; Paxton et al., 1999). Indeed, Neumark-Sztainer and colleagues (2007) found that adolescent girls who reported being teased about their weight were 1.5 times more likely to develop binge eating and extreme weight-control behaviours five years later.

Teasing and appearance-related feedback seems to affect body dissatisfaction, which, in turn, affects eating pathology (Schwartz, Phares, Tantleff-Dunn, & Thompson, 1999; van den Berg, Wertheim, Thompson, & Paxton, 2002). Cattarin and Thompson (1994) found that initial teasing was associated with greater body dissatisfaction among adolescent girls at a three year follow up, but did not predict their drive for thinness above body dissatisfaction. Similarly, research conducted by van den Berg and colleagues (2002) suggested that body dissatisfaction was more strongly predicted by teasing than by BMI. Fabian and Thompson (1989) suggested that among adolescent girls, both teasing frequency and the effect of the teasing on the individual were related to eating disturbances, body dissatisfaction and negative affect. Further, Hayden-Wade et al. (2005) found that the emotional impact of weight-related teasing was related to increased loneliness and decreased confidence in

appearance. Perhaps, the level of distress an individual experiences because of teasing, as opposed to presence of teasing, is more closely related to body dissatisfaction.

Few studies to date have examined weight-related teasing in a younger sample (e.g., Gardner, Stark, Friedman, & Jackson, 2000; Hayden-Wade et al., 2005) and even fewer studies have considered the self-reported effect of teasing on preadolescent girls (e.g., Hayden-Wade et al., 2005). In a study of younger adolescents girls (mean age = 12.82), weight-related teasing predicted later increased bulimic behaviours such as binge eating (Wertheim et al., 2001). Similarly, Gardner, Stark, Friedman and Jackson (2000) examined predictors of eating pathology with participants ranging from 9 to 14 years of age and found teasing to be a significant predictor at ages 12 and 14, yet moderately significant at age 6, and non-significant from ages 7 to 11. However, when studying girls and boys separately, the authors found teasing to be a significant predictor for boys only. This interesting and inconsistent finding raises the need for further research to explore the influence of teasing in eating pathology during preadolescence.

Summary of the Contribution of Sociocultural Risk Factors

Sociocultural factors seem to play an important contributory role in the development of eating pathology. The sociocultural ideal that thin is attractive and associated with a myriad of positive outcomes is likely to encourage an individual to pursue this ideal. In many ways, the Sociocultural Model explains why individuals exposed to our current social climate are more likely to experience the pressure to be thin and engage in pathological behaviours to achieve thinness. Although some research has not found a significant relationship between sociocultural factors and eating pathology, most research tends to concur that sociocultural influences are

indeed related to eating pathology, most likely via body dissatisfaction. Sociocultural messages can be communicated through media, parents and peers, and it is likely that these factors are influenced and exacerbated by other individual risk factors. Although preventing or decreasing an individual's exposure to the prominent social value of thinness is difficult, ascertaining the individual factors that foster or protect one from the transmission of the thin ideal may lead to the development of more targeted interventions. Having reviewed the sociocultural factors that are implicated in eating pathology, this thesis will now discuss the individual factors in the Sociocultural Model along with other risk factors conjectured to play a role in the development of eating pathology.

Established Individual Risk Factors in the Sociocultural Model

Body Image Dissatisfaction

Definition of body image dissatisfaction. Body image research has seen much growth in recent years, and due to differences in defining and operationalising the term, 'body image' has often been misunderstood. In this research, body image is defined as how an individual perceives, feels and thinks about her physical appearance (Thompson, Heinberg et al., 1999). Often body image dissatisfaction, or body dissatisfaction, is operationalised by the discrepancy between an individual's perception of their current body image and their desired body image, however assessment should also include specific questions about level of dissatisfaction with overall body and specific body sites (Cafri & Thompson, 2004; Polivy & Herman, 2002). Some researchers suggest that body image concerns are best conceptualised along a continuum ranging from no concerns to extreme concerns (Reas & Grilo, 2004; Thompson, Heinberg et al., 1999). Extreme concerns may refer to a more specific and severe clinical condition that is related to psychological impairment and

the need for treatment, such as seen in individuals with Body Dysmorphic Disorder (Reas & Grilo, 2004).

According to the Sociocultural Model, it is not until a woman has developed a belief about the importance of the thin ideal, that she is likely to develop body dissatisfaction. Given the social pressure placed on being thin, it is not surprising that the vast majority of women and adolescent girls are dissatisfied with their shape and weight. Spitzer, Henderson and Zivian (1999) reported rates greater than 80% for university age women. Accordingly, Rodin, Silberstein and Striegel-Moore (1984) referred to the experience of body dissatisfaction as "a normative discontent," emphasising the universal nature of these concerns (p. 267). Indeed, a study comparing adolescent girls with either AN, BN, subthreshold AN, subthreshold BN or no ED, found that body dissatisfaction was a common concern for each of these groups (Bunnell, Cooper, Hertz, & Shenker, 1992). However, clearly not all women who are dissatisfied with their bodies have eating disturbances. In a New Zealand study, Fear et al. (1996) reported that 71% of adolescent girls indicated body dissatisfaction, as measured by the disparity between perceived current shape and thinner ideal figure (Stunkard, Sorenson, & Schulsinger, 1983). Although only three body image studies have been conducted in New Zealand in the past 20 years, these studies have demonstrated that body dissatisfaction among New Zealand women and adolescent girls is comparable to that seen in other Western countries (Fear et al., 1996; Miller & Halberstadt, 2005; Ritchie, 1988).

Wood and colleagues (1996) found that female body dissatisfaction begins before adolescence. It is estimated that between 28% and 55% of preadolescent girls have poor body image and desire a thinner body size (Collins, 1991; Hill & Bhatti, 1995; Lowes & Tiggemann, 2003; Maloney et al., 1988; Rolland, Farnill, & Griffiths,

1996; Schur et al., 2000; Smolak, 2002; Thelen & Cormier, 1995; Thelen, Powell, Lawrence, & Kuhnert, 1992). These high prevalence rates illustrate that body dissatisfaction in preadolescence may also be a common if not normative experience (Phares et al., 2004). As with adolescents, preadolescent girls exhibit significantly greater body dissatisfaction than preadolescent boys (Hill & Pallin, 1998; Lowes & Tiggemann, 2003). For example in the Wood and colleagues study (1996), girls (8-10 years of age) reported greater body dissatisfaction than same-aged boys on both pictorial (Child Figure Drawings, Collins, 1991) and questionnaire measures (Body dissatisfaction subscale of the Eating Disorders Inventory, Garner, Olmstead, & Polivy, 1983). Research suggests that at approximately age 7 children seem to be aware of and have acquired adult standards of appearance (Feldman, Feldman, & Goodman, 1988). Weight concerns and the desire for thinness also emerge in girls around this time, although these concerns become more pronounced with age (Davison, Markey, & Birch, 2000; Lowes & Tiggemann, 2003; Smolak, 2002). Given that body dissatisfaction may increase as children approach adolescence (Lawrence & Thelen, 1995; Lucero, Hill, & Ferraro, 1999), understanding these problems in children as well as in adolescents and women is important.

As well as dissatisfaction with own shape and weight, children also stigmatise others who are perceived as overweight. In their study of 9 year olds, Hill and Silver (1995) found that perceptions of overweight were associated with poor social functioning, bad health and reduced academic success. Moreover, children strongly disapprove of other children who are overweight and stigmatise obese peers more than peers with other disabilities (Latner & Stunkard, 2003). Indeed and perhaps as a result of this stigma, children with a high BMI tend to be less satisfied with their shape and weight as opposed to children with a low BMI (Holt & Ricciardelli, 2002;

Muris, Meesters, van de Blom, & Mayer, 2005). Children's negative and stigmatising attitudes about overweight reflect societal beliefs that are present during childhood.

Body dissatisfaction and eating pathology. Body dissatisfaction is one of the most robust predictors of eating pathology among women and girls (Cash, 1990; Fabian & Thompson, 1989; Lundholm & Littrell, 1986; Stice, 2002; van den Berg et al., 2002). Women and girls who are dissatisfied with their bodies are more likely to pursue weight loss, and for some, through inappropriate means such as restrictive dieting and compensatory behaviours. Chandy, Harris, Blum and Resnick (1995) reported that body satisfaction serves as a protective factor for adolescent girls who are otherwise at high risk for developing an ED. Therefore, reducing body dissatisfaction may be a promising way of decreasing risk of eating pathology and extreme weight control behaviours in girls.

Body dissatisfaction is not always present in women and girls with diagnosable EDs, demonstrating that other factors are likely to play a part in the development of eating pathology (Polivy & Herman, 2002; Reas & Grilo, 2004). Body dissatisfaction might not always be associated with eating pathology because unhealthy eating practices may be the standard in our culture, regardless of how one feels about their body, or because eating pathology successfully improves one's body satisfaction (Twamley & Davis, 1999). Furthermore, women and girls may be extremely dissatisfied with their bodies, yet not engage in unhealthy eating attitudes and behaviours. Research has started to examine the factors that may interact with body dissatisfaction in predicting eating pathology, especially because body dissatisfaction among women is common and EDs are relatively rare (Tylka, 2004). Tylka (2004) found that body surveillance (how much an individual monitors his or her body), neuroticism, and having a family member and friend with an ED

intensified the relation between body dissatisfaction and ED symptomatology. Moreover, Twamley and Davis (1999) found that high self-esteem buffered the dissatisfaction-eating pathology pathway. In a study of college women, high levels of socially prescribed perfectionism were also found to moderate the pathway between body dissatisfaction and bulimic behaviours and dieting (Downey & Chang, 2007). Clearly, subsequent research that explores other moderating factors may guide efforts that aim to mitigate the effects of body dissatisfaction on eating pathology.

Internalisation of the Thin Ideal

Internalisation of the thin ideal is a conjectured risk factor for subsequent eating pathology, and may explain why some women are excessively influenced by the media and why some are not (Thompson & Stice, 2001; Wichstrom, 2000). Studies have found that internalisation is a more important predictor of body image dissatisfaction than is awareness of societal standards (Cusumano & Thompson, 2001; Heinberg & Thompson, 1995). Women are encouraged to pursue the thin ideal in order to conform to the media standard of attractiveness, while also being promised an increase in self-esteem and social approval (McCarthy, 1990). Because appearance is a primary means of self-evaluation for women and extreme thinness is often unattainable, thin ideal internalisation theoretically precedes body dissatisfaction. (Garner et al., 1983; Paxton et al., 1999; Stice, 2001a; Stice & Bearman, 2001; Stice et al., 1994; Thompson & Heinberg, 1999). Twamley and Davis (1999) found in their moderation study that women who were aware of thinness norms were more likely to be dissatisfied with their body when their level of thin ideal internalisation was high. The relationship between body dissatisfaction and eating pathology is well-established (Stice, 2002); therefore, thin ideal internalisation is indirectly related to eating pathology.

The relationship between thin ideal internalisation and body dissatisfaction has received much recent attention. In an experimental study where women were either shown videotapes of ultra-thin models or neutral stimuli, women who were exposed to the experimental tape and who had high levels of dispositional internalisation reported greater body dissatisfaction, whereas women in the same condition with low levels of dispositional internalisation had decreased body dissatisfaction (Cattarin, Thompson, Thomas, & Williams, 2000). Further, an experimental intervention that aimed to reduce thin-ideal internalisation in women, resulted in significant decreases in participant body dissatisfaction (Stice, Mazotti, Weibel, & Agras, 2000). These findings demonstrate that thin ideal internalisation mediates the relationship between media exposure of thin images and body dissatisfaction (Cattarin et al., 2000). Thin ideal internalisation is a promising avenue for prevention efforts as decreasing internalisation leads to changes in body dissatisfaction, that in turn, may mitigate future eating pathology (Stice & Shaw, 2004).

Because awareness and internalisation of societal ideals of thinness may not be sufficient to explain body dissatisfaction, recent research has focussed on the factors that moderate this relationship and amplify internalisation of thinness standards. Tester and Gleaves (2005) found that, among college-aged women, high levels of self deceptive enhancement was associated with a weakened relationship between awareness of and internalisation of the thin ideal. In addition, Tester and Gleaves (2005) found that family history of weight and shape concerns marginally amplified the awareness-internalisation relation. Moreover, nonconformity, low family pressures, ethnicity, perceived shape and high self-esteem have been found to mitigate the effect of awareness on internalisation of the thin ideal (Twamley & Davis, 1999; Warren et al., 2005). These findings demonstrate the factors that may protect an

individual from internalising the thin ideal, thereby potentially protecting her from later body dissatisfaction and disturbed eating behaviour. Another study that tested the moderating effect of feminist ideology and self-esteem on the relationship between awareness and internalisation, did not find that these factors were associated with decreased internalisation (Fingeret & Gleaves, 2004).

Other Established Individual Risk Factors

Body Mass Index (BMI)

Increased BMI has been found to increase body dissatisfaction and potential eating pathology among women and girls (Cattarin & Thompson, 1994; Field et al., 2001; Ricciardelli & McCabe, 2001b; Stice, 2002). Because elevated BMI deviates from the thin ideal, many individuals may believe that they need to engage in extreme dieting in order to attain thinness (Stice, 2002). Particularly during pubertal onset, when weight and shape changes become more prominent, adolescent girls become more conscious about weight gain. Graber and colleagues (1994) found that increased adiposity predicted adolescent eating pathology over an 8-year period. However, these authors did not differentiate between the types of eating pathology. Stice (2002) suggested that BMI is likely to foster other risk factors thought to play a role in eating pathology, such as teasing and body dissatisfaction, as opposed to directly encouraging eating pathology. For example, Clark and Tiggemann (2008) found that, among girls aged 9 to 12, high BMI was the strongest predictor of body image concerns at a one-year follow-up. This relationship was still evident in less recent research by Attie and Brooks-Gunn (1989) who found that elevated weight was the strongest predictor of body dissatisfaction among early adolescent girls. Among adolescent girls, those with a high BMI are more likely to perceive pressure from family members and peers to lose weight and to experience teasing (Thelen & Cormier, 1995). Not surprisingly then,

teasing about weight and shape has been found to mediate the relationship between BMI and body dissatisfaction among adolescent girls (Lunner et al., 2000). In addition, Stice (1994) found that BMI might moderate the relation between sociocultural pressure to be thin and body dissatisfaction. That is, for those who have a high BMI, the link between the sociocultural pressure to be thin and body dissatisfaction is more pronounced. It may be possible that high BMI does not itself lead to body dissatisfaction, but does for individuals who adhere to sociocultural norms.

In sum, the relationship between BMI and body dissatisfaction is well supported. The relationship between BMI and eating pathology seems less clear, however, it is likely to be mediated by body dissatisfaction in the context of valuing the thin ideal. Although body dissatisfaction associated with high BMI may foster healthy weight changes for an individual, it is important that weight change behaviours be incorporated into a balanced lifestyle plan, for example, improved nutrition. Researching the factors that may protect women who have elevated adiposity from developing significant body dissatisfaction may inadvertently help the onset of unhealthy eating behaviours, however, should not negate the importance of healthy weight loss for those who are obese.

Personality and Clinical Factors

The relationship between personality factors and EDs is well supported in the literature (Cassin & von Ranson, 2005; Lilenfield, Wonderlich, Riso, Crosby, & Mitchell, 2006; Vitousek & Manke, 1994). Early research into the personality factors associated with AN described girls who were dependent, perfectionistic and compliant (Bruch, 1973 as cited in Lilenfield, 2006). More recently, AN and other EDs have been associated with high levels of neuroticism (Eggert, Levendosky, & Klump, 2007; Podar, Hannus, & Allik, 1999), perfectionism (Halmi et al., 2000; Vitousek & Manke,

1994), and obsessionality (Rogers & Petrie, 2001). Podar and colleagues (1999) found that among women with an ED, eating pathology (as measured by EDI-II scores; Garner et al., 1983) was not only significantly related to neuroticism, but also negatively related to openness to experience and conscientiousness. Low openness to experience is characterised by conservatism, favouring stability over change and disregard to emotional state. Individuals low in conscientiousness tend to be unable to resist impulses, lack planning skills and lack self-control (Podar et al., 1999). The authors also compared the relative contribution of negative affect as well as personality, and found that these personality factors were more closely related to eating pathology than was emotional state during the past two weeks (as measured by the Positive and Negative Affect scale; Watson, Clark, & Tellegen, 1988). Among women with BN, high levels of impulsivity was a salient personality factor (Podar et al., 1999). Because the authors noticed that impulsivity was the only trait that discriminated individuals with BN from those with AN, they treated the eating disordered participants as one group. ED subtypes (i.e. AN-R, AN-BP, BN-P and BN-NP) were not considered in this study.

Research has demonstrated the presence of personality pathology prior to ED onset. In their review, Vitousek and Manke (1994) reported that neurotic personality traits such as obsessionality, dependency, compliance and anxiety tend to precede EDs. Anderluh, Tchanturia, Rabe-Hesketh, and Treasure (2003) found retrospective reports of obsessive-compulsive personality traits during childhood were significantly higher for women with EDs than healthy controls. Similarly, in a study that blind coded interview notes, Rastam, Gillberg and Garton (1989) found that AN patients exhibited greater obsessionality, rigidity, perfectionism and inflexibility prior to illness onset,

relative to a psychiatric control group. Using a psychiatric control group suggested that these personality features were specific to premorbid ED pathology.

Premorbid neurotic personality traits are not necessarily circumscribed to severe cases of EDs. In a prospective study that included EDNOS cases, neuroticism was a strong predictor of ED development over time, with higher levels of neuroticism increasing an individual's risk (Cervera et al., 2003). Similarly, Eggert, Levendosky and Klump (2007) found that, although high levels of neuroticism independently predicted greater disordered eating, neuroticism also mediated the pathway between insecure-resistant attachment and disordered eating. Another study measuring eating pathology as opposed to full-blown EDs, found that obsessionality and dependency accounted for 21% of the variance in Eating Attitudes Test (EAT) scores, a measure of eating disturbance (Rogers & Petrie, 2001).

Research has also demonstrated that personality factors may remain after recovery from an ED. Using the Dimensional Assessment of Personality Pathology (DAPP), Holliday Uher, Landau, Collier and Treasure (2006) found that AN was associated with greater emotional dysregulation, compulsivity and social inhibition in comparison to controls. These personality features were persistent in women who had recovered from their ED but were more accentuated during the acute phase. The personality differences in the two AN subtypes were assessed in Holliday and colleagues' study with few differences identified; results demonstrated that AN-BP reported significantly higher scores than the AN-R group on stimulus seeking and conduct problems post recovery. Given the presence of personality pathology prior to, during and after recovery of an ED, it may be likely that personality pathology is comorbid to an ED.

Finally, two studies to date have examined the Personality Assessment Inventory (PAI; Morey, 1991) with a female ED sample (Bean, Maddocks, Timmel, & Weltzin, 2005; Tasca, Demidenko, & Bissada, 2002). The PAI measures both clinical and personality variables. Tasca and colleagues (2002) found that, compared with individuals with BED, women with AN (both subtypes) and BN were more likely to score significantly higher on most of the subscales of the PAI, namely the anxiety, depression, anxiety-related disorders, schizophrenia, somatic complaints and borderline features scales. The authors found that the AN-R, AN-BP and BN groups did not differ much on the abovementioned scales. Of interest, women with BED reported significantly higher obsessive-compulsive traits than did women with BN. Put together, the above research supports the contribution of personality pathology in the development and maintenance of EDs and eating pathology. However, it may also highlight the common comorbidity between eating pathology and personality.

Perfectionism

Definitions of perfectionism. Perfectionism has been conceptualised as a unidimensional or multidimensional construct. Within a unidimensional framework, perfectionists are seen as individuals who have excessively high standards, who strive to see their impossible standards fulfilled and who use accomplishment to judge their self-worth (Burns, 1980). Moreover, they are unable to compromise their relentless drive for perfectionism and accordingly, view 95% achievement as a failure (Franco-Paredes, Mancilla-Diaz, Vazquez-Arevalo, Lopez-Aguilar, & Alvarez-Rayon, 2005). A main problem with the unidimensional model is that it fails to discriminate perfectionistic individuals who work to an unrealistically high standard alongside critical self-evaluation, from successful individuals who simply work hard to achieve their goals (Franco-Paredes et al., 2005). Therefore, a multidimensional approach has

been proposed as a more accurate way to conceptualise perfectionism in order to differentiate between adaptive and maladaptive perfectionism.

Hamachek (1978) conceptualised perfectionism as either normal or neurotic. Normal perfectionists strive for excellence in order to achieve and derive a sense of pleasure from working hard, but can compromise the precision in their work when required. Although they may seek approval from others, they use this approval as encouragement for future pursuits. Conversely, neurotic perfectionists set impossible standards to achieve, are overly concerned with mistakes and rarely experience satisfaction from their endeavours because they consider their achievements to be inadequate (Hamachek, 1978). According to Hamachek, overconcern for mistakes drives a perfectionist to achieve their goals because of a fear of failure as opposed to a need for achievement. The differentiation between normal and neurotic perfectionism was also supported by Pearson and Gleaves (2006) who, in their confirmatory factor analysis, found that perfectionism comprised three factors: normal perfectionism, neurotic perfectionism and orderliness.

In addition, Hewitt and Flett (1991) described three subtypes identifying the nature of perfectionism: self-oriented, socially prescribed and other-oriented. Self-oriented perfectionism is the personal setting of high standards and the scrupulous evaluation of one's own behaviour. Socially prescribed perfectionism involves the perceived high expectations from others, fear of negative evaluation and avoidance of the disapproval of others (Franco-Paredes et al., 2005). Finally, other oriented perfectionism is characterised by one's unrealistic expectations for others. Some have suggested that these dimensions are congruent with the maladaptive and adaptive concepts of perfectionism, with self-oriented perfectionism indicating a normal or

adaptive type, and socially prescribed perfectionism reflecting a maladaptive type (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993).

Perfectionism and eating pathology. Perfectionism has been associated with a high frequency of general and eating related psychopathology (Flett, Hewitt, & Dyck, 1989; Frost, Marten, Lahart, & Rosenblate, 1990; 1983; Hewitt & Flett, 1991). Perfectionism is a common and characteristic antecedent of both AN, and to a lesser extent BN, in adult and adolescent populations (Fairburn, Cooper, Doll, & Welch, 1999; Forbush, Heatherton, & Keel, 2007; Garner et al., 1983; Halmi et al., 2000; Killen, Taylor, Hayward, Wilson, & et al., 1994; McVey, Pepler, Davis, Flett, & Abdolell, 2002; Tyrka, Waldron, Graber, & Brooks-Gunn, 2002). In comparison to individuals with other psychiatric disorders, individuals with AN tend to have greater perfectionistic tendencies in the eating domain, as well as other global domains (Bardone-Cone et al., 2007; Lilenfield et al., 2006; Shafran, Cooper, & Fairburn, 2002). Evidence supports premorbid perfectionism as a necessary setting condition for the development of EDs; indeed it may be one salient factor that predisposes individuals to AN (Goldner, Cockell, & Srikameswaran, 2002; Slade, 1982; Tyrka et al., 2002). Furthermore, many individuals with AN still present with traits of perfectionism after recovery, demonstrating that perfectionism is not just a state associated with the active phase of AN (Bardone-Cone et al., 2007; Polivy & Herman, 2002; Srinivasagam, Kaye, Plotnicov, Greeno, & et al., 1995). Because of the reported presence of perfectionism prior to, during and following recovery, the specific role of perfectionism as a risk factor seems unclear. A meta-analytic review by Stice (2002) concluded that perfectionism played a small but significant role in the development of eating pathology.

Perfectionism is motivated by rigidly evaluating one's own behaviour and striving to achieve and uphold perfection in order to prevent failure. For individuals with AN, perfectionism is externalised through their impossible standards of thinness, restriction of food intake and extreme efforts in preventing weight gain (Flett et al., 1989; Hewitt, Flett, & Ediger, 1995). Franco-Paredes and colleagues (2005) asserted that weight control appears to offer these individuals control of their own body and social approval from peers. In addition, when one fails to meet his or her high standards of dietary restraint, more stringent self demands are imposed, causing concern for both the physical and psychological wellbeing of the individual (Shafran et al., 2002). Not surprisingly, Halmi et al. (2000) found that women with AN exhibited greater perfectionistic behaviours when their ED was at its worst, suggesting a relationship between the severity of the ED and level of perfectionism. Thus perfectionism is also a maintaining factor that explains the persistence of ED symptomatology, including a dangerously low weight in AN (Fairburn, Cooper, & Shafran, 2003).

Although the role of perfectionism in AN symptomatology is well supported, its role in the development and maintenance of bulimic behaviours is unclear. In a study of university students, Forbush, Heatherton and Keel (2007) found that perfectionism was strongly related to fasting and purging behaviours. They suggested that the relationship between bingeing and perfectionism is due to the presence of fasting behaviours in individuals who binge. This finding may account for why perfectionism is not a risk factor for individuals with binge eating disorder (BED), in which fasting and purging are absent (Forbush et al., 2007).

Vohs, Bardone, Joiner, Abramson, and Heatherton (1999) found a three-way interaction effect between perfectionism, body dissatisfaction and low self-esteem in

predicting bulimic symptomatology. The authors suggested that perfectionistic women (18 to 20 years) with high self-esteem tended to engage in adaptive weight control behaviours because they perceived their weight as being changeable and temporary, whereas perfectionistic women with low self-esteem tended to engage in more maladaptive behaviours, such as binge eating, to control their weight. Seemingly, if shape and weight concerns are accompanied with high self-esteem it may be unlikely that an individual will develop an ED, despite being perfectionistic (Goldner et al., 2002). This finding suggests that perfectionism may not exclusively cause eating pathology but may interact with other risk factors to influence the development of bulimic symptoms.

Vohs and colleagues' research group (Bardone-Cone, Abramson, Vohs, Heatherton, & Joiner, 2006; Vohs et al., 2001) have supported their findings in subsequent studies. However, Shaw and colleagues' (2004) did not support their model despite the use of more sensitive measures, a group of women at higher risk of BN symptom increase, and a longer follow-up period than the Vohs et al. study (2001). Shaw and colleagues (2004) concluded that this interactive model might not be as robust as previously thought. Subsequent research has also not supported this model (Pearson & Gleaves, 2006; Steele, Corsini, & Wade, 2006). Steele et al. (2006) found a three-way interaction between 'benign' or normal perfectionism, perceived weight status and high self-esteem in predicting an increase in bulimic symptoms over a 3-month period. Interestingly this interaction effect was strongest for women who had high self-esteem, possibly suggesting that high self-esteem is insufficient to protect against the development of bulimic symptomatology. However, it is important to consider that because these factors did not predict an increase in those with low self-esteem does not mean that they do not predict BN cross-sectionally or over time, given

the differing initial levels of BN symptomotology. Steele and colleagues concluded that the role of perfectionism in bulimic pathology is complex and in need of further research to better understand its multidimensional effects.

Research has often neglected the multidimensional nature of perfectionism which may have contributed to the inconsistent findings in the literature (Pearson & Gleaves, 2006). There have been divergent findings on the type of perfectionism that is most salient in the development of eating pathology. A study of women with AN and BN found increased scores on both socially prescribed perfectionism and self-oriented perfectionism relative to controls (Cockell, Hewitt, Goldner, Srikameswaran, & Flett, 1996). Similarly, a recent study found that self-oriented perfectionism was predictive of an ED, and was more specific to eating pathology in comparison to depressive and anxiety disorders (Castro-Fornieles et al., 2007). Bardone-Cone (2007) also found that self-oriented perfectionism was related to increased dietary restraint. In a study of female university students, self-oriented perfectionism was related to anorexic symptoms, and socially prescribed perfectionism was associated, more broadly, with eating disordered behaviours, including bulimic symptomatology and appearance concerns (Hewitt et al., 1995). Given this evidence, it is likely that both self-oriented and socially prescribed dimensions of perfectionism are pertinent to eating pathology and, as such, should be considered in risk factor research (Hewitt et al., 1995). Moreover, in their meta-analytic review, Bardone-Cone and colleagues (2007) highlighted that elevated patterns of both “benign” perfectionism, defined by personal standards and achievement striving that are not related to distress, and maladaptive perfectionism are present in individuals with AN and BN. This pattern was more consistent among individuals with AN compared to individuals with BN and those with other psychiatric disorders.

The relationship between perfectionism and eating pathology, especially the perfectionistic concern over making mistakes, might be due to a fear of not achieving sociocultural appearance ideals (Minarik & Ahrens, 1996). However, only one study to date has examined the influence of perfectionism in relation to sociocultural factors. Van den berg and colleagues (2002) found that perfectionism leads to appearance comparison, which leads to body dissatisfaction and, in turn, may lead to eating disturbances. This finding suggests that appearance comparison may be the mechanism by which perfectionism operates on body dissatisfaction and eating disturbances. Moreover, this research purports the early role of perfectionism and illustrates how it may predispose or put an individual more at risk for developing eating disturbance. Research should further examine the relationship between perfectionism and these sociocultural factors, in order to understand the role of perfectionistic beliefs early on in ED development.

Although research supports the role of perfectionism in the development of eating pathology, there has been a scarcity of empirical research examining this relationship in adolescence. In a longitudinal study, Tyrka et al. (2002) found that perfectionism at adolescence was a significant predictor of the onset of AN in young adulthood. Tyrka and colleagues (2002) explained that girls with perfectionistic standards might shy away from the demands of adolescence, a time when flexibility is necessary, and devote their efforts to controlling their weight. Further, McVey and colleagues (2002) found that self-oriented perfectionism was significantly associated with disordered eating and suggested that targeting the reduction of perfectionism in young adolescent girls may be a useful strategy in ED prevention programs.

As with adolescents, research into perfectionism during preadolescence is in its early stages (Hewitt et al., 2000). Although research has demonstrated that

perfectionism in childhood is a predictor of a variety of maladaptive characteristics including depression, anxiety and anger, there has been a lack of research investigating its role in eating pathology (Hewitt et al., 2000). In a retrospective study, Anderluh and colleagues (2003) found that childhood perfectionism was related to increased rates of ED development in later life, compared to healthy controls. Almost two thirds of the eating disordered sample in this study reported perfectionism during childhood. One study to date has examined perfectionism and eating pathology in children, and found that high levels of perfectionism were associated with higher reported levels of dieting and food preoccupation cross-sectionally but not longitudinally (Saling et al., 2005). Given the lack of a longitudinal relationship, they concluded that perfectionism might be a more salient factor during adolescence than preadolescence. Marshall, Gardiner and Greely (2004) suggested that perfectionism reaches it peak at age 15. To this end, perfectionist traits may not be as prominent in preadolescent children or the effects of perfectionism may be delayed. Further research should corroborate these findings.

Self-esteem

Self-esteem is the overall evaluation and regard of one's worth. Perceived competence in specific areas that an individual values, such as academic success or physical appearance, influences one's self-esteem (Shisslak, Crago, Renger, & Clark-Wagner, 1998). Changes in self-esteem commonly occur during adolescence because of the physical and social changes that happen at this time. Teenage girls may become negative about their changing body shape and strive for the thin ideal, especially because the media often portray thinness and weight loss as leading to positive outcomes such as increased self-esteem (Hoare & Cosgrove, 1998).

Low self-esteem is related to increased body dissatisfaction, restrictive dieting and eating disturbances in women and adolescent girls (Button, Sonuga-Barke,

Davies, & Thompson, 1996; Fingeret & Gleaves, 2004; Hesse-Biber, Marino, & Watts-Roy, 1999; Kelly, Ricciardelli, & Clarke, 1999; Mendelson, White, & Mendelson, 1996; Williams & Currie, 2000). A longitudinal study by Button and colleagues (1996) found that low self-esteem at an early age was predictive of later eating pathology in teenage girls. Similarly, research conducted by Hoare and Cosgrove (1998) revealed a strong relationship between low self-esteem and abnormal eating behaviour among adolescents. Not only has low self-esteem been postulated as a risk factor, the Vohs et al. (2001) study suggests that low self-esteem is a key moderating factor in the development of bulimic symptomatology.

Research has demonstrated the protective nature of high self-esteem in the established relationship between body dissatisfaction and eating pathology (Fingeret & Gleaves, 2004; Twamley & Davis, 1999). Twamley and Davis (1999) found that when self-esteem was high, women who were dissatisfied with their bodies were less likely to engage in pathological eating behaviours. Given the conjectured protective role of self-esteem, current prevention programmes for eating pathology tend to target low self-esteem (Pesa, 1999). Following participation in a self-esteem education programme, adolescent girls reported improvements in body image and eating attitudes compared to their levels of eating pathology when the programme started (O'Dea & Abraham, 2000). These changes were also evident in those girls considered most at risk of developing an ED at a 12-month follow up.

Although there is strong support for the role of self-esteem in eating pathology among adolescents and women, research with children has been mixed. Lawrence and Thelen (1995) found that dieting was significantly related to poorer self-concept in girls. Further, Mendelson et al. (1996) found that children (aged between 8 and 10) who had high self-esteem scores had positive attitudes towards their appearance and

weight. These authors suggested that self-esteem and body satisfaction are likely to develop concurrently. Gardner and colleagues (2000) revealed that low overall body-esteem, not low self-esteem, was predictive of eating pathology. The authors suggested that self-esteem was not a significant predictor because of the younger age of the participants in their study (aged 9 to 14), compared to the participants used in past studies. Notably, in their study body-esteem was a significant predictor across most of the age ranges tested. Although low self-esteem may be a tenuous predictor of eating pathology among children (McCabe & Ricciardelli, 2003a; Ricciardelli, McCabe, Holt, & Finemore, 2003), McCabe and Ricciardelli (2003a) found that low self-esteem was associated with body dissatisfaction. They suggested that targeting low self-esteem in children might improve body satisfaction, which in turn might influence eating pathology.

The role of self-esteem in preadolescent eating pathology may be difficult to ascertain given the close relationship between body-esteem and self-esteem among children. Basow (1992) suggested that self-esteem and body-esteem might be interdependent parts of a broader construct of self-concept. For example, among children, body dissatisfaction is closely associated with lower global self-worth and dissatisfaction with other areas of their life, including school achievement (Mendelson, White, & Mendelson, 1995). It is likely that the contribution of low self-esteem to eating pathology during preadolescence is clouded by its theoretical overlap with body-esteem. Alternatively, eating pathology may be more closely associated with self-esteem in adolescent girls due to the normative drop in self-esteem during adolescence (Edlund et al., 1999; Usmiani & Daniluk, 1997). Moreover, the effects of poor self-esteem on eating pathology may be delayed and not noticed until

adolescence. As current research is mixed, further studies need to clarify if self-esteem is a unique and salient risk factor during preadolescence.

Negative Affect

Negative affect refers to a mood state characterised by anger, guilt, sadness or fear (Watson & Tellegen, 1985). Negative affect appears to reciprocally influence eating pathology among adolescent girls and women (Heywood & McCabe, 2006; McCabe, Ricciardelli, & Banfield, 2001). Leon and colleagues (1999) found that, of the factors they studied, negative affect was the only significant predictor of disordered eating over a 3 to 4-year period during adolescence. This finding was further replicated in an independent sample of girls. Likewise, in a study comparing adolescent dieters and non-dieters, Pesa (1999) revealed that negative affect was the second strongest variable, after self-esteem, in differentiating the two groups. Keel, Fulkerson and Leon (1997) found that negative affect was associated with eating pathology cross-sectionally, but was not a longitudinal predictor. In addition, in a prospective study of adolescent girls, depressed mood was predictive of eating pathology, however when initial eating symptoms were controlled for, this effect became non-significant (Wichstrom, 2000). Although the relationship between eating pathology and negative affect seems to be supported in adolescence, negative affect may be more specific to binge eating problems (Stice, 2002).

Although affect does not solely contribute to EDs, negative affect and BN may be reciprocally related (Stice, Burton, & Shaw, 2004; van den Berg et al., 2002). Depressed individuals engage in binge eating as a means of providing comfort and distraction from their negative mood. These individuals may also engage in compensatory behaviours such as laxative abuse and vomiting in order to prevent consequent weight gain and because they believe it serves as an “emotional catharsis”

(Polivy & Herman, 2002; Stice et al., 2004, p.62). Although women with BN report a reduction in anxiety and depression directly after a binge-purge episode, compulsive binge eating and purging fosters feelings of shame and guilt which, in turn, exacerbate one's negative mood (Heatherton & Polivy, 1992; Sanftner & Crowther, 1998). Although negative affect has also been shown to predict increases in bulimic tendencies, Wertheim and colleagues (2001) conducted a path analysis and found that the proposed relationship between negative affect and bulimic symptomatology was not consistent with their data, indicating the role of other factors contributing to bulimic behaviour during adolescence.

Limited research has suggested that negative affect is a significant predictor of eating pathology in preadolescence. For example, Gardner and colleagues (2000) found in their longitudinal study that depression emerged as a predictor of eating pathology at age 10. Likewise, in their longitudinal study, Martin et al. (2000) found that negative affect was a risk factor for eating pathology at early adolescence (ages 12 to 13). However, the age range of participants in the Martin and colleagues study does not clearly differentiate children from adolescents. As such, their findings may be more reflective of the significant role negative affect plays during adolescence. Ricciardelli, McCabe, Holt and Finemore (2003) found that negative affect was a poor predictor of weight loss strategies among preadolescent girls. Regression analyses indicated that negative affect was a significant predictor for only the importance placed on weight and the intentions to lose weight among preadolescent girls (McCabe & Ricciardelli, 2003a; Ricciardelli et al., 2003). Thus, negative affect was associated with weight loss importance and intentions, but not associated with weight loss behaviours. In a prospective study of 8 to 10 year old preadolescents, negative affect did not significantly predict dieting either cross-sectionally or longitudinally (Saling et al.,

2005). The authors suggested that perhaps preadolescent children do not associate dieting with the expectation that weight loss could relieve a negative mood state. Although children with high levels of negative affect may not be more likely to engage in pathological eating behaviours, it may be possible that their intentions to lose weight will increase their future risk for doing so.

Anti-fat Attitudes

Given the emphasis on physical attractiveness and thinness in Western society, it is not surprising that the stigmatisation of overweight individuals is common. Puhl and Brownell (2001) suggested that the visible nature and perceived controllability of overweight, also contributes to an overweight individual experiencing weight stigmatization. Psychological effects of weight stigma or anti-fat attitudes include negative body image and low self-esteem due to rejection, marginalization and teasing (Grilo, Wilfley, Brownell, & Rodin, 1994).

It is likely that weight bias is modelled and transmitted through the popular media. The media represents overweight individuals in a biased and undesirable way. In a study of 60 popular television shows, Greenberg and colleagues (2003) found that overweight characters had fewer romantic interactions or positive social interactions with others. Larger males were less likely to have employment or leadership interactions, and larger females were more likely to be objects of humour. Likewise, people often characterise overweight individuals by a variety of undesirable attributes, for example, laziness, lacking in willpower and rejected by society (Puhl & Brownell, 2001). Mass media may lead to devaluation and stigmatisation of peers with above-average body weights. A study into anti-fat attitudes among children found that media exposure was associated with stigmatizing attitudes towards obese children (Latner, Rosewall, & Simmonds, 2007). Moreover, Geier, Schwartz and Brownell (2003)

found that participants who viewed ‘before-and-after’ photographs in diet advertisements of individuals who had lost weight, increased their negative beliefs about obese people relative to participants who viewed only the before or the after photograph embedded into another advertisement. The authors suggested that the participants’ own beliefs about the controllability of weight and that they were able to compare the model’s attractiveness to her more slender ‘after’ image was likely to have influenced the difference in responses. This research demonstrates how media advertisements of this nature enhance weight-based stigma.

Anti-fat attitudes are related to internalisation of societal standards because an individual may endorse such attitudes as personal beliefs (Vartanian, Herman, & Polivy, 2005). Vartanian et al. (2005) found that internalisation partially mediated the relation between dietary restraint and anti-fat attitudes. They suggested that the extent to which an individual endorses anti-fat attitudes depends on their degree of thin ideal internalisation. However, it is unknown whether such attitudes encourage the initial internalisation of the thin ideal. Research should focus on the role anti-fat attitudes play in the development of internalised standards of thinness and potential eating pathology.

Eating Disorder Cognitions

Eating disorder cognitions refer to the dysfunctional thoughts experienced by individuals with EDs. These inflexible cognitions are a core feature of ED psychopathology and are related to increased relapse (Fairburn, Shafran et al., 1999; Mizes, 1992). The importance of weight regulation, self-control as the basis of self-esteem, and weight and eating as fundamental to social approval are the central themes to these cognitions (Garner & Bemis, 1982). In a validation study of the Mizes Anorectic Cognitions Scale (MACS; Mizes, 1992), individuals with AN and BN

endorsed anorectic cognitions to a greater extent than did a psychiatric control group, highlighting the specificity of such cognitions to EDs. The author suggested that although individuals with weight concerns may endorse these cognitions, extreme endorsement of these cognitions is highly characteristic of individuals with EDs. Despite alluding to anorexia in the scale title, the MACS assesses the cognitions of all EDs (Mizes et al., 2000).

Although these rigid beliefs are characteristic of individuals with EDs, limited research has investigated the development of ED cognitions in ED onset. Dobmeyer and Stein (2003) found that initial elevations of maladaptive cognitions about eating and weight issues and preoccupation with body weight were related to later severity of both anorexic and bulimic symptoms. However, maladaptive cognitions explained a greater percentage of the variance in the severity of anorexic than bulimic symptoms. This research provides evidence for the association between early ED cognitions and later development of ED symptoms. It also suggests that ED cognitions are likely to be present before the expression of a diagnosable ED. Research should aim to better understand these cognitions at earlier stages of ED development.

Biological Factors

Although biological factors are beyond the scope of this thesis, research has implicated these factors in the development of EDs. Specifically, conjectured biological risk factors for eating pathology include genetics, neurobiological factors and early developmental issues (see Bulik, 2004, for a review)

Summary

EDs and eating pathology are important health concerns that affect many women, physically and psychologically. Despite the common occurrence of pathological eating attitudes and behaviours, our understanding of these factors is still

in its infancy. Research into risk factors for eating pathology is imperative in order to better understand these problems given the distress they cause many women and girls who experience them. This research is also important in order to tailor prevention to address the factors most salient and toward those women most at risk. Both individual and sociocultural risk factors have been purported to play a role in the development of eating pathology. Given the current social value of thinness, the Sociocultural Model of Eating Pathology seeks to explain why some women, in our social climate, develop eating pathology. Research has shown that various individual factors interact with different parts of this model and increase the likelihood of thin ideal internalisation, body dissatisfaction and eventual eating pathology. Isolating these factors is a promising focus of research in order to determine why some women develop eating pathology, why some women do not develop eating pathology and what factors lessen the risk from these negative outcomes.

Rationale and Hypotheses for Study One

As previously argued, research into established risk factors that may play a important role in the development of eating pathology among New Zealand adolescent girls is needed. Although two New Zealand studies (Fear et al., 1996; Lowe, Miles, & Richards, 1985) have investigated the prevalence of eating pathology in adolescent girls, no research has studied the prevalence and moderators of potential risk factors for these behaviours. This study sought to address the long overdue question regarding which risk factors are most prevalent and influential for New Zealand adolescent girls. Given New Zealand's exposure to the popular media, it was likely that findings would be similar to those found in the United Kingdom, North America and Australia. However, it was still important that these factors be investigated within a New Zealand context as one cannot assume such similarities

without empirical examination, especially in light of New Zealand's unique cultural composition.

There were three aims to this study: 1) to measure the prevalence of eating pathology in this sample; 2) to examine the psychometric properties and validity of the measures, in order to examine if the questionnaires are measuring the same latent components in this sample. Checking the validity of these questionnaires in a New Zealand context was deemed important in order to make meaningful interpretations about the data; and 3) to identify the individual factors that may interact with body dissatisfaction in predicting eating pathology.

In Study One, it was hypothesised that all of the factors examined, body dissatisfaction, BMI, perfectionism, perceived pressure from others and the media to lose weight, teasing, self-esteem and negative affect, would be related to eating pathology. It was also hypothesised that body dissatisfaction, perfectionism, perceived pressure from the media, low self-esteem and negative affect would be uniquely predictive of eating pathology. These hypotheses are based on findings from studies investigating eating pathology in adolescent girls abroad. It was expected that body dissatisfaction would be predictive of eating pathology, because of the strong conjectured relationship and the theoretical sense that underpins this relationship.

It was argued that perfectionism would be uniquely predictive of eating pathology because perfectionistic standards may encourage the relentless drive to lose weight and inflexible expectations regarding body shape. No a priori hypotheses were made about the type of perfectionism, i.e. socially prescribed or self-oriented. Among college women, socially prescribed perfectionism has been found to interact with body dissatisfaction to predict bulimic behaviours and dieting (Downey & Chang, 2007). However, adolescence may be a specific time when an individual may strongly

fear negative evaluation of their appearance from their peers and parents, and a time when relentless pursuit of perfection may be internally guided, therefore both types of perfectionism may be salient.

Adolescence is a time when developmental challenges arise that may be a threat to one's self-esteem (Edlund et al., 1999), therefore it was argued that an individual may view weight loss as a superficial solution to her low self-worth. Further, hormonal changes that lead to mood lability begin to emerge during adolescence and the ability to cope with this changing mood may be a challenge. It was hypothesised that high levels of negative affect would predict eating pathology as these girls may see weight loss as way of managing their low mood and improving their view of themselves.

It was hypothesised that perceived pressure from others to lose weight would also predict eating pathology. It was argued that during adolescence, individuals become more sensitive to and reflective of negative comments or pressure from media, family and friends. For some adolescents, weight loss may seem like a reasonable way to decrease the distress associated with such messages.

Following the recommendations of Bardone-Cone (2007), moderator analyses were conducted to ascertain the factors that may amplify or reduce the relationship between body dissatisfaction and eating pathology. Given that perfectionistic attitudes and behaviours are likely to increase an individual's drive for thinness, it was hypothesised that perfectionism would moderate the established relation between body dissatisfaction and eating pathology. In light of the findings of Twamley and Davis (1999), it was expected that self-esteem would also moderate this relationship. It seems plausible that girls who have a healthy self-esteem may be protected from the effects of body dissatisfaction, as they may be able to offset their dissatisfaction by

focussing on the strengths they possess in other areas of their life. It was also expected that negative affect would moderate this pathway because it seems likely that a healthy mood may enable girls to have a positive focus about the world and their lives, despite feeling dissatisfied with their body.

STUDY ONE

Method

Participants

The initial participants were 243 adolescent girls aged between 13 and 18 (see Table 1 for demographic information). Data from 12 participants were not included in this study, for reasons including incomplete questionnaires and being outside the age criterion of 14 to 18. Therefore, the effective sample size was 231 and all analyses were based on these participants. Participants were recruited from three local high schools throughout Christchurch: one integrated all girls' school and two public coeducational schools. The decile ratings ranged from 2 to 9, indicating that the students were from a range of socio-economic levels. The decile rating is a government-issued ten-point scale indicating the proportion of students from low socio-economic communities (Ministry of Education, 2006).

A BMI below 18.5 was considered underweight, 18.5 -24.9 was considered normal weight, 25-29.9 was considered overweight, and 30 and above was considered obese (National Heart Lung and Blood Institute, 1998). Sixty seven percent of the girls had a BMI that fell in the normal range, 16% fell in the underweight range, 12% in the above average range and 5% in the obese range. One school did not wish to have their students weighed, therefore height and weight data for that school were based on self-report. Twenty-seven students did not report their height and weight and two students refused to have their height and weight measured; therefore, BMI scores were only available for 202 participants.

Measures

The questionnaires used in this study measured: 1) demographic information, 2) eating pathology, 3) self-esteem, 4) body dissatisfaction, 5) negative affect, 6)

perceived pressure from others and the media to lose weight, 7) teasing and 8) perfectionism. In total, there were ten measures. Written instructions appeared at the beginning of each questionnaire. These measures are presented in Appendix A.

Demographic information. All participants were given a questionnaire to determine demographic characteristics: age, school, gender, ethnicity and mother's and father's occupation. Weight and height were measured by the research assistant in a separate part of the room to ensure privacy.

Socio-economic status (SES). The New Zealand Socio-Economic Index (NZSEI; Davis, McLeod, Ransom, & Ongley, 1997) is a widely used occupationally-based measure of SES. Participants completed details about their parent's/caregiver's occupation. The measure is based on the notion that occupation mediates the relationship between education and income. After computing an SES score for 97 occupational groups, the scaled scores are obtained and range from 10 to 90. A score of 10 reflects the occupational groups at the lowest end of the scale and a score of 90 represents the highest end of the scale. These scores can be further coded into discrete class divisions that range from 1 to 6. A SES score of one represents those individuals who have a NZSEI score range of 66 to 90; a score of two represents those between 56 and 65; three, between 42 and 55; four, a score of 32 to 41; five, a score for individuals between 24 and 31 and finally, a score of six represents those individuals who were between 10 and 23.

Eating attitudes and behaviours. The Eating Attitudes Test-26 (EAT-26; Garner et al., 1982) is a widely used 26-item self-report questionnaire originally designed to measure the symptoms of AN. Recently, the EAT-26 has been useful in revealing dysfunctional eating attitudes in non-clinical samples and is a screening device for individuals previously undiagnosed with AN. Factor analysis generally

reveals three distinct factors: a) bulimia and food preoccupation, which taps into thoughts about food and includes items indicating bulimia; b) dieting which reflects the avoidance of fattening foods; and c) preoccupations with thinness and oral control, which consists of items relating to self-control of eating. Items include "I feel terrified about being overweight" and "I give too much time and thought to food." The measure uses a 6-point scale ranging from "always" to "never" and the most symptomatic response is given a score of three, the second most symptomatic response is assigned a score of two and the third, one. The other three less symptomatic responses are given a score of zero. Thus, scores range from 0-78. The EAT-26 is a shortened version based on the factor analysis of the EAT-40 and correlates highly with the original measure (r = .98) (Garner et al., 1982). Although the EAT-26 does not yield a specific diagnosis of an ED, it can be an efficient screening measure in which a score at or above a cut-off score of 20 is indicative of eating pathology that may warrant further clinical attention (Williamson, Anderson, Jackman, & Jackson, 1995). The EAT-26 has been validated on patients with AN and a non-clinical sample (mean age = 21.5; SD = 5.4). In the current study, the score reliability as measured by Cronbach's alpha was .90.

Body dissatisfaction. The Stunkard Body Figure Drawings (Stunkard et al., 1983) is a measure of body image perception and assesses body dissatisfaction in adolescents and adults. Participants were presented with nine figures ranging in size from very thin to obese, and they were required to identify the figure that represents their perceived current body size and the figure that represents their ideal body size. A discrepancy score is obtained by subtracting the ideal body size from the perceived current size. Fair to very good test-retest reliability scores have been found for this measure, being .71 for ideal size and .89 for current size (Thompson & Altabe, 1991).

The body dissatisfaction subscale of the Eating Disorders Inventory (EDI-BD; (Garner et al., 1983) is a measure of body dissatisfaction that requires participants to rate statements related to beliefs about parts of their body (e.g. "I think my thighs are too large") on 6-point scale ranging from "always" to "never". Total scores range from zero to a possible score of 27. The most symptomatic response is given a score of three, and the second and third most symptomatic responses are assigned scores of two and one, respectively. The other three least symptomatic responses are given a score of zero. This subscale has demonstrated good score reliability and validity in adolescent populations (Shore & Porter, 1990; Thompson, Coovert et al., 1995). In the current study, the Cronbach's alpha was .83.

Self-esteem. The Rosenberg Self-esteem Scale (RSE; Rosenberg, 1965) is a 10-item measure of general self-esteem (such as "I feel I do not have much to be proud of"). The RSE consists of a four-point Likert scale, ranging from "strongly agree" to "strongly disagree". Scores range from 10 to 40, with high scores indicating low self-esteem and low scores, high self-esteem. The RSE is a widely used measure of self-esteem among non-clinical populations. The RSE scores have demonstrated excellent reliability (Blascovich & Tomaka, 1991). In the current study, the Cronbach's alpha was .86.

Negative affect. The Positive and Negative Affect Scale (PANAS; Watson et al., 1988) provides a separate measure of positive and negative affect. Participants were required to rate the degree to which different words (e.g., "interested" or "scared") describe how they have felt during the past few weeks, on a scale of 1 (very slightly or not at all) to 5 (extremely). PANAS scores range from 10 to 50. High reliability and validity for children aged 8-16 has been found for the original PANAS scale, with the negative affect scale correlating positively with self-reports of depression (r = .60)

(Holt & Ricciardelli, 2002; Joiner, Catanzaro, & Laurent, 1996; Laurent et al., 1999). The Cronbach's alpha for the current study was .87.

Perfectionism. The Child and Adolescent Perfectionism Scale (CAPS; Flett, Hewitt, Boucher, Davidson, & Munro, 1992) is a 22-item multidimensional perfectionism scale used to assess socially prescribed perfectionism (e.g. "My family expects me to be perfect") and self-oriented perfectionism (e.g. "I get mad at myself when I make a mistake") in children and adolescents. The CAPS consists of 5-point Likert scales and higher scores on the scale indicate greater degrees of perfectionism. Self-oriented (SO) perfectionism scores range from 12-60 and socially prescribed (SP) perfectionism score range from 10 to 50. This scale has demonstrated good internal consistency for children and adolescents with coefficient alphas of 0.88 for SO Perfectionism and 0.82 for SP Perfectionism (McVey et al., 2002). For the current study, the Cronbach's alpha for the SP perfectionism scale was .82, and for SO perfectionism was .75.

Sociocultural influence. The perceived pressure to lose weight subscale of the Sociocultural Influences on Body Image and Body Change Questionnaire (McCabe & Ricciardelli, 2001) was used to assess perceived pressure from father, mother, best female friend, best male friend and the media to lose weight. A total score for perceived pressure from others to lose weight was computed and used in this study. A separate score for perceived pressure to lose weight from the media was used. This self-report measure requires the participants to rate each item on a five-point scale ranging from "never" to "always". Higher scores are indicative of higher perceived pressure to lose weight. The overall scale for adolescents has been standardised on individuals between the ages of 11 and 17 and Cronbach's alpha scores have indicated reasonable internal consistency (α =.77) (McCabe & Ricciardelli, 2001). In the current

study, the Cronbach's alpha for perceived pressure from others was .73 and .82 for perceived pressure from the media to lose weight.

Teasing. The Perception of Teasing scale (POTS; Thompson, Cattarin, Fowler, & Fisher, 1995) is an 11-item measure of teasing and its effect. This measure has two subscales: general weight-teasing and competency teasing. This study only examined the weight-based teasing subscale (e.g. "People made fun of you because you were heavy"). Participants were required to rate teasing frequency on a Likert scale of "never" to "very often". High scores on this scale are indicative of a greater frequency of negative verbal commentary. Potential scores range from 6 to 30. The original researchers found the score reliability to be .94 for general weight-teasing (Thompson, Cattarin et al., 1995). Although this scale has been standardised on undergraduates, the POTS has assessed teasing in adolescents and children (Shroff & Thompson, 2004). In the current study, the Cronbach's alpha was .88.

Procedure

Before this study was conducted, approval was gained from the University of Canterbury Human Ethics Committee. Letters to private and public secondary schools in Christchurch, New Zealand requested participation in this study and follow-up phone calls determined each school's interest in participating in this project (see Appendix B). Effort was made to recruit participants from both private and public schools and from a range of socioeconomic classes. Three out of the eight schools that were contacted agreed to participate. The researcher, alongside that school principal, physical education teacher or guidance counsellor then organised when the project should be conducted. The parents/caregivers of each potential participant received an information and consent form stating that participation in this study was anonymous, voluntary, and that students were free to withdraw at any time (see Appendix C).

However, once the students had handed in their questionnaires, their data were not able to be withdrawn because they were anonymous. The information sheet also contained contact details for the researcher and research supervisor if any questions arose.

Prior to testing, participants were seated at their desks and were given an information sheet and assent form to sign (see Appendix D). To ensure they were aware of the task they had to complete, the interviewer read the instructions aloud. Participants were instructed to answer the questions honestly and were informed that there were no right or wrong answers to the questions. They were allowed to ask any questions at any time by raising their hand and if they felt uncomfortable doing this activity, they were allowed to stop. They were asked not to share their answers with others and to work on their own. Finally, confidentiality was assured, and defined for them using age-appropriate language. This study gained written assent for all of the participants.

Once the participants had read and signed the assent form, the participants completed the questionnaire booklet. The booklet was group-administered, one class at a time. After the questionnaires were completed, each participant was measured for weight and height to derive a BMI score. Participants were thanked for their participation and were debriefed in a way that allowed the research topic to be embedded into an educational and healthy context (see Appendix E). Participants were informed that the message of the study was that everybody is different, and it is what is inside of each person that matters most. They were given the healthy message that teenagers should like themselves for who they are. These messages helped to ensure that the participants understood and processed the materials in a healthy way.

On all occasions, data collection took place during school time, in either the school library or a school classroom, and lasted approximately one hour.

Data Analysis

Measurement equivalence. One general issue that arises when conducting research in different cultures is the validity of the test being used (Li, Jenkins, & Sundsmo, 2007). Measurement equivalence refers to the extent a measure is valid or generalisable for use in another sample. It is important to examine measurement equivalence in empirical research to conclude that one is measuring the same attributes in their sample in order to make unbiased and accurate comparisons (Horn & McArdle, 1992). If the measurement equivalence of the tests is not examined, then one can not definitively conclude that significant differences were due to true differences because the test may be measuring different properties (Warren et al., 2008). There are three levels of measurement invariance: configural (factorial), metric and scalar (Li et al., 2007). It is beyond the scope of this thesis to look at all three levels, however Horn and McArdle (1992) suggest that one robust test of measurement equivalence is configural invariance. Tests of configural invariance highlight whether the test shows the same factor pattern (and respective item loadings) across groups. Although New Zealand has many similarities to other Western cultures, it was still deemed important to ensure the questionnaires used in this research were measuring the same attributes, or factors, in order to yield meaningful interpretations.

Statistical procedures. Data analyses were performed using Statistical Package for Social Sciences (SPSS Inc., 2006) and ModGraph I (Jose, 2003). First, descriptive statistics were calculated to determine the composition of the sample for example, ethnicity and age. Descriptive statistics across all of the variables were compared with

those reported by previous researchers. Second, the measurement equivalence of the scales used in this study was evaluated in order to check that these scales were measuring the same factors in the current sample. This was performed by conducting a Principal Components Analysis (PCA) to investigate if configural invariance could be shown for these measures. Eigenvalues over 1.00 and scree plots were first examined for each test, followed by fixing the solution to yield the number of factors reported in the original factor structure. Third, Pearson product moment coefficients were calculated to investigate the association between the variables, with specific emphasis given to those that were significantly correlated with eating pathology. Regression analyses were conducted to ascertain the relative importance of different variables in predicting eating pathology in adolescent girls. Finally, regression analyses tested for moderator effects to examine which independent variables moderated the relation between body dissatisfaction and eating pathology.

Missing data. For any analysis, individuals with missing data on the variable used were excluded. Listwise deletion is not always preferable given the loss of cases and the bias if those who are deleted differ from those who are not. Other research has used strategies such as imputation to handle missing data, which may be seen as preferable because sample size does not decrease. As such, the treatment of missing data in this research may be a limitation. In most analyses, deletion of missing data did not have a great effect on the sample size, but in analyses when all the variables were included, the sample size was 149.

Results

Descriptive Analyses

In terms of participant demographics, the average socio-economic status score, as measured by a New Zealand occupationally-based measure (Davis et al., 1997), was 3.8 which indicates that on average the participants were in the middle SES range. Moreover, the ethnic composition of the sample (see Table 2) were not dissimilar to the population statistics of children and youth in Christchurch city which is 84.0% New Zealand European, 11.0% Māori, 6.0% Asian, 2.0% Pacific Island and 1% Other (Christchurch City Council, 2007).

Table 3 presents the participants' means and standard deviations for each of the measures. Higher scores on each scale are interpreted as more pathological, apart from self-esteem in which the reverse is the case. Mean scores on all of the measures used were similar to the norms reported for non-clinical adolescent populations (Aqliata, Tantleff-Dunn, & Renk, 2007; Castro-Fornieles et al., 2007; Donovan, Spence, & Sheffield, 2006; Rosen, Silberg, & Gross, 1988; Shroff & Thompson, 2004, 2006). Furthermore, score reliability of 0.70 or above was considered acceptable (Allen & Yen, 2002). All the variables exhibited good to excellent levels of internal consistency in the sample.

Although individuals generally reported low levels of eating pathology (M = 9.76), a total of twenty-eight participants (12.1%) scored above the recommended cut-off of 20 on the EAT-26, indicative of eating pathology (Garner et al., 1982). As part of the EAT-26, participants were asked, "Have you ever made yourself sick (vomited) to control your weight or shape?", and if yes "How many times in the past six months?" They were also asked, "Have you ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?", and if yes "How many times in the

past six months. Thirty-three participants (14.2% of the sample) indicated that they had vomited to control their weight or shape, and eight participants (3.4%) reported using laxatives, diet pills or diuretics to control their shape or weight. In total, thirty-seven participants (15.9%) reported that they had engaged in compensatory behaviour during the past six months, for example, vomiting, using laxatives or both vomiting and laxatives.

Measurement Equivalence of the Tests

Configural invariance was assessed in order to evaluate whether the factor structure of the measures in this sample were comparable to the factor structure found in each original factor analysis. Decisions about how many factors to retain for each measure were made in one of three ways. First, factors with eigenvalues greater than 1.00 were identified. Second, the scree plot was observed. Third, if these two methods did not suggest retaining the same number of factors as reported in the original factor structure, the PCA was constrained to yield the number of factors originally found. Because only the Pressure to Lose Weight subscale of the Sociocultural Influences on Body Image and Body Change Questionnaire and only the Body Dissatisfaction subscale of the Eating Disorders Inventory were administered, these subscales were not included in these analyses.

Factor structure of EAT-26. A PCA with varimax rotation was performed on the EAT-26 (Garner et al., 1982). To test for suitability of factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was computed. In this study, the value was 0.91 indicating that the data were suitable for factor analysis (Kaiser, 1974). Although a five-factor solution looked most suitable from examining eigenvalues and a one-factor solution looked most appropriate based on the scree plot, the solution was constrained to yield three factors because this was the number of

factors retained in the original scale development. The three-factor solution accounted for 52.23% of the variance. As can be seen in Table 4, many of the original item loadings were similar, however, there were some items that did not load on their predicted factor and some items that crossloaded.

Because the sum of the EAT-26 was used in this study, and often is used this way in other research, a single factor solution was computed. Results of this analysis indicated that most of the items clearly loaded on this factor. Two items had poor factor loadings: Item 13 "Other people think that I am too thin," and item 25 "I enjoy trying rich new foods," with loadings of -.06 and -.03, respectively.

Factor structure of the CAPS. The KMO measure of sampling adequacy was 0.88 indicating that these data were suitable for factor analysis. Although there were five eigenvalues greater than 1.00, the scree plot, like the original factor structure, demonstrated that a two-factor solution seemed best. When the two-factor solution was forced, these factors accounted for 45.09% of the variance. Table 5 depicts these findings. The item loadings clearly indicated a SP perfectionism factor and a SO perfectionism factor. These two factors matched the original subscales, with the exception of two SO items- item 11 loaded on the SP factor and item 18, had a low factor loading of .18 on the SO factor. Some items also crossloaded on both factors.

Factor structure of the PANAS. The KMO measure of sampling adequacy was 0.79 indicating that these data were suitable for factor analysis. Although there were five factors with eigenvalues greater than 1.00, the scree plot, like the original, highlighted the retention of two factors. When the PCA was forced to yield a two-factor solution, the solution explained 40.12% of the total variance. Table 6 highlights these factor loadings. The items that loaded on each of these factors were identical to

those found in the original factor structure and tapped into Negative Affect and Positive Affect.

Factor structure of the RSE. The KMO measure of sampling adequacy of .88 and indicated that these data were suitable for factor analysis. Although two eigenvalues were greater than 1.00, the scree plot, like the original, suggested that one factor should be retained. When forced into a one-factor solution, the factor explained 45.20% of the variance. As seen in Table 7, all of the ten items loaded highly on this factor, with the negative items being those that were reverse coded.

Factor structure of the POTS. The KMO measure was .86 and from observing the eigenvalues and scree plot, two factors were retained that comprised all the items. As can be seen in Table 8, the factors and item loadings corresponded with the original factor structure. Factor 1 clearly tapped into Weight-related Teasing and Factor 2 tapped into Competency-based Teasing. The solution accounted for 68.57% of the total variance.

Interrelationships between Variables

Pearson product moment correlation coefficients tested the relationship between the variables of interest and eating pathology. Table 9 depicts these results. Consistent with previous research, pathological eating attitudes significantly correlated with self-esteem, body dissatisfaction, negative affect, SP perfectionism, SO perfectionism, frequency of weight-teasing and pressure to lose weight from the media and others. Effect sizes were medium to large. This finding suggests that pathological eating behaviour scores are associated with the non-eating related psychological variables.

Prediction of Eating Pathology from Variables of Interest

Regression model. Potential predictors of eating pathology were simultaneously included in a multiple regression model. A composite body dissatisfaction score was used in the regression model because there were two measures of body dissatisfaction. Using a composite score also acted as a cautionary measure to reduce multicollinearity of the regression analysis and because these two variables were essentially measuring two aspects of the same construct (Cohen, Cohen, West, & Aiken, 2003; Stevens, 2002). When the items of the EDI-BD and the Figure drawings score were entered into a PCA, the KMO value was 0.85 indicating that the data were suitable for factor analysis (Kaiser, 1974). As expected, one component was retained (eigenvalue = 5.93) and accounted for 59.03% of the variance. This composite variable was calculated by using the regression method and was used in the remainder of the analyses.

The results of the regression analysis are presented in Table 10. The model accounted for 48% of the variance in eating pathology scores, F (9,137) = 13.06, $p <$ .01. Three variables were uniquely predictive of eating pathology: negative affect, body dissatisfaction and SP perfectionism. The predicted residual sum of squares (PRESS) method was used to calculate R^2 and standard error of estimates (SEE). Stevens (2002) emphasised the importance of exploring how well the regression equation predicts on an independent sample of data in order to test the generalisability of the equation. The PRESS statistic is an estimate of cross-validation, equivalent to the "jackknife" procedure (Lachenbruch, 1967), and is used for model selection. It uses all of the data thereby avoiding the problems associated with data splitting while still providing a good measure of predictive power (Holiday, Ballard, & McKeown, 1995; Stevens, 2002). The PRESS value was a slightly less value of .41.

Regression analysis including effect of weight teasing. Data were collected for frequency of weight-related teasing and the effect of this teasing on the participant. Obviously, participants could only respond to an effect of teasing item if they had endorsed the teasing frequency item. This response format led to a reduction in sample size when effect of teasing was included in the regression model. Therefore, to examine the effect of weight teasing as opposed to frequency, a separate regression analysis was conducted with a reduced sample size (n = 57). Table 11 presents these findings. Overall, this model accounted for 62% of the variance in eating pathology scores, F (9,57) = 8.80, $p < .01$ (PRESS statistic was 0.54). Body dissatisfaction and SP perfectionism uniquely contributed to predicting eating pathology. Negative affect was no longer a significant predictor.

Analyses with Effect of Weight Teasing Subgroup

Interrelationships between variables. Although effect of weight teasing was not a significant predictor, when it was entered into the regression model the R^2 increased substantially. To assess this finding, zero-order correlations that included effect of weight teasing were computed. In general, correlation coefficients were higher than they were for the correlation analyses that did not include effect of weight teasing (see Table 12). This finding may be due to more outliers when this variable was included.

Group differences. t tests calculated the group differences between those who endorsed effect of weight teasing versus those who did not, across the variables of interest. Table 13 depicts these findings. The effect of weight teasing subgroup exhibited significantly higher eating pathology scores than the subgroup that did not endorse effect of weight teasing. BMI, body dissatisfaction, self-esteem, perceived pressure from the media and others to lose weight were also significantly higher

amongst those participants who endorsed effect of weight teasing. Medium to large effect sizes were found for these differences.

Relationship between eating pathology and effect of weight teasing when controlling for body dissatisfaction. Partial correlations between effect of weight teasing and eating pathology controlling for body dissatisfaction were also conducted. These were conducted for two reasons; first, teasing effect is theoretically likely to precede body dissatisfaction (van den Berg et al., 2002). Second, teasing effect was significantly correlated with body dissatisfaction (r = .53, EDI-BD; r = .52, Figure drawings). When body dissatisfaction was controlled for, the relationship between effect of weight teasing and eating pathology remained significant but weakened for both of the body dissatisfaction measures (r = .25, p = .03, EDI-BD; and r = .26, p = .05, Figure drawings). This finding is consistent with a mediational model yet demonstrates that body dissatisfaction was not completely responsible for the significant association.

Interactions between Potential Moderator Variables and Body Dissatisfaction

The relationship between body dissatisfaction and eating pathology is well-established (Stice & Shaw, 2002; Thompson & Stice, 2001). A subsequent series of hierarchical multiple regressions was computed to test for moderator effects, with eating pathology as the dependent variable. Each centred independent variable, each centred moderator variable and the product of the centred independent and centred moderator variable were entered into these regression analyses. Interaction terms were centred before being entered into the regression equation, in order to generate meaningful interpretations and to reduce the potential of multicollinearity between the interaction terms and their constituent parts (Aiken & West, 1991).

Body dissatisfaction, perfectionism and self-esteem were also examined together as part of a three-way interaction that has been purported in the literature to predict bulimic symptomatology (Vohs et al., 1999; Vohs et al., 2001). As this study did not specifically measure bulimic symptomatology apart from presence of purging behaviours, eating pathology was again the dependent variable. Although eating pathology may be more of a general term, it is reasonable to suggest that individuals endorsing bulimic pathology would likely endorse aspects of eating pathology. The three-way interaction was not significant when SP perfectionism was entered $t(183) = -.12$, $p = .54$ or when SO perfectionism was entered $t(183) = .05$, $p = .35$.

It was hypothesised that perfectionism would moderate the pathway between body dissatisfaction and eating pathology. Regression coefficients and significance levels for each moderation analysis are depicted in Table 14. The interactions between both SP perfectionism and body dissatisfaction, and SO perfectionism and body dissatisfaction were statistically significant, $t(200) = 4.03$, $p < .01$ and $t(200) = 3.80$, $p < .01$ respectively.

To observe the nature of each interaction, data were divided into three groups (high, medium and low) based on perfectionism scores. Groups were established using one SD above the mean (high group), one SD below the mean (low group), and between one SD above and one SD below the mean (middle group) (Aiken & West, 1991). Pearson correlations between body dissatisfaction and eating pathology within each of these groups were examined and individual regression lines were plotted. As seen in Figure 2, among adolescent girls who scored high on SP perfectionism, the relationship between body dissatisfaction and eating pathology was greater. Low SP perfectionism seemed to buffer the effect of body dissatisfaction on eating pathology. Pairwise comparisons of the high, medium and low SP perfectionism groups, revealed

significant differences between the high and medium slope, $t(160) = 3.98$, $p < .01$, and between the high and low slope $t(75) = 3.60$, $p < .01$. There was no significant difference between the medium and low slope $t(164) = .28$, $p = .78$.

Similarly, plotted regression lines demonstrated that low levels of SO perfectionism buffered the effects of body dissatisfaction on eating pathology (see Figure 3). Pairwise comparisons revealed significant differences between all three slopes: the high SO slope was significantly greater than the medium slope $t(171) = 3.45$, $p < .01$, and the low slope $t(53) = 3.55$, $p < .01$. The difference between the medium and low slopes was non-significant $t(175) = 1.94$, $p = .06$.

Self-esteem was predicted to moderate the pathway between body dissatisfaction and eating pathology. The interaction between body dissatisfaction and self-esteem was statistically significant, $t(183) = -.191$, $p < .01$. Pairwise comparisons revealed significant differences between the high and low slope: $t(64) = -3.21$, $p < .01$. The differences between the high and medium, and low and medium slopes were non-significant, $t(146) = -1.34$, $p = .18$; and $t(149) = -1.65$, $p = .10$, respectively. As can be seen in Figure 4, it was apparent that the relationship between body dissatisfaction and eating pathology was more pronounced for those girls who had low self-esteem. High self-esteem buffered the effect of body dissatisfaction on eating pathology.

Perceived pressure from others to lose weight also had a significant moderating effect on the body dissatisfaction-eating pathology relation, $t(199) = 2.01$, $p = .05$. As can be seen in Figure 5, in the context of high perceived pressure from others, body dissatisfaction had a stronger effect of eating pathology. In other words, low levels of perceived pressure may weaken this relationship and buffer the impact of body dissatisfaction. Pairwise comparisons revealed significant differences between medium and low levels of perceived pressure, $t(169) = 2.47$, $p =.02$. The

difference between medium and high levels of perceived pressure was also significant, $t(182) = 1.94$, $p = .05$. Although expected, there was no significant difference between high and low levels of perceived pressure, $t(46) = 1.02$, $p = .31$. This may be due to low *n* when comparing these two groups, contributing to low power. To examine this possibility, the perceived pressure scores were split into three even groups of high, medium and low, and the difference between high and low perceived pressure was approaching significance ($p = .08$). However, as this is not the recommended way to report interactions, a larger sample size may reveal such differences between the slopes when the standard method of interpreting interactions is employed.

The interaction between body dissatisfaction and negative affect was statistically significant, $t(178) = 3.82$, $p < .01$. Low levels of negative affect buffered the effect of body dissatisfaction on eating pathology. As can be seen in Figure 6, regression lines for each of these groups indicated that the relationship between body dissatisfaction and eating pathology was the strongest at higher levels of negative affect. Pairwise comparisons revealed significant differences between high and medium levels of negative affect, $t(151) = 3.13$, $p < .01$, and between the high and low slopes, $t(58) = 2.84$, $p < .01$. There was no significant difference between medium and low levels of negative affect, $t(143) = -.27$, $p = .80$.

The interaction between body dissatisfaction and pressure from the media to lose weight was statistically significant, $t(197) = 3.29$, $p < .01$. This interaction is presented in Figure 7. Pairwise comparisons demonstrated significant differences between all of the media slopes: high and medium levels, $t(169) = 2.27$, $p = .02$, medium and low levels, $t(158) = 2.26$, $p = .03$, and high and low levels of media pressure, $t(57) = 2.31$, $p = .02$.

Discussion

The current study provided evidence that eating pathology is prevalent in 14-18 year old New Zealand adolescent girls. One goal of this study was to compare these findings from other risk factor studies conducted on adolescent populations overseas. New Zealand adolescent girls displayed rates of eating pathology comparable to those found internationally: 13.5% of adolescent girls in this study reported unhealthy eating attitudes and behaviours (as measured by the EAT-26) (Garfinkel & Newman, 2001; Rosen et al., 1988). This similarity to international research confirms that New Zealand adolescent girls experience eating pathology to the same extent as other westernised cultures where the popular media is pervasive. The current findings also indicated that 14.2% reported engaging in purging behaviour in the past six months. This was the first study in the past ten years to have examined rates of eating pathology in New Zealand and the first New Zealand study to examine established risk factors for eating pathology among adolescent girls. A further goal was to examine the factor structure of the scales used in this study, and results generally supported measurement equivalence. Although when eigenvalues and scree plots were examined, factor structures of the EAT-26, CAPS and RSE slightly deviated from their original structures, when the measures were forced into a solution that corresponded with their original subscales, the data tended to support the original structure.

It was hypothesised that negative affect, BMI, body dissatisfaction, media influence, teasing, self-esteem, perceived pressure from others to lose weight and perfectionism would be significantly related to higher eating pathology scores. Correlation analyses supported these hypotheses and revealed that eating pathology was significantly, but not necessarily independently, associated with all of these factors. In terms of the regression analyses, it was not surprising that body dissatisfaction was a

significant predictor given the widespread support for its role in the development of eating pathology. Extensive evidence implicates body dissatisfaction as a strong predictor of eating pathology (e.g., Polivy & Herman, 2002; Stice, 2002).

The current findings also indicated that negative affect is predictive of eating pathology, in combination with perfectionism and body dissatisfaction, and as a moderator of the relation between body dissatisfaction and eating pathology. Given that these data are correlational, however, one cannot infer directionality and it may be possible that eating pathology or some other factor causes negative affect. Indeed there is some longitudinal evidence that negative affect precedes later eating pathology in adolescence (Gardner et al., 2000; Leon et al., 1999), as well as research supporting eating pathology leading to negative affect (Stice & Bearman, 2001). Negative affect may be a significant predictor because of the increased mood lability during adolescence due to hormonal, physical and general life changes. Negative affect may further exacerbate the challenges of adolescence that include identity development and the sometimes-unwanted physical changes that occur during puberty. Girls may view engaging in pathological eating behaviours as a means of providing relief from negative mood states (Saling et al., 2005). In addition, moderation analyses demonstrated that low levels of negative affect buffered the dissatisfaction-eating pathology pathway. Given the high rates of body dissatisfaction in adolescent girls, low levels of negative affect may protect an adolescent girl from disturbed eating attitudes and behaviours, thereby protecting her from the future development of an ED.

In this study, SP perfectionism was found to be a statistically significant predictor of eating pathology. This finding could imply that adolescent girls who are perfectionistic are more aware of socially-imposed high standards regarding shape and weight and interpret these standards as realistic and obtainable. Moreover, unhealthy

eating attitudes and behaviours may develop through the unrelenting and perfectionistic pursuit of weight loss, as a means of self-control and as a way to prevent negative evaluation and disapproval (Fairburn et al., 2003; Franco-Paredes et al., 2005). Perfectionism may be maintained by a dichotomous thinking style regarding shape, weight and food. This finding was different to that of McVey et al. (2002), who found SO, as opposed to SP, perfectionism to be significantly related to disordered eating. During adolescence, fear of negative evaluation and rejection from others is often paramount; therefore, SP perfectionism may be more salient during this time.

Moderation analyses suggested that both SP and SO perfectionism moderated the pathway between body dissatisfaction and eating pathology. Girls who are dissatisfied with their bodies may be more likely to engage in pathological eating behaviours if they are highly perfectionistic, and girls who are low in perfectionism may be less affected by body dissatisfaction. Low perfectionism could protect these girls from engaging in eating pathology because of their realistic standards and lack of perfectionistic drive to achieve the thin body ideal. Conversely, girls who are highly perfectionistic may see their body ideal as achievable and subsequently engage in extreme behaviours to achieve this ideal. High levels of perfectionism may also perpetuate this drive for thinness, as an inability to lose weight may be met with more extreme and unrealistic weight loss goals and strategies.

The findings of this study are consistent with the findings of Twamley and Davis (1999) who found that, among university women, self-esteem moderated the relation between body dissatisfaction and eating pathology. That self-esteem is also a moderator of this pathway during adolescence is an important finding. Enhancing adolescent girls' self-esteem may be one important way to buffer the effects of eating pathology among those girls who are already dissatisfied with their bodies. Although

these adolescent girls endorse being dissatisfied with their bodies, they may be protected against eating pathology because of their self-esteem or inclination to view themselves, more globally, in a positive light. In addition, they may be better equipped to dismiss their body dissatisfaction because of perceived strengths in other areas, such as social or academic achievements (Twamley & Davis, 1999).

Finally, perceived pressure from others to lose weight and the media also moderated the relationship between body dissatisfaction and eating pathology. Low levels of perceived pressure may protect an individual from eating pathology because she may be receiving positive affirmations from her family and friends about her appearance, thus creating dissonance about the accuracy of her body dissatisfaction. Direct pressure, real or perceived, is likely to encourage an adolescent girl to pursue weight loss because it may confirm her established view about her body. Similarly, high levels of pressure from the media to lose weight increased the effects of body dissatisfaction on eating pathology. Among these girls, media messages may reinforce the virtues of thinness and weight loss, and encourage an individual to engage in behaviours to correct the disparity between her shape and the thin ideal. However, it may be possible that girls who are dissatisfied will seek out such media messages, or even be more sensitive to them, given the importance they place on shape and weight.

The regression model was a better fit for those who endorsed being negatively affected by weight-related teasing. Subsequent analyses demonstrated that the effect of weight teasing subgroup reported significantly greater scores across many of the variables examined. This finding suggests that self-reported distress over teasing, as opposed to presence of teasing, may have negative impacts on adolescent girls. That the effect of teasing contributes to increased eating pathology makes theoretical sense because the level of distress experienced by the individual is likely to have a greater

negative psychological impact than the presence of teasing. Further, it appeared that when controlling for body dissatisfaction, the relationship between teasing and eating pathology was not as strong, potentially suggesting a mediational effect. This finding is consistent with the findings of Donovan and colleagues (2006) who found that teasing was more closely associated with body dissatisfaction than eating pathology. However, causal inferences cannot be made because it may be possible that, for example, eating pathology leads to increased weight gain, which leads to teasing. Moreover, sample size in the teasing effect analyses was small.

Limitations of this Study

The main limitation of this study was the cross-sectional nature of the data collection. As a result, it is unclear what direction of causality (if any) exists between the variables under investigation. It is possible, for example, that eating pathology may influence negative affect through one feeling disappointed about not reaching one's unrealistic weight loss goal. A longitudinal research design would help identify risk factors over time and elicit causal relationships. It is also possible that additional variables that were not measured in this study, such as social comparison, influence eating pathology. Furthermore, it is possible that thin ideal internalisation may also contribute to the outcome of eating pathology among girls who have experienced pressure from the media to lose weight; however, the current study did not examine this variable. Moreover, perceived pressure to lose weight was a collapsed variable containing items measuring pressure from father, mother and friends; therefore, individual sources of pressure were not identified. Past studies have found these factors to contribute to the development of eating pathology (Ricciardelli et al., 2003), therefore research should ascertain the role of these factors within a New Zealand sample.

Another possible limitation of the study is the extent to which the findings can be generalised to younger girls because this study only examined established risk factors and eating pathology among girls aged 14 and older. Given the fact that girls younger than 14 years of age report eating pathology, it should not be assumed that the factors that interact with body dissatisfaction and lead to eating pathology in adolescence are the same for younger girls. Moreover, the results may not be generalisable to other regions of New Zealand. Although effort was made to recruit participants from schools that covered a wide range of socioeconomic areas, the sample consisted of those schools that wished to participate in this study within Christchurch, New Zealand. In addition, the sample was not randomly selected as it relied on school principals giving permission for his or her school to participate. Further, the questionnaires that participants were required to complete were self-report. Therefore, despite being reassured confidentiality, participants may not have been completely accurate with their responses. Including a clinical interview or parental report may have improved accuracy, but would have been difficult with a large, non-clinical sample.

Implications of this Study

First, this study provided provisional evidence that the measures used are appropriate within a New Zealand context and as such, meaningful interpretation can be made. Although limited by its cross-sectional nature, the present study gives evidence for the relationships between: a) eating pathology and body dissatisfaction; 2) eating pathology and perfectionism and, c) eating pathology and negative affect. It also suggests that there are moderating roles of self-esteem, perfectionism, negative affect, perceived pressure from others and the media in the relationship between body dissatisfaction and eating pathology. These findings may have important implications for New Zealand adolescent girls in terms of decreasing risks for eating pathology.

Although clinically diagnosed EDs pose a major threat to adolescent girls' health, subclinical variants of AN and BN are also detrimental to health and wellbeing and affect a greater number of girls than do clinical EDs (O'Dea & Abraham, 2000). Without intervention, pathological eating could develop into a diagnosable ED. For these reasons, it is important to increase our awareness of the factors that may lead to eating pathology in adolescent girls before unhealthy eating attitudes and behaviours increase in severity. Again, as these results are cross-sectional, only tentative implications can be suggested. Further longitudinal research is needed to establish causality and corroborate these suggestions. If the relationships found in this study are confirmed, then implications may suggest various strategies to curtail the effects of these factors. These tentative implications are now discussed.

Prominent media messages that place undue emphasis on shape and weight should be counteracted by encouraging healthy body image and acceptance for all body shapes. Moreover, reducing perfectionism may also be a useful objective in prevention efforts. AN is often characterised by eating habits and body shape being a focus of an individual's perfectionistic efforts (Fairburn et al., 2003). Thus, it may be beneficial for an adolescent girl who is perfectionistic to have her maladaptive perfectionist beliefs about shape, weight and eating behaviours challenged, and replaced with realistic and adaptive thoughts. In addition, such interventions could possibly benefit from an emotion regulation component to address negative affect. Negative affect may be alleviated by teaching skills that allow a teenager to manage unwanted mood states in an adaptive fashion (Leon et al., 1999).

Among girls who are already dissatisfied with their bodies, targeting low self-esteem, perceived pressure from others and from media to be thin may protect an individual from future eating pathology. Self-esteem could be targeted by encouraging

and modelling self-worth based on other areas of an individual, such as inner qualities, academic achievement and meaningful social relationships. Secondary prevention efforts focussing on self-esteem have demonstrated good results at decreasing body dissatisfaction and pathological eating attitudes among adolescent girls (O'Dea & Abraham, 2000). Media messages that convey beauty being a girl's central objective and thinness leading to success and happiness could also be challenged. Adolescent girls could be taught to discriminate media images from reality by illustrating the techniques used to create the media thin ideal, for example airbrushed photos and computer-modified images (Thompson & Heinberg, 1999). Moreover, media literacy programmes that teach skills to resist social pressure could be implemented. Such programmes have demonstrated promising outcomes with adolescents (Wilksch, Tiggemann, & Wade, 2006). Finally, perceived pressure from others could be addressed by educating family members on the sometimes harmful effects of encouraging an individual to lose weight. Bearing in mind that perceived pressure might not be accurate, dissatisfied girls may benefit from teaching how to discriminate helpful messages about their bodies from unhelpful messages.

Directions for Future Research

Given the age of the participants in this study, measuring the prevalence of eating pathology and the individual factors that may interact with body dissatisfaction among a younger sample of New Zealand girls is needed. This is important given the growing body of literature that has supported the prevalence of eating pathology in younger girls and the importance of protecting these girls from such problems before they increase in intensity.

Rationale and Hypotheses for Study Two

Because eating pathology becomes more common during adolescence, research tends to focus on risk factors for this age group. However, it appears that interventions aimed at adolescents may be too late because body dissatisfaction, dietary restraint and other risk factors for EDs normally worsen as girls grow older (Hill, Oliver, & Rogers, 1992; Hoare & Cosgrove, 1998; Lowes & Tiggemann, 2003; Lucero et al., 1999). Conversely, children may be more receptive to body image programmes because their attitudes and behaviours are more likely to change (McVey & Davis, 2002). Research into risk factors for eating pathology during preadolescence, however, remains inadequate.

Risk factors for eating pathology may not be the same for adolescents as for preadolescents. Although EDs during childhood are rare, children do engage in subclinical and pathological eating attitudes and behaviours. Despite some research on eating pathology and weight and shape concerns in preadolescence (Kelly et al., 1999; McCabe & Ricciardelli, 2001; Ricciardelli et al., 2003; Taylor et al., 1998), additional research is needed to further understand these problematic attitudes and behaviours in children, before such behaviours increase in intensity. Such research is well overdue in New Zealand, as no study to date has examined eating pathology among New Zealand preadolescent girls and the prevalence of risk factors among this population. Further, only one study to date has examined the role of perfectionism in preadolescent eating pathology. To this end, the second study of this thesis has three goals similar to Study One: 1) to measure the prevalence and correlates of eating pathology in New Zealand girls 10-12 years of age; 2) to examine the measurement equivalence of the scales used in this study to establish the suitability of their use in the sample; and 3) to ascertain the

predictors of eating pathology along with the factors that interact with body dissatisfaction to increase the likelihood of developing eating pathology.

Based on the findings from Study One and the literature to date, it was hypothesised that each of the examined variables (as in Study One) would be related to eating pathology. Moreover, it was expected that body dissatisfaction, perfectionism, teasing and pressure from others would be uniquely predictive of eating pathology. There were no predictions made about negative affect and self-esteem in this younger sample because of the mixed research on these factors and because both mood states and self-esteem become more variable during adolescence (Edlund et al., 1999; Kessler, Avenevolib, & Merikangas, 2001).

It was expected the moderation analyses would reveal significant effects for perfectionism, teasing and perceived pressure from others to lose weight. This hypothesis was put forward because perfectionism is likely to drive an individual who is dissatisfied with her shape and weight to lose weight and not be satisfied until her expectations are met. Further, given their age, children may be less independent and more exposed or susceptible to pressure, expectations and teasing from others to lose weight, such as their parents. This perceived pressure may encourage them to strive to lose weight in order to gain acceptance from their significant others.

STUDY TWO

Method

Participants

The participants were 170 preadolescent girls aged between 10 and 12 (see Table 15 for demographic information). Data from one participant were not included in the analysis due to the questionnaire being incomplete, therefore the final sample size was 169. Because participants with missing data were deleted from each respective analysis, in analyses that included all the participants, the sample size was 129.

Because BMI changes substantially as children get older, BMI percentiles and z-scores for age and sex were computed using the US Center for Disease Control BMI-for-age growth charts (www.cdc.gov/growthcharts). Using this classification, no participants were underweight (<5th percentile), 73.5% were in the normal weight range (5th percentile to <85th percentile), 16.0% were at risk for overweight (85th to <95th percentile), and 10.1% were overweight (95th percentile or greater) (Barlow & Dietz, 1998). The participants had a mean BMI of 19.7 (*SD* = 3.51), indicating a healthy average height to weight ratio. BMI data were similar to those from other studies conducted with children overseas, for example, Australia and USA (Ricciardelli et al., 2003; Schur et al., 2000).

Measures

The questionnaires measured: 1) demographic information; 2) eating pathology; 3) self-esteem; 4) body dissatisfaction; 5) negative affect; 6) perceived pressure from others and the media to lose weight; 7) teasing; and 8) perfectionism. In sum, participants completed a booklet of ten measures. Written instructions appeared at the beginning of each questionnaire. The questionnaire packet can be found in Appendix F.

Demographic information. All participants completed a questionnaire to determine demographic characteristics: age, school, gender, and mother's and father's occupation. The research assistant measured the weight and height for each participant in a secluded area of the classroom to ensure privacy.

Socio-economic status (SES). The NZSEI (Davis et al.,1997) is an occupationally-based measure used to measures SES. See description in the previous study.

Eating attitudes and behaviours. The Children's version of the Eating Attitudes Test (ChEAT; Maloney et al., 1988) is a 26-item measure of children's eating and dieting behaviour. The ChEAT is a simplified version of the EAT-26 with language suitable for individuals aged between 8 and 15. Participants endorse items on a six-point Likert Scale with one indicating "always" and six, "never" (e.g., "I like my stomach to be empty"). Maloney and colleagues (1988) recommended that a cut-off score of 20 on the ChEAT is indicative of severe eating pathology that warrants further clinical assessment. Internal consistencies range from .76-.87 for children between the ages of 8 and 13 (Maloney et al., 1988; Smolak & Levine, 1994). In the current study, Cronbach's alpha for this scale was .80.

Body dissatisfaction. Based on Stunkard Body Figure Drawings, the Collin's Body Figure Perceptions (Collins, 1991) is a pictorial instrument aimed at assessing body perceptions in preadolescent children (7 to 10 years old). Children viewed seven figures from very thin to obese and endorsed perceived current size and their ideal size. The discrepancy between the two figures constitutes the body dissatisfaction score. Moderate test-retest reliability data have been found for this scale, ranging from .58-.71 for current figure and .59- .73 for ideal figure (Collins, 1991; Wood et al., 1996).

The EDI-BD (Garner et al., 1983) was used to assess body dissatisfaction in children by asking questions related to beliefs about parts of their body. This subscale has been validated on children aged between 8 and 11 and showed good test-retest reliability (.79) and internal consistency (.73-.95) (Cusumano & Thompson, 2001; Wood et al., 1996). In the current study, Cronbach's alpha was .92.

Self-esteem. The RSE (Rosenberg, 1965) was used to measure general self-esteem. The RSE is described in the previous study. In the current study, the Cronbach's alpha was 0.86.

Negative affect. The Positive and Negative Affect Scale for Children (Laurent et al., 1999) provides a separate measure of positive and negative affect. Children were required to rate the degree to which they have experienced the emotion (e.g., "interested" or "scared") the past few weeks, on a scale of 1 (very slightly or not at all) to 5 (extremely). This scale has been adapted from the adult version of the PANAS (Watson et al., 1988) and uses words that are more understandable to children, for example, "sad" as opposed to "distressed". High reliability for this scale has been found among children ($\alpha = .80$) (Joiner et al., 1996). Score reliability as measured by the Cronbach alpha was .87 for the current study.

Perfectionism. The CAPS (Flett et al., 1992) is described in the previous study. In a study of 10 to 15 year olds, Hewitt, Caelian, Flett, Sherry, Collins and Flynn (2002) reported Cronbach's alphas of .86 for the SO perfectionism and .82 for the SP perfectionism subscales. For this sample, the Cronbach's alpha for the SP perfectionism and SO perfectionism subscales was .85 and .82, respectively.

Sociocultural influence. The Sociocultural Influences on Body Image and Body Change Questionnaire (McCabe & Ricciardelli, 2001) is described in the previous study. Each of the scales is highly intercorrelated and the authors have found high

Cronbach's alpha scores ranging from .82 to .84 for girls aged 8 to 11 (McCabe & Ricciardelli, 2003b). As in Study One, a total score for perceived pressure to lose weight was computed and used in this study. In this sample, Cronbach's alpha was .76. This questionnaire also includes a subscale measuring pressure from the media to lose weight, which was examined separately in this study. Cronbach's alpha for the pressure from the media variable was .88.

Teasing. The POTS was described in the previous study. In the current study, the Cronbach's alpha was 0.94.

Procedure

This study gained approval from the University of Canterbury Human Ethics Committee before testing commenced. Thirteen schools were invited to participate, and seven local primary schools throughout Christchurch agreed to participate: one private all girls' school and six public coeducational schools. The decile ratings of the participating schools ranged from 5 to 10, indicating that, on average, the children were from moderate to high socio-economic communities (Ministry of Education, 2006). Each of these schools determined how they would like the questionnaires to be administered, for example, in class time or lunchtime, in order to make the exercise as unobtrusive as possible. The procedure and process of recruitment was described in Study One (principal and parental consent forms can be found in Appendix B and C. The participant information and debriefing sheets can be found in Appendix G and H).

Data Analysis

Statistical procedures. As in Study One, data analyses were performed using Statistical Package for Social Sciences (SPSS Inc., 2006) and ModGraph I (Jose, 2003). First, descriptive statistics were calculated to determine the composition of the sample for example, ethnicity and age. Second, the measurement equivalence of the scales was

evaluated in order to check that the scales were measuring the same attributes in their sample in order to make unbiased comparisons. PCA was used to investigate if configural invariance could be shown for these measures, by first examining eigenvalues over 1.00 and scree plots for each test, followed by fixing the solution to yield the number of factors reported in the original factor structure. Third, Pearson product moment coefficients were calculated to investigate the association between the variables. Regression analyses were conducted to ascertain the relative importance of different variables in predicting eating pathology in adolescent girls. Finally, regression analyses tested for moderator effects to examine which independent variables interacted with body dissatisfaction to predict eating pathology.

Missing data. For any analysis, individuals with missing data on the variable used were excluded. As mentioned earlier this treatment of missing data may be a limitation of this research. In most analyses, deletion of missing data did not have a great effect on the sample size, but in analyses when all the variables were included, the sample size was 129.

Results

Descriptive Analyses

The ethnic distribution of the sample was predominantly New Zealand European (see Table 16) and was not dissimilar to the population statistics of children and youth in Christchurch city which is 84.0% European, 11.0% Māori, 6.0% Asian, 2.0% Pacific Island and 1% Other (Christchurch City Council, 2007). In addition, mean SES was 3.30 indicative of an average SES. Participants' households were represented in each of the six SES groups and at rates comparable to those found in the NZSEI-96 report (Galbraith, Jenkin, Davis, & Coope, 2003).

Table 17 presents the participants' means and standard deviations for each of the measures. Higher scores on each scale are interpreted as more pathological, apart from self-esteem in which lower scores are considered more pathological. Mean scores on all of the measures were similar to the norms that have been reported for the respective tests in non-clinical preadolescent populations (Donovan et al., 2006; Hayden-Wade et al., 2005; Joiner et al., 1996; Maloney et al., 1988; Martin & Huebner, 2007; McVey et al., 2002; Smolak & Levine, 1994; Wood et al., 1996). All the variables exhibited good to excellent levels of internal consistency. Although individuals generally reported low levels of eating pathology (M = 10.03), twenty-eight participants (12.3%) had scores exceeding the criterion of 20 indicative of eating pathology (Maloney, McGuire, Daniels, & Specker, 1989; Maloney et al., 1988). In the ChEAT development study, Maloney and colleagues (1988) found 9.5% of 11 year old girls exceeded this cut-off.

Measurement Equivalence of the Tests

As in Study One, the measurement equivalence of the questionnaires used in this study was evaluated. PCAs followed by varimax rotations were performed and

decisions on how many factors to retain were made in one of three ways. First, factors with eigenvalues over 1.00 were extracted. Second, scree plots were observed. Finally, if these two methods did not suggest the retention of the same number of factors as found in the original factor structure, the solution was forced to yield the original number of factors reported. As in Study One, the Sociocultural Influences Pressure to Lose Weight and EDI-BD subscales were not included in these analyses.

Factor structure of the ChEAT. The KMO measure of sampling adequacy was .79, indicating that these data were suitable for factor analysis. Seven factors had eigenvalues greater than 1.00. However, the scree plot indicated a four-factor solution fit the data best and this was compatible with the original factor structure reported. Because not all items loaded on these factors, the solution was forced to yield four factors. This solution accounted for 47.40% of the variance. Table 18 presents these findings. As can be seen, the first factor was the most similar to that found by Smolak and Levine (1994) , however there were items that loaded on two or more factors. Because the sum of the ChEAT is often used in research, the PCA was constrained to yield a one-factor solution. Most items were highly loaded on the factor. The items that had lower loadings were item 25 “I enjoy trying new rich foods” (-.09), item 13 “Other people think I am too thin” (.02), and item 3 “I think about food a lot of the time (.10). Interestingly, items 25 and 13 also yielded poor factor loadings in the EAT data from Study One.

Factor structure of the CAPS. In this analysis, the KMO measure was .83 indicating that these data were appropriate for factor analysis. Although there were five eigenvalues greater than 1.00, the scree plot indicated the retention of two factors. In keeping with the original factor structure, a two-factor solution was forced. As can be seen in Table 19, these factors accounted for 40.44% of the variance. Items that loaded

on these factors were consistent with the subscales, however Item 3 ("My parents don't always expect me to be perfect in everything I do") had a slightly lower loading on the SP factor of -.25. Furthermore, several of the items moderately cross-loaded on the alternative SP or SO factor.

Factor structure of the PANAS-C. The KMO value indicated suitability for factor analysis (.79). Although there were five eigenvalues greater than 1.00 and the scree plot suggested the retention of three factors, a two-factor solution was forced. This solution accounted for 35.30% of the total variance. Table 20 presents the findings of the PCA and items loadings were consistent with the items on the Negative Affect and Positive Affect subscales.

Factor structure of the RSE. The KMO measure of sampling adequacy indicated suitability of these data for factor analysis (.86). There were two eigenvalues greater than 1.00. However, the scree plot was compatible with the original factor structure indicating the retention of one factor. Because not all items loaded on this factor, the solution was forced to yield one factor. On observing the item loadings presented in Table 21, all of the ten items loaded highly on this factor.

Factor structure of the POTS. The KMO measure of .88 demonstrated that the POTS was suitable for factor analysis. From observing the scree plot and eigenvalues it seemed a two-factor solution best fit the data. As can be seen in Table 22, these factors accounted for 70.60% of the total variance and factor loadings were the same as the original factor structure which tapped into Weight-based and Competency-based Teasing (Thompson, Cattarin et al., 1995).

Interrelationships between Variables

Pearson product moment correlation coefficients were computed to examine the relationships between the variables of interest and eating pathology. These results are

shown in Table 23. Consistent with previous research, eating pathology significantly correlated with BMI, self-esteem, body dissatisfaction, perfectionism, pressure to lose weight from the media and from others, and frequency of weight-related teasing. All effect sizes were medium to large. This finding suggests that pathological eating behaviour scores are associated with non-eating related variables among this age group.

Prediction of Eating Pathology from Variables of Interest

Regression model. Potential predictors of eating pathology were simultaneously included in a multiple regression model. A composite body dissatisfaction score was again used in these analyses. The composite score was calculated by entering the EDI-BD items and the Figure drawing discrepancy score into a PCA. The KMO value was .92, demonstrating that these data were suitable for factor analysis. As expected, the PCA extracted one component (eigenvalue = 6.25) which accounted for 62.46% of the variance. This composite variable was calculated by using the regression method and was used in the remainder of the analyses. Although some of the other variables moderately correlated, particularly body dissatisfaction, perceived pressure from others and teasing, these individual variables were retained in the regression analysis. This decision was made because these variables are theoretically different, zero-order correlations were not considered extremely large, and because the variance inflation factor was not large enough to cause concern (Stevens, 2002). However, consideration was given to these moderate correlations in subsequent analyses. Table 24 depicts the findings of the regression analysis. The model accounted for 53% of the variance in eating pathology scores, although the PRESS statistic was a value of .39, F (9,114) = 13.24, $p < .01$. Body dissatisfaction, weight-related teasing and SP perfectionism uniquely contributed to predicting eating pathology.

In light of weight-related teasing being a unique predictor and because of the abovementioned strong univariate relationship between weight-related teasing and body dissatisfaction, analyses were computed to further explore the relationship between teasing and eating pathology. Past research with adolescents has suggested that weight-related teasing is likely to be related to increased eating pathology, due to the direct effect of teasing on body dissatisfaction (Donovan et al., 2006). A correlation analysis between eating pathology and teasing frequency was no longer statistically significant when controlling for body dissatisfaction, consistent with a mediational effect.

Regression analysis including effect of weight teasing. To examine the effect of weight teasing, a separate regression analysis was conducted due to the sample size reduction for the same reasons as in Study One. In the current study, the sample size for this sub-group was 50. Table 25 depicts these findings. Overall, this model accounted for 74% of the variance in eating pathology scores, F (9,49)= 12.42, $p < .01$ (PRESS value was .48). Body dissatisfaction and SP perfectionism were uniquely predictive of eating pathology. Although effect of weight teasing was not a significant predictor, this regression model explained more variance than the previous regression model that did not include effect of teasing.

Analyses with Effect of Weight Teasing Subgroup

Interrelationships between variables. To understand why the inclusion of effect of weight teasing strengthened the regression model, zero-order correlations for the effect of weight teasing subgroup were computed. These findings are depicted in Table 26. Although most of the correlations between the variables increased, the relationship between eating pathology and two variables, perceived pressure from others to lose weight and negative affect, weakened. Notably, the correlational relationship between negative affect and eating pathology became non-significant.

Group differences. *t* tests were calculated to examine the differences between the effect of weight teasing group and the no effect of weight teasing group across the variables of interest. Table 27 displays these findings. As can be seen, the effect of weight teasing group reported significantly higher eating pathology scores than did the non-effect group. Effect sizes ranged from medium to large. In addition, mean scores for all of the other variables were significantly higher for the subgroup that reported effect of weight teasing, suggesting that teasing effect is related to greater eating-related and non-eating related psychopathology.

Relationship between eating pathology and effect of weight teasing when controlling for body dissatisfaction. To examine whether body dissatisfaction accounted for the relationship between effect of weight teasing and eating pathology, partial correlations that controlled for body dissatisfaction were also computed. This analysis was computed for the same reasons as in Study One: effect of weight teasing was significantly correlated with body dissatisfaction (r = .38 and .53; Figure drawings and EDI-BD), and because effect of teasing is likely to theoretically precede body dissatisfaction (van den Berg et al., 2002). When body dissatisfaction was controlled for, the relationship between effect of weight teasing and eating pathology became non-significant only for the EDI-BD (r = .17; p = .20, EDI-BD; r = .40; p < .01, Figure drawings), consistent with a mediational effect.

Interactions between Potential Moderator Variables and Body Dissatisfaction

As in Study One, a three-way interaction between body dissatisfaction, perfectionism and self-esteem in predicting eating pathology was tested (Vohs et al., 1999; Vohs et al., 2001). Hierarchical multiple regressions were computed to test for moderator effects, with eating pathology as the dependent variable. Although Vohs and colleagues used bulimic symptomatology as the dependent variable, eating pathology

was used as the dependent variable in this analysis because bulimic symptoms were not explicitly measured in this study. To reduce the potential for multicollinearity, variables were centred before the product terms were created.

When SP perfectionism was entered, the three-way interaction was statistically significant, $t(127) = -2.19$, $p = .03$. When SO perfectionism was entered, the interaction effect was also significant, $t(128) = -2.67$, $p = .01$. To observe the nature of these interactions, data were divided into three groups (high, medium and low) based on perfectionism scores. Pearson correlations between body dissatisfaction and eating pathology within each of these groups were examined for high, medium and low levels of self-esteem and individual regression lines were plotted. The interaction between SP perfectionism and body dissatisfaction was only significant at medium levels of self-esteem, $t(91) = 2.02$, $p = .05$. Figure 8 depicts this interaction. Further, the interaction for SO perfectionism and body dissatisfaction was also significant only at medium levels of self-esteem, $t(90) = 2.95$, $p < .01$. Figure 9 depicts this interaction.

That SP and SO perfectionism were both not significant moderators at extremes of self-esteem was probably due to small sample size in the high and low groups (SO: $n = 15, 20$; SP: $n = 16$ and 22, respectively). The effect sizes for both SP and SO perfectionism were largest at low levels of self-esteem, supporting this sample size rationale. To further examine if this was the case, when the self-esteem scores were split into three even groups of high, medium and low, the three-way interaction with SO perfectionism was only significant for the low self-esteem group ($p = .03$). In the three-way interaction using SP perfectionism, the interaction was approaching significance for the low self-esteem group ($p = .09$). As this method of interpreting interactions is not consistent with the recommended approach (Aiken & West, 1991), caution should be exercised in interpreting these latter analyses. Overall, however, these results suggest

that perfectionism and self-esteem may moderate the body dissatisfaction-eating pathology pathway in preadolescent girls.

A series of hierarchical multiple regressions was computed to test for two-way moderator effects, with eating pathology as the dependent variable. Table 28 depicts regression coefficients and significance levels for each two-way moderator analysis. It was hypothesised that both SO and SP perfectionism would moderate the pathway between body dissatisfaction and eating pathology. The interaction between SO perfectionism and body dissatisfaction was statistically significant, $t(130) = 3.19$, $p < .01$. As seen in Figure 10, low SO perfectionism buffered the effects of body dissatisfaction on eating pathology. At high levels of SO perfectionism, there was a greater effect of body dissatisfaction on eating pathology. Pairwise comparisons only revealed a significant difference between the high and medium slopes, $t(110) = 2.62$, $p = .01$. Although graphically and logically, it appears that there would be a significant difference between the high and low slope, small sample size for this analysis ($n = 39$) may have reduced power. However, when separated into three even groups of high, medium and low SO perfectionism scores, there was a significant difference between the low and high slope ($p = .01$).

The interaction between SP perfectionism and body dissatisfaction was also statistically significant, $t(129) = 2.48$, $p = .01$. As can be seen in Figure 11, low SP perfectionism buffered the effects of body dissatisfaction on eating pathology. When an individual had high SP perfectionism, the relationship between body dissatisfaction and eating pathology was greater. Pairwise comparisons revealed significant differences between the high and medium slope $t(103) = 2.60$, $p = .01$ and between the high and the low slope $t(50) = 2.18$, $p = .03$.

The interaction between body dissatisfaction and perceived pressure from the media to lose weight was statistically significant, $t(134) = 2.302$, $p = .02$. Figure 12 depicts this interaction effect. Low media pressure buffered the relationship between body dissatisfaction and eating pathology. A high level of media pressure was related to an increased relationship between body dissatisfaction and eating pathology. Pairwise comparisons only demonstrated a significant difference between the high and medium slope, $t(102) = 2.76$, $p = .01$. Again, one would expect there to be a significant difference between the high and low slope, however small sample size for this analysis ($n = 51$) may have reduced power. When separated into three even groups, there was a significant difference between the low and high slope ($p = .05$).

Self-esteem also moderated the relation between body dissatisfaction and eating pathology at a statistically significant level, $t(133) = -1.99$, $p = .05$. Figure 13 represents this interaction and highlights that in the context of low self-esteem, the relation between body dissatisfaction and eating pathology is greater. High self-esteem may buffer the effects of body dissatisfaction on eating pathology. Pairwise comparisons revealed a significant difference between medium levels and low levels of self-esteem, $t(115) = -1.98$, $p = .05$. Although the other comparisons were non-significant, it would seem by looking at the graph that there would be a significant difference between the high and low levels of self-esteem. Low sample size ($n = 42$) may have contributed to this finding, as when self-esteem scores were separated into three even groups of high, medium and low there was a significant difference between the high and low slopes ($p < .01$).

Discussion

Study Two demonstrated that New Zealand preadolescent girls (10-12 years of age) report eating pathology at similar rates to those found in Australia, North America and the United Kingdom: 12.3% of the participants reported unhealthy eating attitudes and behaviours (as measured by the ChEAT). This similarity was expected given the pervasiveness, and conjectured influence, of the mass media in New Zealand. This study was the first to examine the prevalence of eating pathology among New Zealand preadolescent girls and the frequency of known risk factors for eating pathology among New Zealand preadolescent girls. Moreover, only one study to date has examined the role of perfectionism in the development of dieting behaviours and shape and weight concerns among children (Saling et al., 2005). An aim of this study was to extend their findings to better understand the potential role of perfectionism in preadolescent eating pathology.

The rates of eating pathology in this study were comparable to the findings for the adolescent sample in Study One (12.3% and 13.5%, respectively). Similar rates have been found in previous studies of early and middle adolescence (Gralen et al., 1990; Rosen et al., 1988), demonstrating that unhealthy eating attitudes and behaviours may begin earlier than typically thought. However, in the above-mentioned studies, the younger adolescents completed the EAT-26. In the current study, they completed the ChEAT and, although the development of the ChEAT was based on the EAT-26, they may not be directly comparable. Therefore, it is important to interpret the comparative rates of eating pathology between preadolescents and adolescents with caution.

Results of this study generally support measurement equivalence in most of the measures used. When each factor analysis was constrained to yield the number of factors found in its original structure, each factor analysis yielded similar if not

identical factors to its original, demonstrating some evidence of measurement invariance. In some cases, items crossloaded or had low loadings. For example in the ChEAT factor analysis, items tapping into enjoyment of rich foods and perception by others of being thin had low loadings. Poor factor loadings may have been due to the lack of variability in endorsement of these items.

As expected, this study found that eating pathology was related to higher rates of body dissatisfaction, negative affect, low self-esteem, teasing frequency and effect, perfectionism and pressure to lose weight from others and the media. Similar findings have been found in past studies examining risk factors to eating pathology in preadolescents outside New Zealand (e.g., Saling et al., 2005). The regression findings were similar to those that were found in Study One: participants who were highly perfectionistic, had high exposure to teasing or were dissatisfied with their bodies were more likely to score high in eating pathology. The only difference from Study One was that in this study weight-related teasing was a predictor and in Study One negative affect was a significant predictor. That body dissatisfaction was a significant predictor was not surprising given the well-established role of body dissatisfaction in both adolescents and preadolescents eating pathology.

That SP perfectionism was a significant predictor of eating pathology suggests that after accounting for body dissatisfaction and weight-related teasing, girls who were socially perfectionistic, or believe that others will only value them if they are perfect, may be more likely to engage in pathological eating attitudes and behaviours. SP perfectionism has been associated with psychological difficulties such as depression, anxiety and social stress in children (Hewitt et al., 2000). This study is the first to extend the role of SP perfectionism to disordered eating in children. Moderator analyses demonstrated that both SP and SO perfectionism significantly moderated the

established relation between body dissatisfaction and eating pathology. At high levels of perfectionism, body dissatisfaction had a greater effect on eating pathology than at lower levels of perfectionism. Girls who have low levels of perfectionism may be protected from eating pathology, as although dissatisfied with their bodies, their standards may be more malleable than those who are more perfectionistic. Moreover, these girls may dismiss their dissatisfaction more easily and not experience the unrelenting pursuit of weight loss or engage in extreme behaviours to lose weight. Conversely, girls who are dissatisfied and high in perfectionism may believe their high body standards are realistic and obtainable. Perfectionism has been under-researched in the preadolescent population, especially in the field of EDs. This research has demonstrated the potential importance of addressing perfectionism in younger children, both in those already dissatisfied with their bodies and in those who are not, in order to prevent the development of eating pathology and ultimately EDs.

Similar to the findings of Vohs and colleagues (1999; 2001), this study found that the three-way interaction of perfectionism, body dissatisfaction and self-esteem predicted eating pathology. Findings demonstrated that the interaction between body dissatisfaction and perfectionism was only significant for those girls who had medium levels of self-esteem. However, it is likely that small sample size in the groups with high and low self-esteem contributed to this finding as effect sizes for the interactions were larger in the low self-esteem groups. These findings may be limited by a lack of distinction between self-esteem and body satisfaction in children. Steele and colleagues (2006) suggested that the relationship between perfectionism and self-esteem is likely to be complex, and in need of future, well-designed, research.

Weight-related teasing significantly and independently contributed to the overall regression model, suggesting that a child's exposure to teasing may lead to increased

eating pathology. This finding may be due to the emergence of teasing during childhood, thus making them more attuned and sensitive to the content of the teasing. Moreover, children could struggle to integrate the comments into their perception of themselves and attend to the comments by engaging in extreme weight loss strategies to prevent further teasing and ostracisation. However, weight-related teasing may indirectly predict eating pathology through body dissatisfaction. Weight-related teasing and body dissatisfaction were the two most highly correlated variables in this sample. This finding is not surprising given that individuals who have been the subject of frequent teasing would be more likely to internalise negative comments about their weight. The relationship between teasing and dissatisfaction may suggest that weight-related teasing gives rise to body dissatisfaction, which in turn leads to eating pathology. Indeed when body dissatisfaction was controlled for, the relationship between teasing and eating pathology became non-significant, consistent with a mediational effect. Therefore, it seems plausible that weight-related teasing might be more pertinent in the development of body dissatisfaction than eating pathology. Further research needs to examine this finding.

Perceived pressure from the media to lose weight did not contribute to the overall regression model; however, it was a significant moderator of the pathway between body dissatisfaction and eating pathology. Body dissatisfaction had a greater effect on eating pathology for those who perceived pressure from the media to lose weight. Among girls who perceive this pressure, the media may not only encourage an individual to change her shape and weight, but may also teach strategies for doing so, through modelling. Indeed, the effect of the increasing anti-obesity message in the media that is enforcing the importance of weight control in young people is not completely known (Striegel-Moore & Bulik, 2007). It may also be possible that

preadolescent girls who endorse high levels of body dissatisfaction seek out media images and thus have greater exposure to media (Polivy & Herman, 2002; Stice et al., 1994). Low levels of perceived media pressure may protect preadolescent girls from developing pathological eating attitudes and behaviours because, although dissatisfied, they may not encounter the same societal pressure to lose weight. Secondary prevention could target perceived pressure from the media, in order to attenuate the effects of body dissatisfaction on eating pathology.

Unlike Study One, negative affect was not a predictor of eating pathology. That negative affect was not predictive of eating pathology among preadolescent girls is consistent with other research. Saling and colleagues (2005) did not find negative affect to predict dieting behaviours cross-sectionally or longitudinally. One possible reason for this finding may be that negative affect is only related to intention to lose weight as opposed to eating pathology (McCabe & Ricciardelli, 2001). Moreover, children may be yet to perceive actual weight loss as a means of offsetting a negative mood (Saling et al., 2005) or may have alternative ways of managing their mood states.

Self-esteem did not independently predict eating pathology but was found to moderate the body dissatisfaction-eating pathology pathway. This finding is similar to past research that did not find self-esteem to predict eating pathology among preadolescent girls (Ricciardelli et al., 2003; Saling et al., 2005). Eating pathology may only be directly associated with self-esteem in adolescent girls, because of the normative drop in self-esteem during adolescence (Edlund et al., 1999; Usmiani & Daniluk, 1997). Another possibility is that among preadolescent children, self-esteem and body satisfaction are closely related and represent a broader construct of global self-worth. Researchers have suggested that children's body image is reflective of their general self-worth, and that body esteem and self-esteem may be interdependent

dimensions of the same construct (Basow, 1992; Cash & Henry, 1995). That said, self-esteem did play a role in moderating the body dissatisfaction- eating pathology pathway. When body dissatisfaction becomes such a focus and an individual ceases to acknowledge her other positive attributes, she may believe that engaging in pathological eating behaviours will increase her feelings of self-worth. Thus, if a girl is specifically dissatisfied with her body, high self-esteem may play an important role in influencing the outcome of eating pathology.

As in the first study, effect of weight teasing increased the significance of the regression model but did not contribute uniquely. As in Study One, the reasons for this finding may be because of the presence of outliers. However, children may also be more attentive to the content of teasing and lack the resources to cope with the comments in an adaptive way. Further, their level of distress may have led them to be more conscious of weight, shape and eating issues, putting them more at risk of engaging in maladaptive eating behaviours. Alternatively, those with higher weight and shape concerns to begin with may have found teasing more distressing. When body dissatisfaction was controlled for, the relationship between the effect of weight teasing and eating pathology became non-significant. This finding suggests that the effect of weight teasing is a pertinent factor associated with higher body dissatisfaction, which in turn is related to higher eating pathology, consistent with a mediator effect. This finding is consistent with research that has found that weight-teasing effect is related to body dissatisfaction and thus indirectly related to eating pathology (Donovan et al., 2006). Reducing the impact of teasing could increase psychological functioning, help buffer the effects of body dissatisfaction and ultimately, the development of eating pathology. Longitudinal research is needed to investigate this possibility.

Limitations of this Study

There were some limitations to this current study. A cross-sectional design was employed limiting the causal inferences that can be made from this research. For example, it may be possible that the pattern of engaging in pathological eating behaviours will lead to perfectionistic behaviour because a focus on food and weight may lead to obsessionality in other areas of her life, such as school. Causal links may be better established through longitudinal analysis or experimental research. Further, this study relied on self-report data. Although the questionnaires were age appropriate in terms of readability, some children may not have responded openly or paid attention to the questionnaires. To reduce this likelihood, participants were well informed of confidentiality throughout this study and reminded to read every question carefully. This study did not employ random selection because it required principals' consent. Effort was given to recruit children from a wide range of socio-economic areas; however, consenting schools tended to be from moderate to high socio-economic areas. Although ethnicity data suggested that the current sample was representative of Christchurch demographics, the majority of the sample was New Zealand European. Therefore, the results of this study may not be generalisable to other ethnic groups. Moreover, because of the age of the sample, it is unclear if girls who had undergone pubertal onset were excluded. Considering pubertal onset is important because once girls have made a pubertal transition, they may be more likely to experience negative body image due to the physical changes in their body such as increased body fat (Brooks-Gunn, 1987; Cotrufo, Cella, Cremato, & Labella, 2007; Fairburn, Cooper et al., 1999). In light of evidence to suggest that girls as young as five are aware of the societal standard of thinness and the acceptance of dieting as a weight control strategy

(Lowes & Tiggemann, 2003), research should further examine these findings in a sample of even younger children.

Obviously, not every variable that may put a preadolescent girl more at risk for developing an ED could have been examined. It is therefore possible that the findings were due to an unexamined third variable. For example, in this study perceived pressure was a combined variable that did not measure specific sources of pressure such as father influence. Future risk factor research should continue to examine these and other potential risk factors. Finally, the current study only focussed on examining the effect of individual risk factors on body dissatisfaction and did not consider interactions with other components of the Sociocultural Model of Eating Pathology. Examining potential interactions with components earlier in this model, that is, media awareness and thin ideal internalisation, would be important in isolating when else these individual risk factors play a salient role.

Implications of this Study

This study provided provisional evidence that the measures used in this study are appropriate within a New Zealand context and are measuring what they were designed to measure. Moreover, the finding that young New Zealand girls are engaging in maladaptive eating attitudes and behaviours has important implications. Pathological eating behaviours are particularly dangerous for children, who need to receive adequate nutrition for normal physical development. Although children need to understand the importance of a healthy lifestyle (that is, healthy eating and moderate exercise), it is equally important to encourage healthy body image and attitudes about food and eating. Efforts to deter maladaptive eating attitudes and behaviours are lacking and yet greatly needed.

Although this study is limited because of the reasons mentioned above, if the relationships found in this study are confirmed, then implications may suggest various strategies to attenuate the effects of these factors. Identifying that body dissatisfaction, SP perfectionism and weight-related teasing are unhelpful characteristics closely related to eating pathology should lead us to attenuate these factors. Information on normative differences in body shape to target unrealistic body ideals and the origins of body dissatisfaction could be implemented to decrease body dissatisfaction in children. Challenging maladaptive beliefs about needing to be perfect for others and their fear of negative evaluation if they are not perfect may also help decrease SP perfectionism in children. Further, weight-related teasing could be targeted by teaching children strategies to cope with the disappointment and rejection of teasing and to discriminate helpful from unhelpful body messages. Implementation of a no teasing policy at schools may also encourage an appreciation for diversity among children of all sizes.

Because perfectionism, media pressure and low self-esteem statistically moderated the pathway between body dissatisfaction and eating pathology, influencing these factors may lead to more positive outcomes. Media pressure could be addressed by teaching adolescent girls to discriminate media images from reality through illustrating the techniques used to create the media thin ideal, for example airbrushed photos and computer-modified images (Thompson & Heinberg, 1999). Likewise, in order to address low self-esteem, children could be encouraged to direct attention to their strengths, and to challenge self-critical thinking. As this research is cross-sectional however, further longitudinal studies are warranted to verify these findings before such implications can be definitive.

Directions for Future Research

Although this study looked at the close relationship between body dissatisfaction and eating pathology, examining these factors and how they interact with the preceding components of the Sociocultural Model, such as media influence, is also important. Doing so, may provide useful information about the nature of these relationships and the factors that may influence the application of the Sociocultural Model in women and girls. Protecting women from internalising the thin ideal may be an appropriate step in ultimately preventing eating pathology (Stice, 2001b). As such, researching the factors that may increase the likelihood of thin ideal internalisation, such as perfectionism, may inspire longitudinal research and, ultimately, point to potential targets for prevention efforts.

Rationale and Hypotheses for Study Three

Given the support for internalisation as a risk factor for eating pathology (Thompson & Stice, 2001), research focussing on moderators of the media's role in thin ideal internalisation is warranted. In general, factors that serve to amplify the risk of internalising societal standards of thinness (a factor that theoretically succeeds awareness of thinness norms and precedes body dissatisfaction and later, eating pathology) are important to consider as they may explain why some women do not develop an ED in our current social climate (Striegel-Moore & Bulik, 2007). In addition, the role of perfectionism in EDs needs to be refined (Franco-Paredes et al., 2005). Although perfectionism is related to AN, eating pathology and to a lesser extent, BN, there has been a lack of research into the relationship between perfectionism and the thin ideal. Considering that thin ideal internalisation is thought to precede body dissatisfaction and eating pathology, research into the role of perfectionism, along with other individual factors, in the development of internalisation is necessary. This would improve our understanding of the factors that may protect an individual from later body dissatisfaction and potential eating pathology.

Study Three addressed this gap in the literature and examined the individual factors that may amplify or mitigate the risk of internalising the thin ideal among a sample of university women. Because one of the latest measures of sociocultural appearance norms includes a scale on importance of media as an information source as opposed to awareness of these norms (Sociocultural Attitudes Towards Apperance Questionnaire-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004), the relationship between information and internalisation was examined. Moreover, this measure also included a social pressure scale, which was also analysed as a potential predictor of internalisation. Therefore, Study Three had three aims; 1) as the previous

two studies, to evaluate measurement equivalence, by way of configural invariance, in order to examine if the questionnaires are measuring the same latent components in this sample; 2) to test if information and social pressure predicted internalisation; and 3) to identify the individual factors that may interact with information and social pressure in predicting thin ideal internalisation.

It was hypothesized that both information and social pressure would predict internalisation given that both these factors are likely to make an individual more aware of societal standards and more likely to feel pressured to adhere to these social norms. It was hypothesized that neurotic perfectionism would moderate these pathways. The effect of seeing the media as an important information source or as a form of social pressure may be stronger for perfectionists because these individuals may be more likely to eagerly comply with social norms. Further, perfectionistic individuals who value media information about thinness may be more obsessive and relentless about the buying into these standards for themselves.

Anti-fat attitudes were also predicted to moderate the information and internalisation pathway. A common social attitude is that being overweight leads to adverse consequences (Lewis, Cash, Jacobi, & Bubb-Lewis, 1997). As well as social beliefs, Lewis et al. (1997) suggested that anti-fat attitudes may foster fear of weight gain for oneself. Considering Lewis and colleagues' suggestion, and that one's beliefs about being overweight are related to body dissatisfaction, it seems reasonable to suggest that anti-fat attitudes could moderate these pathways given that such attitudes are likely to perpetuate thin ideal internalisation. If an individual possesses anti-fat attitudes, then they may be more susceptible to media information that communicates the social and personal virtues of thinness. Anti-fat attitudes may also lead these individuals to believe that this media information is accurate and valuable, therefore

making these women more inclined to internalise standards of thinness. Moreover, their anti-fat attitudes are likely to increase the effects of social pressure because their beliefs would be congruent with the content of these social demands and thus, increase their likelihood of internalising the thin ideal.

Finally, it was predicted that anorectic cognitions would moderate the relationship between media information and thin ideal internalisation. Anorectic cognitions are an important yet under-researched aspect of the development of eating pathology. Given the role of maladaptive thoughts about one's body in body dissatisfaction and EDs, this study examined whether anorectic cognitions extend to the development of thin ideal internalisation. Few studies to date have examined anorectic cognitions in a normal population, with most other studies focussing on eating disordered populations. It was hypothesised that anorectic cognitions would strengthen the relation between information and internalisation. It seems plausible that women who have dysfunctional beliefs about weight and eating would be more impacted by media information because their beliefs would be reinforced by the information communicated by the media. On the other hand, individuals who are low in these dysfunctional cognitions may be protected from the effects of the media as an information source because they may be more likely to think rationally and realistically about the information communicated by the media. By examining the specific role that neurotic perfectionism**,** anti-fat attitudes and anorectic cognitions play in internalising the thin ideal, the findings of this study may help identify the factors that could potentially protect an individual from thin ideal internalisation, and eventual eating pathology.

STUDY THREE

Method

Participants

The participants were 204 women aged between 18 and 43 (see Table 29 for demographic information), recruited from the University of Canterbury, Christchurch, New Zealand. Participants went into the prize draw to win $100 or gained course credit for their involvement. Participants' BMIs indicated a healthy average height to weight ratio. A BMI below 18.5 was considered underweight, 18.5 -24.9 was considered normal weight, 25-29.9 was considered overweight, and 30 and above was considered obese (National Heart Lung and Blood Institute, 1998). Seventy-six percent of the women had a BMI that fell in the normal range, 7%, 12% and 4% had a BMI that fell in the underweight, above average and obese range, respectively (National Heart Lung and Blood Institute, 1998). One participant did not report her height and weight; therefore BMI scores were only available for 203 participants.

Measures

The battery of questionnaires measured media information, social pressure, internalisation of the thin ideal, anorectic cognitions, perfectionism and anti-fat attitudes. In total, participants completed a booklet of four questionnaires. Written instructions appeared at the beginning of each questionnaire. This questionnaire packet can be found in Appendix I.

Demographic information. The demographic questionnaire enquired about age, ethnicity, occupation, mother and father/caregiver occupation, self-reported height and self-reported weight. Self-reported weight and height was deemed appropriate given these are generally accurate among women (Goodman, Hinden, & Khandelwal, 2000).

Sociocultural attitudes. The Sociocultural Attitudes Towards Appearance Questionnaire- Third Edition (SATAQ; Thompson et al., 2004) is a 21-item measure of women's awareness and acceptance of societal standards of thinness and attractiveness. This scale has four subscales: internalisation-general, internalisation-athlete, social pressure and information. Participants respond on 5-point Likert scale ranging from "completely disagree" to "completely agree". This study used the internalisation-general (e.g., "I compare my appearance to the appearance of TV and movie stars"), social pressure (e.g., "I've felt pressure from TV or magazines to lose weight") and information (e.g., "TV commercials are an important source of information about fashion and being attractive") subscales. In the current study, the score reliability of the information subscale was .89 and for the social pressure subscale was .90. The general internalisation subscale yielded a score reliability as measured by the Cronbach's alpha of .80

Anti-fat attitudes. The Anti-Fat Attitudes Test (AFAT; Lewis et al., 1997) is a 47-item measure of negative attitudes and beliefs towards obese individuals. It examines three factors, social/character disparagement (e.g., "Fat people don't care about anything except eating"), physical/romantic unattractiveness (e.g., "Fat people shouldn't wear revealing clothing in public") and weight control/blame (e.g., "There's no excuse for being fat"). Lewis and colleagues (1997) describes the AFAT as a measure of anti-fat attitudes that is not confounded by social desirability and perceived health risks of overweight. Participants respond on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree". This scale has demonstrated excellent score reliability of .94 (Lewis et al., 1997). In the current study, total score reliability as measured by the Cronbach's alpha was .94. Cronbach's alphas for the subscales of this scale in this sample ranged from .78-.84.

Perfectionism. The Frost Multidimensional Perfectionism Scale (MPS; Frost et al., 1990) is a 35-item measure of perfectionism. It contains six factors that were derived from initial hypothesized perfectionism domains: Personal Standards, Concern over Mistakes, Organisation, Doubt about Actions, Parental Expectations and Parental Criticism. Participants respond on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree". Internal consistency for the subscales, as measured by the Cronbach's alpha have ranged from .77-.93 (Frost et al., 1990). In the current study, Cronbach's alpha was .92 for the overall scale and ranged from .80-.94 for the subscales.

Anorectic cognitions. The Mizes Anorectic Cognition revised scale (MACS; Mizes, 1991) is a 24-item measure of cognitive processes relevant to AN and BN. The MAC assesses three areas: a) self-control and self-esteem (e.g., "I am proud of myself when I control my urge to eat"); b) rigid weight regulation (e.g., "If I eat a sweet it will be converted instantly into stomach fat"); and c) weight and approval (e.g., "How much I weigh has little to do with how popular I am"; reverse coded). Internal reliability coefficients for this scale range from .72-.89 (Mizes, 1992). In the current study, the score reliability for the overall scale as measured by the Cronbach's alpha was .91 and ranged from .73-.89 for the MAC subscales.

Procedure

Before testing commenced, this study gained approval from the University of Canterbury Human Ethics Committee. Participants were recruited through the first year Psychology participant pool and by sending flyers and emails around various departments requesting participation in this study (see Appendix J). Once participants contacted the researcher, times were set up for the participant to come and fill out a questionnaire. Participants received an information sheet outlining the tasks involved in

the research and a consent form to sign (see Appendix K). The information sheet reassured the participant that the study was confidential and that she could withdraw from the session at any time including withdrawal of information provided. Once the participants consented, they completed the questionnaire booklet. The participants were instructed to answer the questions honestly and were told that there were no right or wrong answers to the questions. Following completion of the questionnaire, the participants were debriefed on the aims of the study to ensure that the task was processed in a healthy way (see Appendix L). Testing took approximately 60 minutes to complete.

Data Analysis

Statistical procedures. Data analyses were performed using SPSS-15 (SPSS Inc., 2006). First, descriptive statistics across all of the variables were compared with those reported by previous researchers. Second, measurement equivalence of the tests was evaluated by conducting a PCA to investigate if configural invariance could be shown for these measures. Eigenvalues over 1.00 and scree plots were first examined for each test, followed by fixing the solution to yield the number of factors reported in the original factor structure. Third, Pearson product moment coefficients were computed to investigate the relationship between the variables. Regression analyses were calculated to ascertain if social pressure and information predicted internalisation. Finally, regression analyses tested for moderator effects to examine if any of the independent variables (neurotic perfectionism, anti-fat attitudes or anorectic cognitions) moderated the effects of either social pressure or information on thin ideal internalisation.

Missing data. Individuals with missing data on the variable used were excluded, which had little effect on sample size. Because missing data were omitted, sample size varied but in its least was 202.

Results

Descriptive Analyses

Table 30 displays the ethnic distribution of the sample, which was not dissimilar to the population statistics of Christchurch city: 75.3% New Zealand European, 7.6% Māori, 7.9% Asian, 2.8% Pacific Island and 13.7% other (Christchurch City Council, 2006). Participants' mean SES was indicative of an average SES. All six SES categories were represented by the participants at rates similar to those in the NZSEI-96 report (Galbraith et al., 2003), however the two higher SES groups were slightly over represented and the two lower SES groups were slightly underrepresented.

Table 31 presents the descriptive statistics of the measures in this sample. Higher scores on each scale were interpreted as more pathological. Internal reliability of 0.70 or above was considered acceptable (Allen & Yen, 2002). All the variables exhibited good to excellent levels of internal consistency and were comparable to norms found for these measures on other female university samples (Calogero, Davis, & Thompson, 2004; Dunkley, Zuroff, & Blankstein, 2006; Lewis et al., 1997; Osman, Chiros, Gutierrez, Kopper, & Barrios, 2001).

Measurement Equivalence of the Tests

The configural invariance of measures used in this study was evaluated. Again, the factor structures of the measures were tested in one of three ways. All extracted factors with eigenvalues greater than 1.00 were identified and the scree plots were examined. If the eigenvalues and scree plots suggested the retention of a different number of factors than the original factor structure, the solution was forced to yield the same number of factors as the original.

Factor structure of the AFAT. The KMO measure of sampling adequacy indicated that these data were suitable for factor analysis (.89). Eleven eigenvalues were

greater than 1.00 and the scree plot indicated one factor. Because the original factor structure suggested the retention of three factors, a three-factor solution was forced. As can be seen in Table 32, the three-factor solution accounted for 37.60% of the total variance. These factors were difficult to interpret given the overlap between the items. A clear Social/Character Disparagement and Weight Control/Blame factor emerged that were consistent with the original subscales. Factor 1 included many of the items from the Physical/Romantic Unattractiveness factor and included items that loaded on the Social/Character Disparagement factor (items 4, 12, 13, 17, 25 and 26). The factors accounted for 16.48%, 12.12% and 8.99% of the variance, respectively.

In addition, the PCA was constrained to a one-factor solution because a total AFAT score was used in the analyses. When the items were forced into a one-factor solution, all of the items loaded on the factor. However three items had lower factor loadings than the others: item 3 “Jokes about fat people are funny”; item 22 “If fat people really wanted to lose weight they could”; and item 47 “It makes me angry to hear anybody say insulting things about people because they are fat”, which had loadings of .29, .27 and -.28 respectively. Overall, the AFAT yielded a rather inconsistent factor structure in comparison to that found by Lewis et al. (1997).

Factor structure of the SATAQ-3. These data were deemed suitable for PCA given the KMO measure of sampling adequacy of .91. Although five eigenvalues were greater than 1.00, the scree plot, like the original, indicated that four factors should be retained. In keeping with the original factor structure, the solution was forced to yield four factors. As can be seen in Table 33, these factors accounted for 63.52% of the variance and, like the original, tapped into Information, Internalisation-General, Pressure and Internalisation-Athletes. The items loaded on the same factors as the original factor structure, albeit some items that cross-loaded on more than one factor.

Factor structure of the MPS. The KMO measure was .88 indicating suitability for factor analysis with the MPS. There were seven eigenvalues greater than 1.00 and the scree plot depicted a four-factor model as best fitting these data. As can be seen in Table 34, when the PCA was forced to yield a six-factor solution, the structure and items loadings looked remarkably similar to the original factor structure found by Frost and colleagues (1990). Factor 1 accounted for 13.83% of the variance and appeared to measure Concern over Mistakes. The difference with the item loadings on this factor in comparison to the original factor structure was that item 4 "If I do not set the highest standards for myself, I am likely to end up a second-rate person" loaded high on this factor. Factor 2, accounted for 12.65% of the variance, tapped into Organisation and had item loadings on this factor that were the same as in the original structure. Factor 3 was identical to the original Personal Standards factor and accounted for 11.15% of the variance. However, the abovementioned item 4, which loaded high on Concern over Mistakes, had a high loading on the original Personal Standards. In the current analysis, this item did load on Personal Standards, but to a lesser extent (.29). Factor 4 was again almost identical to the original Parental Expectation factor and accounted for 10.31% of the variance. Item 22 "I never felt like I could meet my parents' expectations" loaded high on this factor although in the original factor structure it loaded on the Parental Criticism factor. This is not surprisingly, given the content of the question. Factor 5 accounted for 6.79% of the variance and had the same items loading on this factor as the original Doubt over Actions factor. Factor 6 accounted for 5.71% of the variance and had item loadings identical to the original Parental Criticism factor, with the exception of the abovementioned item 22.

Factor structure of MAC. The KMO measure of sampling adequacy was .91 indicating that these data were appropriate for factor analysis. Although the scree plot

and eigenvalues suggested that four factors should be retained, the PCA was forced to yield a three-factor solution. As can be seen in Table 35, three factors accounted for 47.87% of the total variance. Factors 1, 2 and 3 tapped into Self Control, Weight and Approval and Weight Regulation, respectively. Each of these factors had loadings similar to the original factor structure, with the exception of item 3 "No one likes fat people; therefore, I must remain thin to be liked by others" and item 17 "All members of the opposite sex want a mate who has a perfect, thin body." These two items, however, cross-loaded on the factor they loaded on in the initial scale development. Because the sum of the MAC was used in this research, a one-factor solution was also forced. All items loaded on this one factor, however item 6 had a lower loading of .207.

Analysis of Neurotic and Normal Perfectionism

Factor analytic work involving the MPS subscales has generally produced two factors: 1) maladaptive or neurotic perfectionism, comprising concern over mistakes, doubt over actions, parental criticism, and parental expectations; and 2) adaptive or normal perfectionism, comprising personal standards and organisation (Bieling, Israeli, & Antony, 2004; Frost et al., 1993). Therefore, a PCA was calculated on the MPS subscales to ascertain if two factors would emerge from the current data.

Factor loadings are presented in Table 36. The KMO value was 0.69 indicating that the data were suitable for factor analysis. PCA using a varimax rotation produced two factors with eigenvalues greater than one (2.41 and 1.54) along with the scree plot that also indicated two factors as the best solution. The two factors accounted for 65.89% of the variance in MPS scores. Factor 1, which accounted for 40.11% of the variance, included Concern over Mistakes, Doubt over Actions, Parental Criticism and Parental Expectations. This factor was labelled Neurotic perfectionism. Factor 2, which

accounted for 25.78% of the variance, included Personal Standards and Organisation. This factor was labelled Normal Perfectionism.

Interrelationships Between Variables

Pearson product moment coefficients were calculated to examine the relationships between the variables. As can be seen in Table 37, internalisation of the thin ideal was significantly correlated with neurotic perfectionism, information, social pressure, anti-fat attitudes and anorectic cognitions.

Predicting Internalisation

A series of hierarchical multiple regressions was computed to examine how the variables in combination predicted thin ideal internalisation. To test for direct effects, information, social pressure, neurotic perfectionism, anti-fat attitudes and anorectic cognitions were entered into the first regression model. The results of this analysis are presented in Table 38. The complete model explained 57% of the variance in internalisation, $F(5,202) = 51.16$, $p < .01$.

When all of the factors were accounted for, social pressure and information were the best unique predictors of thin ideal internalisation. When controlling for the other variables, women who reported high levels of social pressure and information also reported high levels of internalisation. Although not reaching statistical significance, participants who endorsed more anorectic cognitions reported higher levels of internalisation, after controlling for everything else. Neurotic perfectionism and anti-fat attitudes were not significant predictors in the regression equation.

Predicting Internalisation with Moderator Effects

Regression coefficients and significance levels for each moderation analysis are depicted in Table 39. To test the aforementioned predictions, a series of moderator regression analyses was computed with internalisation as the dependent variable. These

included each centred independent variable, each centred moderator variable and the product of the centred independent and moderator variable. That is, the interactions between information and the three variables of interest (information x neurotic perfectionism, information x anti-fat attitudes and information x anorectic cognitions), and the interactions between social pressure and the same three variables (social pressure x neurotic perfectionism, social pressure x anti-fat attitudes and social pressure x anorectic cognitions) were tested. Individual analyses were calculated to explore the variables that moderate the pathway between both the information and internalisation relation and the social pressure and internalisation relation. If combined into one analysis, potential interactions may be overlooked because of the overlap with other predictors (Tabachnick & Fidell, 1996).

Although not reaching statistical significance at the .05 alpha level, there was a trend towards significance for the moderating effect of anti-fat attitudes between information and thin ideal internalisation $t(203) = 1.82$, $p = .07$. At higher levels of anti-fat attitudes, the effect of information on internalisation was greater. In addition, there was a trend toward anorectic cognitions moderating the relation between social pressure and internalisation. Although this finding did not reach statistical significance, it demonstrated a potential moderating effect of anorectic cognitions $t(202) = 1.84$, $p = .07$, whereby high levels of anorectic cognitions strengthened the social pressure-internalisation pathway.

Because of the above-mentioned trends, further moderator analyses were performed on subscales to examine whether there was a particular aspect of the variable that may, on its own, be a moderator. Of the AFAT subscales, only the Social/Character Disparagement subscale significantly moderated the information-internalisation relation: $t(203) = 2.28$, $p = .02$. At higher levels of Social/Character Disparagement, the

effect of information was greater. Because these follow up analyses were not planned a priori, a more conservative alpha level was adopted for each analysis to prevent a spurious result or to reduce the chance of Type I error. With Bonferonni corrections applied, this moderating effect was no longer significant at the adjusted alpha level of .0167.

In terms of the social pressure-internalisation relation, subscales from the MAC were entered into the regression equation, because of the abovementioned trend with this variable. The Rigid Weight Regulation subscale was the only scale that moderated the social pressure-internalisation pathway: $t(202) = 2.17$, $p = .03$, whereby higher levels of Rigid Weight Regulation strengthened the effect of social pressure on internalisation. However, because this was not a priori, if one applies Bonferroni corrections this interaction is no longer significant at an alpha level of .0167.

Discussion

Various researchers have hypothesised that internalisation of the thin ideal plays a causal role in the development of eating pathology (Stice, 2002; Thompson & Stice, 2001). The current study examined the factors that may statistically increase or decrease a woman's likelihood of internalising the thin ideal. Women in the current study reported sociocultural factors comparable to norms derived from a North American sample (Thompson et al., 2004), demonstrating that New Zealand women are just as susceptible to the effects of the media and the sociocultural pressure to be thin as women in other Western societies. Internalisation of the thin ideal is an important area to research as it may explain why some women are greatly affected by media messages and why some are not (Thompson & Heinberg, 1999). Research has found that internalisation of the thin ideal theoretically leads to body dissatisfaction, which in turn leads to eating pathology. With this relationship in mind, targeting the factors that lead to internalisation may be a fruitful avenue to pursue in prevention efforts.

The first goal of this study was to evaluate measurement equivalence of the tests used to identify if they are measuring the same latent components in this sample as originally intended. When factor solutions were forced, the findings generally supported measurement equivalence. Configural invariance was not well demonstrated for the AFAT as the factor structure found in this sample did not reflect what was originally found, even when a three-factor solution was forced. The poor measurement equivalence for the AFAT was likely to be due to the low variance explained by the latter two factors, suggesting that the data did not fit the original factor structure well. A one-factor structure fit the data better than did the three-factor solution.

The second goal of this study was to test if social pressure and information statistically predicted thin ideal internalisation. That information, social pressure,

neurotic perfectionism, anti-fat attitudes and anorectic cognitions each correlated with thin ideal internalisation was not surprising, and makes theoretical sense. Although these factors were each correlated with thin ideal internalisation, only social pressure and information were independently predictive of internalisation above and beyond the other factors. Anorectic cognitions, although non-significant, was approaching significance ($\beta = .13$).

Finding that information significantly predicted thin ideal internalisation was expected. The previous version of the SATAQ included an *awareness* subscale. This subscale purported to measure one's awareness and acknowledgement of societal standards of thinness and appearance. Past literature has suggested that awareness theoretically precedes internalisation of the thin ideal (Stice et al., 1994; Thompson & Stice, 2001). The latest SATAQ (SATAQ-3), which was used in this research, did not include an awareness subscale due to low or cross factor loadings among half of the awareness items in the previous version (Thompson et al., 2004). Instead, this new version included an *information* subscale that measures the importance individuals place on various media (e.g., TV shows, movies, magazine articles) for obtaining information about "being attractive" (e.g., "Movies are an important source of information about fashion and "being attractive"). Calegero and colleagues (2004) suggested that using media as an informational source regarding appearance standards is not as harmful as internalising the messages to the point of acting on it (e.g., striving to approximate the unrealistic ideal). Information, like the original awareness subscale, was predictive of thin ideal internalisation because it seems the information and awareness subscales are theoretically related and likely to be tapping into similar constructs. The more likely an individual is aware of the thin ideal or values the media as a source of information for appearance standards, the more likely she will internalise

these standards. However, not every woman does internalise the thin ideal and potential moderators (discussed further on) explain what heightens the effect of information on internalisation.

Social pressure emerged as a significant and unique predictor of thin ideal internalisation. Again, this finding was not surprising given the media pressure to conform to current standards of shape and weight ideals. The social pressure to be thin is transmitted through a variety of media with the entertainment industry being the most potent and pervasive (Thompson & Heinberg, 1999). The media convey strong messages regarding shape and weight standards by the use of ultra thin models and advertising campaigns endorsing products aimed at giving an individual 'a better life'. Exposure and vulnerability to such pressure may lead an individual to pursue, either consciously or unconsciously, the thin ideal.

Anorectic cognitions are also an important factor associated with thin ideal internalisation. Cognitive distortions have been implicated in a wide range of psychopathology including eating pathology (Fairburn et al., 2003; Fairburn, Shafran et al., 1999; Mizes, 1992). Regression results indicate that these cognitions were marginally predictive of the thin ideal internalisation. Distorted and rigid beliefs about thinness and weight control, may lead women to internalise societal standards of thinness and pursue the thin ideal in adherence to these beliefs. The current findings also indicate that distorted thinking about food and eating may be present in women without an ED. Distorted cognitions about wanting to be thin may be similar to, albeit less extreme, than the cognitive distortions experienced by women with an ED. Logically, anorectic cognitions may be more salient further down the chain of components in the Sociocultural Model and may be directly predictive of eating pathology.

The third goal of this study was to test if anti-fat attitudes, neurotic perfectionism and anorectic cognitions moderated the pathway between information and internalisation or social pressure and internalisation. Low levels of anorectic cognitions seemed to, at least statistically, protect women from internalising the thin ideal because of the lack of distorted cognitions about shape and weight. These women may perceive pressure from social influences, yet be buffered from accepting them because of their inclination to think less rigidly and more rationally about thinness and weight control. Adaptive thoughts about shape, weight and eating may lead these women to be reluctant to accept pervasive societal standards of thinness and beauty. Specifically, thoughts around weight regulation may be related to this potential moderating effect. Research should further investigate this possible effect or other possible interpretations.

There was also a trend towards anti-fat attitudes moderating the relationship between information and thin ideal internalisation. Decreased anti-fat attitudes may buffer the extent to which women are susceptible to the effects of media information and thus, internalise the thin ideal. It is possible that anti-fat attitudes make women more likely to internalise the thin ideal because their negative thoughts about overweight and its consequences may mean they are more likely to value thinness. Weight bias is often modelled through the media, which portrays thinness as leading to social rewards such as success and happiness, whereas being overweight is depicted as leading to undesirable consequences (Harrison, 2000). Women who overvalue appearance standards information provided by the media and possess anti-fat attitudes may internalise these standards because of their beliefs about thinness leading to an array of positive outcomes. Specifically social and physical disparagement attitudes, or

the social disregard for overweight individuals, may be of particular relevance to this potential effect.

The hypotheses that neurotic perfectionism would moderate the pathway between information and internalisation and between social pressure and internalisation were not supported. It was argued that neurotic perfectionism would theoretically amplify these relationships because perfectionistic women would be eager to comply with social standards. Moreover, perfectionism was thought to facilitate the belief that high shape and weight standards are obtainable or realistic. Although this study did not find neurotic perfectionism to be uniquely predictive of internalisation, the role of neurotic perfectionism in leading to eating pathology and body dissatisfaction has been suggested. Neurotic perfectionism may act as a mechanism to achieve the thin ideal through the drive to be thin and the relentless use of weight loss behaviours, as opposed to increasing the likelihood of buying into the standards.

Limitations of this Study

There were some limitations to this current study. It employed a cross-sectional design, which means that causal inferences cannot be drawn. For example, it may be possible that internalisation predicts greater perceived social pressure, because of a greater vulnerability to such messages. A longitudinal or experimental research design would better establish cause and effect. The Sociocultural Model of Eating Pathology purports that awareness of thinness standards precedes internalisation of thin ideal. However, the latest version of the instrument commonly used to measure these constructs (SATAQ), did not include an awareness subscale but included an information subscale instead. Given the theoretical similarities between information and awareness, this study considered information as the predictor instead of awareness. Although regression analysis revealed information as a predictor of thin ideal

internalisation, substituting awareness with information may have been a limitation of this study. Moreover, not all potential moderating variables were studied. Further research should test whether or not other variables moderate the relationship between either information or social pressure and internalisation of the thin ideal. Another limitation was the validity of the AFAT in this study. Because measurement invariance was not well demonstrated for the subscales of this measure, interpreting the findings pertinent to anti-fat attitudes may be less meaningful. Finally, this sample consisted mainly of young women, bringing into question the generalisability of these findings. The current sample may not represent older women, women from minority ethnic groups or women who do not attend university, but does represent women who are at high risk for eating pathology.

Implications of this Study

Despite the abovementioned limitations, the current study demonstrated the prevalence of thin ideal internalisation in a sample of New Zealand women. It also provided provisional evidence that the measures used in this study are appropriate within a New Zealand context. This study also revealed the factors that contribute to thin ideal internalisation and thus, provided potential targets to reduce levels of internalisation and ultimately, eating pathology. Specifically, the ability to target both information and social pressure in intervention is hampered by the pervasive and powerful nature of the media. Ideally, the media needs to shift away from promoting the thin ideal and its benefits, and towards representing the female body in a realistic and untouched way (Thompson & Heinberg, 1999).

If the relationships found in this study are confirmed, then implications may suggest various strategies to limit the effects of these factors. Teaching women how to discriminate media images from reality may challenge beliefs about the media being an

important information source, and may help alleviate perceived social pressure to be thin. Moreover, challenging the simple acceptance of the media portrayal of the thin ideal may be an effective strategy in reducing the extent to which women place importance on the media as an information provider, and the social pressure they may experience from the media. Psychoeducational interventions that have aimed to increase awareness of manipulation of media images and rejection of such images, have demonstrated positive results (Thompson & Heinberg, 1999; Yamamiya, Cash, Melnyk, Posavac, & Posavac, 2005). Targeting anorectic cognitions through cognitive techniques may also be a possible avenue in influencing thin ideal internalisation. Thought challenging may occur through identifying and correcting cognitive errors such as, "If I eat a sweet, it will be converted instantly into stomach fat" (q.12 on MAC) and teaching adaptive thoughts about food, eating and weight control as part of an individual cognitive component or group psychoeducation.

Directions for Future Research

Research should extend these findings by examining other potential risk factors that may mitigate or amplify the risk for internalisation, body dissatisfaction and potential eating pathology. In particular, research could examine the factors that protect women who are dissatisfied with their bodies from developing eating pathology, in order to answer why women who are very dissatisfied with their bodies do not engage in unhealthy eating behaviours. Examining the characteristics of this high-risk group may highlight potential protective factors that could be the focus of secondary prevention for eating pathology. In addition, examining the characteristics of women with high BMIs but low body dissatisfaction may also provide useful information about the development of body dissatisfaction. Particularly, why some women become deeply dissatisfied with their bodies and some do not. Greater understanding of the factors that

protect women from developing body dissatisfaction and eating pathology will help determine prevention and intervention avenues.

Rationale for Study Four

Two areas that warrant further research are the relationships between, 1) BMI and body dissatisfaction; and 2) body dissatisfaction and eating pathology. Although it is commonly known that BMI alone does not lead to body dissatisfaction and that body dissatisfaction alone does not cause eating pathology, research has supported the strong relationship between each predictor and its relative outcome (e.g., Cattarin & Thompson, 1994; Stice, 2002; Stice & Shaw, 2002; Stice & Whitenton, 2002; van den Berg et al., 2002). High body mass has been associated with greater body dissatisfaction (Stice & Whitenton, 2002); however, not all women who have a high BMI are dissatisfied with their bodies. We have a limited understanding of the factors that explain why women who have high BMIs may not develop body dissatisfaction. Research into the development of body dissatisfaction is important given that extreme body dissatisfaction can be detrimental to one's emotional wellbeing and is related to a variety of negative outcomes (Johnson & Wardle, 2005). In particular, body dissatisfaction has an important contributory role in the development of eating pathology. Heinberg and colleagues (2001) suggested that, among women with a high BMI, body dissatisfaction may motivate behaviour change through improved nutrition and moderate physical activity. Despite this finding, longitudinal research has demonstrated that body dissatisfaction is related to negative outcomes regardless of BMI (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; van den Berg & Neumark-Sztainer, 2007). Indeed, van den Berg and Neumark-Sztainer (2007) found that body satisfaction was associated with less weight gain among overweight girls over a five year period. Although body dissatisfaction is widespread, EDs are relatively rare,

because not all women who are dissatisfied have or will develop an ED (Polivy & Herman, 2002). There are lingering gaps in the literature that do not address why individuals who are highly dissatisfied with their bodies may not engage in pathological eating behaviours. Research focusing on what makes some women less vulnerable to developing eating pathology even when they are dissatisfied and less likely to develop body dissatisfaction when they have a high BMI, would aid in our understanding of the factors that may protect an individual from an ED.

Anderluh and colleagues (2003) recommended that personality factors might help identify individuals at high risk for developing an ED. Although personality factors are likely to play a causal role in the development of eating pathology, it is also possible that the presence of certain traits modify the course of ED development (Podar et al., 1999). Studies that have examined the personality traits associated with eating pathology have most commonly measured personality with the Eysenck Personality Questionnaire (Wade, Tiggemann, Heath, Abraham, & Martin, 1995), Multidimensional Personality Questionnaire (Leon, Fulkerson, Perry, & Early-Zald, 1995; Pryor & Wiederman, 1996) and the Minnesota Multiphasic Personality Inventory (Cachelin, Striegel-Moore, & Paget, 1997; Exterkate, Bakker-Brehm, & de Jong, 2007). Only two studies to date have examined the Personality Assessment Inventory (PAI; Morey, 1991) among an ED population, (Bean et al., 2005; Tasca et al., 2002), and no research to date has measured the role of personality in eating pathology with the PAI to examine potential protective factors for eating pathology. The PAI has been considered a substantial improvement over other personality tests and, as such, has grown in popularity (Helmes, 1993). The PAI addressed the importance of discriminant and convergent validity in personality measures and focussed on both empirical and theoretical knowledge on clinical constructs (Morey, 2003). Further, the PAI attempts

to measure the different features of clinical constructs as well as the various levels of severity with which these features manifest (Morey, 2003).

The overarching purpose of Study Four was to investigate the factors that may protect women from developing body dissatisfaction and eating pathology. There were three aims to this study: 1) to explore the measurement equivalence of the tests used in this study; 2) to elucidate the personality characteristics of women who have high BMIs but low levels of body dissatisfaction (Harrison & Cantor, 1997); and 3) to examine the personality characteristics of women high on body dissatisfaction but low on eating pathology. By using the PAI to identify the personality factors that may be protective in these high-risk groups, future research could aim to consider such factors into prevention efforts.

STUDY FOUR

Method

Participants

The participants for this study were 166 women aged between 18 and 40 recruited from the University of Canterbury in Christchurch, New Zealand. Although 186 women participated in this study, based on cut-offs of the Personality Assessment Inventory, 20 participants were excluded from the study. Table 40 presents the demographic data of the current sample. The mean BMI of the participants was indicative of a healthy average height to weight ratio. Seventy percent of the women had a BMI that fell in the normal range, 6.7%, 18.7% and 3.6% fell in the underweight, above average and obese range, respectively (National Heart Lung and Blood Institute, 1998). Participation in this study was acknowledged by a $5 voucher reimbursement or gaining course credit.

Measures

The battery of questionnaires assessed body dissatisfaction, eating pathology, personality variables and clinical variables. In total, five questionnaires were given to the participants and written instructions appeared at the beginning of each questionnaire (see Appendix M).

Demographic information. A questionnaire enquired about demographic characteristics: age, ethnicity, occupation, mother and father/caregiver occupation, self-reported height and self-reported weight.

Body dissatisfaction. The Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) is a 34-item measure of how individuals have felt about their appearance over the past four weeks. It is a commonly used and well-established measure of satisfaction and concern with body shape using a 6-point response format

ranging from “never” to “always” (sample item: “Have you felt excessively large and rounded?”). The total score was used as an index of body dissatisfaction. Higher scores are indicative of greater body shape dissatisfaction. The Cronbach’s alpha of the BSQ in this sample was 0.95.

The group-administered version of the Body Image Assessment (BIA; (Williams, Gleaves, Cepeda-Benito, Erath, & Cororve, 2001) is a figural rating scale containing nine silhouettes ranging from very thin to very large presented in random order on a single sheet of paper. Participants were asked to select the figure that best represents their current body size (CBS) and the figure that best represents their ideal body size (IBS). Scores were calculated by deriving a discrepancy score between the endorsed ideal and current body size. The group-administered version differs from the original individually administered version in that the silhouettes are randomly presented on a piece of paper as opposed to individual cards. Test-retest reliability for the individually administered version has been found to be .90 for CBS and .71 for IBS (Williamson, Davis, Bennett, & Goreczny, 1989). Similar psychometric properties have been found for the group-administered version (Williams et al., 2001).

The Body Esteem Scale (BES; Franzoi & Shields, 1984) is a 35-item self-report measure that is designed to assess how an individual feels about parts of his or her body. Based on the finding that body esteem is a multidimensional construct, there are three dimensions for both females and males. For females, the dimensions are Sexual Attractiveness, Weight Concern and Physical Condition. A five-point response format is used ranging from “Have strong negative feelings” to “Have strong positive feelings”. The BES has demonstrated adequate internal consistency (alpha =.78-.87) and test-retest reliability (r =.75-.81 for females) (Franzoi, 1994; Franzoi & Shields, 1984). Lower scores on this scale are indicative of poorer body esteem. Only the 10-

item weight concern subscale was used in this study (body parts for this subscale included: waist, thighs and figure). Cronbach's alpha of this subscale for this sample was .90.

Eating pathology. Eating pathology was measured using the EAT-26. This measure has been described previously in this research. In the current study, Cronbach's alpha was .89.

Personality. The Personality Assessment Inventory (PAI; Morey, 1991) is a 344-item self-report measure of adult personality designed to provide ratings for clinical variables. It contains four validity scales: Inconsistency, which taps into response consistency; Infrequency, which measures atypical responding; Negative Impression, which measures the exaggerated unfavourable impression of oneself; and Positive Impression, which assesses over-favourable impression. The PAI also contains eleven clinical scales:

1) Somatic Complaints, which measures one's preoccupation with health matters, including conversion and somatization;

2) Anxiety, which assesses the signs of anxiety such as physiological and cognitive features;

3) Anxiety-related disorders, measuring the symptoms and behaviours associated with specific anxiety disorders, for example, phobias and traumatic stress;

4) Depression, which assesses symptoms of depression such as the cognitive and affective features;

5) Mania, which measures the affective, cognitive and behavioural symptoms of mania and hypomania such as grandiosity and irritability;

6) Paranoia, which assesses the symptoms of paranoid disorders including paranoid personality such as hypervigilance and persecution,

7) Schizophrenia, which assesses the features associated with psychotic disorders such as detachment and thought disorder,

8) Borderline features, which measures features associated with borderline personality such as unstable and fluctuating interpersonal relations and affective lability;

9) Antisocial features, assesses a history of illegal acts and authority problems and features such as lack of empathy and egocentrism;

10) Alcohol problems, which measures consequences of alcohol use and alcohol dependence;

11) Drug Problems, which measures the consequences of illicit drug use and dependence.

The PAI also has two interpersonal scales: Dominance, which assesses the extent to which an individual is controlling and independent in interpersonal relationship, and Warmth, which measures the extent of an individual's supportiveness and empathy in relationships. Finally, the PAI has five treatment scales, but these scales were not examined in the current study. Scores from the PAI are presented as *t* scores and are comparable to a community sample of 1000 adults. The PAI has excellent internal consistency when using non-clinical, clinical and student samples, of .81, .86, and .82 respectively (Morey, 1991). In the current study, Cronbach's alphas ranged from .70- .92 for the scales. Although there is likely to be conceptual overlap between the scales, Morey (1991) suggests that the unique variation within the scales is important to retain. For this reason, individual PAI scales were examined in the subsequent analyses.

Procedure

This study gained approval from the University of Canterbury Human Ethics Committee before testing commenced. Participants for this study were recruited

through the first year Psychology participant pool and by sending flyers and emails around various departments requesting participation in this study (see Appendix N). Once willing participants contacted the researcher, times were set up for the participant to come and complete the questionnaire.

Once participants arrived for their scheduled time slot, they were invited to read the information sheet outlining the tasks for this study (see Appendix O). Each participant gave her informed consent to participate in this study. Confidentiality was assured to all participants and they were instructed to answer each question honestly. The questionnaire took approximately 30-40 minutes to complete and, when the participants finished, they were debriefed on the specific aims of this study (see Appendix P).

Data Analysis

Statistical procedures. Data analyses were performed using Statistical Package for Social Sciences (SPSS Inc., 2006). First, descriptive information about the demographic variables was calculated to determine the composition of the sample. Descriptive statistics across all of the variables were compared with those reported by previous researchers. Second, measurement equivalence of the measures used in this study was tested to examine if the measures were appropriate to be used in a New Zealand sample. This was performed by examining the factor pattern of the items on each measure. Third, regression analyses were computed in order to derive residual values for the relationship between: 1) BMI and body dissatisfaction; and 2) body dissatisfaction and eating pathology. Residual values were saved and subsequent analyses examined their characteristics. Pearson product moment correlation coefficients were calculated to investigate the association between the variables, with

specific emphasis given to those that were significantly correlated with each set of residuals.

For both above-mentioned sets of residuals, two subgroups were formed. The subgroups were defined by their distance from the residual mean. One subgroup comprised individuals that scored one SD or more above the residual mean, and the other subgroup comprised those that scored one SD or more below the residual mean. Independent samples *t* tests were then calculated to test for personality and clinical differences between these two groups for each relationship. That way, we were able to examine the personality factors that were characteristic of the women at high-risk for developing eating pathology. Discriminant function and classification analyses were also computed to determine which variables best described these two groups.

Missing data. Individuals with missing data on the variable used were excluded. This did not have a major effect on the sample size, with the smallest sample for an analysis being 160.

Results

Descriptive Analyses

All six SES categories were represented in the sample, however like Study Three the two higher SES groups were overrepresented and the lower SES categories were underrepresented, in comparison to the percentages found in the original NZSEI-96 report (Galbraith et al., 2003). The mean SES group was 3.27. Table 41 presents the ethnic composition of the current sample. As can be seen, the sample was ethnically diverse and was similar to the ethnic breakdown of the Study Three sample.

In addition, those with invalid PAI scores (9.3%), as measured by its four validity scales, were deemed unsuitable for interpretation (Morey, 1991). This proportion of invalid scores is slightly less than what has been found in other studies using clinical samples (Schinka, 1995; Tasca et al., 2002), but is similar to what was found in the PAI development study with a non-clinical sample (Morey, 1991). Exceeding any of the following criteria was identified as invalid: Infrequency Scale (INF) $\geq 75T$, Inconsistency Scale (ICN) $\geq 73T$, Negative Impression Management (NIM) $\geq 92T$, and Positive Impression Management (PIM) $\geq 68T$.

Descriptive statistics are presented in Table 42. All the measures used in this study demonstrated excellent internal consistency and were therefore deemed appropriate for subsequent analyses. In the current sample, 24 (13.9%) of the women exceeded the cut-off score of 20 on the EAT-26, indicative of eating pathology (Garner et al., 1982). The proportion of women exceeding this cut-off is comparable to rates for women found in other studies (e.g., Hoerr, Bokram, Lugo, Bivins, & Keast, 2002). Mean scores on the other measures were also comparable to norms found among female university students (Franzoi & Herzog, 1986; Garner et al., 1982; Morey, 1991; Rosen, Jones, Ramirez, & Waxman, 1996). Higher scores on each of the scales were

interpreted as being more pathological, except for the BES, in which high scores were reflective of having positive body esteem. Further, in two of the PAI scales, dominance and warmth, both extreme ends of the spectrum could be interpreted as problematic.

Measurement Equivalence of the Tests

As in the previous studies, the factor structure of each measure was examined. Eigenvalues over 1.00 and the scree plot were examined for initial factors, followed by a PCA constraining the number of factors to that of the original solution or to how the test was used in this research.

Factor structure of the EAT-26. The KMO measure of sampling adequacy indicated that these data were suitable for factor analysis (.85). Although there were seven eigenvalues greater than one and the scree plot demonstrated that a two-factor solution would be most suitable, the PCA was forced to yield a three-factor solution. As can be seen in Table 43, the three-factor solution accounted for 42.13% of the total variance. The factor structure deviated from the original, with most items loading on the first factor. The second factor had similar loadings to the original Oral Control and the third factor was clearly only tapping into the Bulimia questions. Two items, 19 "Display self-control around food" and 25 "Enjoy trying new rich foods" did not load on any of these factors.

Because the scale total was used in this study, a one-factor solution was forced. All of the items demonstrated moderate to high item loadings on the factor, with the exception of items 15, 19 and item 25 (.13, .15 and .13, respectively). Further, item 13, "Other people think that I am too thin" did not load high on the factor (.18). The low loading of this item reflects the findings for this item in Studies One and Two. The two bulimia items, 9 "Vomit after I have eaten" and 25 "Have the impulse to vomit after

meals," also had low loadings on the factor (.12 and .13, respectively), which may have been due to a low variability in responses to these items.

Factor structure of the BSQ. The KMO measure of sampling adequacy of .96 indicated that these data were suitable for factor analysis. Although there were four eigenvalues greater than 1.00, the scree plot demonstrated that a one-factor solution seemed most suitable for the data. As can be seen in Table 44, when the solution was constrained to yield only one factor, the variance accounted for was 53.13%. The items with the lowest loadings were item 26 "Have you vomited in order to feel thinner?" and item 32 "Have you taken laxatives in order to feel thinner?" with loadings of .33 and .28, respectively. This may again reflect the low variability in responses to these items.

Factor structure of the BES. The KMO measure of sampling adequacy was .85 indicating that these data were appropriate for factor analysis. Nine factors had eigenvalues greater than 1.00. However the scree plot, like the original structure, demonstrated that a three-factor solution best suited the data. As can be seen in Table 45, when the PCA was constrained to yield a three-factor solution, the three factors accounted for 41.45% of the total variance. Factor 1 appeared to measure Weight Concern with factor loadings that were identical to the original factor structure. Factor 2 was labelled Physical Condition and included the same items as the original factor structure. Finally, Factor 3 tapped into Sexual Attractiveness and had item loadings that were consistent with the original factor structure.

Factor structure of the PAI. Table 46 presents the factor structure of the PAI in the current sample. Although there were five factors with eigenvalues greater than 1.00 and the scree plot demonstrated retaining three factors, the PCA was constrained to four factors. This four-factor solution accounted for 64.87% of the total variance. The factor structure of the PAI scales with these data was comparable to that found by Morey

(1991) in that there were similar factor loadings and crossloadings. In his factor analyses, Morey (1991) called Factor 1 Subjective Distress which was defined by high factor loadings on Depression, Anxiety, Anxiety-related Disorders, Schizophrenia, Somatic Complaints and Borderline Features. Paranoia, Warmth (negative loading), Treatment Rejection, Suicide, Stress, Negative and Positive Impression Management also had moderate to high factor loadings on this factor. Factor loadings were identical to the structure of the current data and accounted for 37.88% of the total variance. Factor 2 accounted for 12.29% of the variance and, like the original factor structure, was defined by high factor loadings on Dominance, Mania, Aggression and Antisocial Features. Like the original sample, Factor 3 consisted of Antisocial Features, Alcohol and Drug Problems and accounted for 8.22% of the total variance. Finally, Factor 4 accounted for 6.47% of the variance and included Infrequency, Nonsupport, Warmth (negative loading). In the original factor structure, Schizophrenia and Paranoia also loaded on this factor, however, these two scales only moderately loaded on this factor in the current study.

Composite Body Dissatisfaction

Following the recommendations of Thompson (2003), multiple measures of body dissatisfaction were used in this study to ensure all dimensions of body dissatisfaction were being examined. Because the three measures of body dissatisfaction used were highly correlated, a PCA was conducted to examine if these measures produced one component and, if so, to reduce these into a composite variable for subsequent analyses. The KMO value for this PCA was 0.72, suggesting that data were moderately suitable for factor analysis (Kaiser, 1974). As expected, there was one eigenvalue greater than 1.00 (2.39) and the scree plot also indicated a one-factor

solution. This composite variable was calculated by using the regression method and was used in the remainder of the analyses.

Predictions of Body Dissatisfaction and Eating Pathology

A regression analysis was conducted to determine the variance accounted for by BMI in predicting body dissatisfaction. As can be seen in Table 47, BMI significantly predicted body dissatisfaction scores $F(1,162) = 56.81$, $r = .26$; $p < .01$. A second regression analysis was conducted to measure the relationship between body dissatisfaction and eating pathology. Body dissatisfaction significantly predicted eating pathology scores $F(1,163) = 56.62$, $r = .26$; $p < .01$.

Interrelationships between Regression Residuals and Variables

As the main aim of the study was to understand the characteristics of individuals who were high on the predictor variable but low on the outcome variable, standardised residuals for both of these regression analyses, that is, BMI-Body Dissatisfaction (BMI-BD) and Body Dissatisfaction- Eating Pathology (BD-EP), were calculated. These residuals were treated as dependent variables for most of the subsequent analyses. Moreover, we were interested in the relationships between the personality variables and these standardised residuals to understand the characteristics of the residuals.

Table 48 displays the univariate relations between the personality and clinical variables (as measured by the PAI), and residuals. As can be seen, the BMI-BD residuals had significant and positive correlations with somatic complaints, anxiety, anxiety-related disorders, depression, paranoia, schizophrenia, borderline features and alcohol problems. These residuals also had significant but negative correlations with dominance, warmth, positive and negative impression management. In terms of BD-EP residuals, the correlations were similar to the BMI-BD residuals. There were significant positive correlations with somatic complaints, anxiety, anxiety-related disorders,

depression, mania, schizophrenia and borderline features. These residuals also had significant negative relationship with positive impression management.

Group Differences for BMI-BD Residuals

To examine the personality and clinical differences of the extreme residuals from the BMI-BD regression model, two groups based on their distance from the residual mean were formed. The first subgroup comprised those individuals that scored one SD or more above the residual mean, in other words, they scored high on the outcome variable relative to their scores on the predictor variable. This group was referred to as the *high residual group* (n = 27). The second group comprised those that scored one SD or more below the residual mean, meaning that they scored low on the outcome variable relative to their predictor variable scores. This group was called the *low residual group* (n = 31).

The personality and clinical characteristics of the low residual group and high residual group were compared using independent samples t tests. The results of these group comparisons are presented in Table 49. As can be seen, there were group differences on somatic complaints, anxiety, anxiety-related disorders, depression, paranoia, borderline features, dominance, warmth, positive and negative impression management. The low residual group scored significantly less than the high residual group on all of these variables except dominance, warmth and positive impression management, in which the low residual group had significantly higher scores. Cohen's d effect size calculations were used to determine the magnitude of group differences and ranged from medium to large.

Group Prediction for BMI-BD Residuals

Discriminant analysis was used to assess how the variables in combination best differentiated the groups. Discriminant analysis produces uncorrelated linear

combinations of the predictor variables (Stevens, 2002). Group membership served as the dependent variable and the above-mentioned personality and clinical variables of the PAI were the predictors. Because the researcher was primarily interested in discriminating the characteristics of the low residual group from the high residual group, analyses included only these two groups[2]. Results produced one statistically significant discriminant function, $\chi^2(13) = 35.30$, $p < .01$ (canonical $R = .71$).

Standardised discriminant function coefficients (DFCs) and structure coefficients are presented in Table 50. The standardized DFCs and structure coefficients indicate that high scores are associated with scoring low on BMI but high on body dissatisfaction. Within group structure coefficients highlighted that the following variables made an important individual contribution to this discriminant function: anxiety, borderline features, dominance, anxiety-related disorders, depression, warmth, and paranoia. In the case of warmth and dominance however, the negative structure coefficients indicate that high scores are associated with higher presence of these characteristics among the low residual group. Although Tabachnick and Fidell (1996) recommended that coefficients exceeding a cut-off of .3 are indicative of making a significant contribution, it can be noted that four variables (schizophrenia, somatic complaints, antisocial and alcohol problems) had coefficients that were approaching this cut-off.

The DCF coefficients demonstrate that when taking all of the scales into account, borderline features, alcohol problems, anxiety, antisocial behaviour and schizophrenia contributed most to the discriminant function. Schizophrenia and

---

[2]Additionally, a DCA was computed to compare the residuals that were above the mean with those below the mean. Results were still significant, structure coefficients were similar and although standardized DFCs also showed a similar pattern, they had lower values. In terms of classification, a smaller percentage of cases were accurately classified and crossvalidated (BMI-BD = 70.6% and 66.9%; BD-EP = 70.8% and 63.4%). Although conducting the analysis in this way would have led to a greater sample size with which to make comparisons, the primary focus of the analyses as they are was to examine the characteristics of the extreme residuals.

antisocial behaviour both had negative values. Thus, a pattern of scoring high on borderline features, anxiety and alcohol problems, along with scoring low on schizophrenia and antisocial behaviour best discriminated the groups. In terms of the individual correlations with the discriminant function, these five variables had low to moderate correlations (ranging from .13-.51). Therefore these scales, particularly borderline features and anxiety, were generally effective at discriminating between the groups both individually and when taking the effect of all the scales into account. Antisocial behaviours, schizophrenia and alcohol problems had lower correlations with the discriminant function out of all the scales in the analysis. This finding means that although, individually, antisocial behaviours, schizophrenia and alcohol problems may not have been as effective in discriminating between the groups; when taking all of the scales into account they were three of the most effective.

The discriminant classification analysis revealed that of the 58 subjects in the original sample, 49 (84.5%) could be accurately classified. This classification was much better than chance, Huberty $z = 5.26$, $p < .01$, with a Kappa coefficient of 0.69 indicating substantial agreement. Using the leave-one-out classification procedure, 42 (72.4 %) of the subjects were accurately classified. This procedure is similar to cross-validating the sample with another sample from the same population and gives less biased estimates of the classification function (Stevens, 1986). The leave-one-out classification was also better than chance, Huberty $z = 3.34$, $p < .01$, with a Kappa coefficient of 0.44. Sensitivity and specificity were 77% and 67% respectively, for the cross-validated cases.

Groups Differences for BD-EP Residuals

Residuals for the BD-EP regression analysis were grouped into two subgroups like the BMI-BD analysis: the low residual group comprised the participants who fell

one SD or more below the average residual (n = 21) and the high residual group were those who were one SD or more above the average residual (n = 23). Table 51 reports the comparisons between these low and high residual groups. As can be seen, univariate analyses of variance highlighted significant group differences for anxiety, anxiety-related disorders, mania, borderline features, somatic complaints and positive impression management. The high residual group had significantly higher scores than the low residual group on all of these variables, except for positive impression management. The magnitude of group differences were calculated with Cohen's d and ranged from medium to large.

Group Prediction for BD-EP Residuals

Group membership was the dependent variable based on whether participants were in the low residual or high residual group, however this time in terms of the BD-EP regression model. As can be seen in Table 52, the discriminant function was statistically significant $\chi^2(13) = 24.86$, $p < .05$ (canonical $R = .71$). To identify which variables contributed to group separation, the standardised canonical DFCs and structure coefficients were examined. Structure coefficients between the variables and the discriminant function revealed that five variables exceeded $r = 0.3$ (Tabachnick & Fidell, 1996). These were anxiety, mania, borderline features, anxiety-related disorders and somatic complaints. However, it is worthwhile to note that depression, paranoia, schizophrenia and alcohol problems had moderate coefficients indicating their contribution to the function.

Taking all variables into account, analyses revealed that the two groups were best differentiated by schizophrenia, anxiety-related disorders, mania and alcohol problems. Interestingly, alcohol problems and schizophrenia were negative values meaning that these problems were characteristic of the high-risk group. Therefore, a

pattern of scoring high on mania and anxiety-related disorders and low on schizophrenia and alcohol problems best differentiated the groups. These four scales (schizophrenia, anxiety-related disorders, mania and alcohol problems) had low to moderate structure coefficients with the discriminant function ranging from .11 to .55. This finding suggests that these scales, particularly mania and anxiety-related disorders, were somewhat effective at discriminating between the groups both individually and when taking into account the effect of the other scales. Schizophrenia and alcohol problems had the lower correlations with the discriminant function and were not significant in the univariate analysis of variance. Although when all the scales were considered, schizophrenia and alcohol problems were two of the most effective in discriminating between the groups, when considered individually they were not as effective as other variables.

Classification analysis revealed that of the 44 subjects in the original sample, 39 (88.6 %) were accurately classified. This classification was much better than chance, Huberty $z = 5.10$, $p < .01$, with a Kappa coefficient of 0.77, indicating substantial agreement. Using the leave-one-out classification procedure, 28 (63.6 %) of the subjects were accurately classified. For the leave-one-out classification, Huberty $z = 2.25$, $p < .01$, with a Kappa coefficient of 0.32. Sensitivity and specificity were 67% and 61%, respectively for the cross-validated cases.

Discussion

The overarching purpose of this study was to investigate the factors that may protect women from developing body dissatisfaction and eating pathology. High BMI is a strong predictor of body dissatisfaction because elevated adiposity deviates from the accepted Western thin ideal that many women pursue (Stice & Whitenton, 2002). Likewise, body dissatisfaction is consistently found to be predictive of eating pathology among women. Despite these strong relationships, not all women who have a high BMI are dissatisfied with their shape and weight and not all women who are dissatisfied with their bodies engage in pathological eating attitudes and behaviours. There are lingering gaps in the research that do not address why some women are dissatisfied with their bodies are some are not. Specifically, this study aimed to determine the characteristics of women who had a high BMI yet had low body dissatisfaction scores. Further, this study aimed to understand and describe the women who were high on body dissatisfaction but low on eating pathology, also based on the PAI scales. Understanding these subgroups will help identify the process of body dissatisfaction and eating pathology development and may provide some useful leads in preventing eating pathology among these high-risk groups. Investigations in this area are important because, once we have evidence of potential protective factors, interventions can focus on promoting these factors to prevent negative outcomes,

Measurement equivalence was generally well demonstrated for the tests. When PCAs were forced to yield the number of factors in the original factor structure, or how the test is primarily scored, factor structures for each measure were similar to its original structure. That some items on the EAT-26 did not load highly when a one-factor solution was imposed was likely to be due to the lack of variability in responses to these items.

Women in the current study reported body dissatisfaction and eating pathology at rates comparable to norms derived from North American samples, demonstrating that New Zealand women are just as vulnerable to both of these problems (Franzois & Herzog, 1986; Garner et al., 1982; Rosen et al., 1996). Women in this sample also exhibited similar personality features, as measured by the PAI, to the non-clinical standardisation sample, demonstrating the comparability of this sample to the original sample. These similarities also suggest the relative prevalence of these personality features in New Zealand women. This study is the first to examine the PAI in a New Zealand sample and in relation to potential protective factors for eating pathology and body dissatisfaction. Because of the focus on protective factors, the following discussion will give particular emphasis to the PAI scales that were characteristic of the low residual group. These results will be discussed in light of the PAI scale descriptions highlighted by Morey (1991).

Characteristics of Women with High BMIs and Low BD

In comparing the low residual group with the high residual group, somatic complaints, anxiety, anxiety-related disorders, depression, paranoia and borderline features, were all lower among the low residual group. However, because of the similarity between these five clinical and personality variables as measured by Morey and the current study's factor analysis, it is likely there is conceptual overlap between the scales all sharing the common theme of subjective distress (Morey, 1991). High scores on dominance and warmth were also characteristic of the low residual group. It was not surprising that depression scores were lower for this group given the conjectured role between negative affect and body dissatisfaction (Ricciardelli & McCabe, 2001b; Stice, Shaw, & Nemeroff, 1998). It may be possible that women who have a stable mood think realistically about their BMI and are comfortable with their

shape and weight. On the other hand, women with high depression scores may lack self-confidence and may doubt their own worth. Such attitudes may be likely to encourage negative attitudes about shape and weight. Similarly, women scoring high on the anxiety and anxiety-related disorders scales are characterised by heightened sense of insecurity and self-doubt (Morey, 1991). These women may also be more likely to be obsessional and perfectionistic, therefore having high standards of which they are fearful of not reaching, such as being thin. Women who were in the low residual group may have been more likely to be calm and optimistic, or even less hypervigilant, about their appearance. As such, they may have been less inclined to worry about the consequences of a high BMI or not meeting the social ideal of thinness. Likewise, women low on the paranoia scale may be less aware of social rules communicating the virtues of being thin and therefore, are less likely to become dissatisfied with their bodies. Women who scored high in paranoia may be hypervigilant to environmental cues about the value of thinness and may be sensitive about their shape and weight.

Women who were in the low residual group were also less likely to exhibit borderline traits. This finding may be because these women are more self-assured, better able to regulate their affect and possess more positive and supportive interpersonal relationships (Morey, 1991). These women may be aware of their BMI, but less likely to be distressed by their shape and weight. Positive interpersonal relationships may also contribute to their sense of self-worth and belonging, leading them to feel confident and optimistic about their life. In terms of somatic complaints, the finding that women in the low residual group scored significantly lower than those in the high residual group is more difficult to interpret. It may be that these women are less likely to focus their attention on their body, therefore may be less aware of their BMI or, again, less likely to experience subjective distress.

On an interpersonal level, the finding that high dominance was also characteristic of the low residual group may have again been because these women are more likely to be self-assured, assertive and confident in their identity. Because of this confidence, these women may be less likely to be dissatisfied with their weight or even more likely to be in the process of pursuing weight loss without experiencing marked dissatisfaction. Women who are particularly warm in their interpersonal style may also engage in supportive and empathic personal relationships (Morey, 1991). Such close relationships may be protective in nature, because women may get a strong sense of belonging, self-worth and fulfilment from their relationships. Among women with a high BMI, a warm interpersonal style may protect them from developing body dissatisfaction because of this potential increase in self-worth.

In terms of the discriminant analysis, that borderline features and anxiety discriminated the groups when all PAI scales were taken into account was not surprising because these two factors were also significant in the univariate analyses. However, that antisocial features, schizophrenia and alcohol problems also characterised the groups when controlling for all of the other variables is an interesting finding. Of particular interest is the negative loading for schizophrenia and antisocial behaviours suggesting that high scores were representative of the low residual group. Because these factors were not significant in the univariate analyses, this finding suggests that these factors may only characterise the groups when subjective distress features are controlled for.

It is important to acknowledge that these unusual findings may have been spurious and may therefore not warrant far reaching interpretation. However, it may also be possible that high antisocial problems, in this sample, are reflective of women who are dismissive of social norms and therefore, less likely to feel the pressure to

conform to the media ideal of thinness. Morey (1991) described higher schizophrenia scores as reflective of aloofness and unconventionality. Similarly, this trend towards unconventionality may, in part, explain why these individuals are not endorsing body dissatisfaction. It may be possible that these women also dismiss or are unaware of social norms related to weight and shape but unrelated to subjective distress. Finally, low scores on alcohol problems tend to reflect individuals who drink moderately and as experiencing no adverse consequences because of drinking. This pattern was characteristic of low residual women and may be due to these individuals being better able to regulate their behaviours. The finding that only two of the factors that had high DFCs, anxiety and borderline, were also significant in the univariate analyses indicated that these two factors best discriminated the groups when considered individually and when the effect of all variables were taken into account. In terms of the factors characteristic of the low residual group, it is possible that being low in anxiety and borderline features manifests as one being confident, able to regulate their mood and being self assured (Morey, 1991).

Considering the results of all the analyses together, it seems low levels of general anxiety and low borderline features, perhaps characterised by secure interpersonal relationships, may best characterise the low residual group. It may be possible that these individuals have a healthy self-esteem, are emotionally stable and possess healthy relationships, which may lead them to feel comfortable with their weight and less likely to feel pressure to ascribe to social standards of thinness. Further research is needed to verify these findings and to clarify the more unusual findings of this analysis.

Characteristics of Women High on BD and Low on EP

Finding that the low residual group had significantly less anxiety, anxiety-related disorders, mania, borderline features and somatic complaints, than the high residual group, was not surprising. That scoring high on anxiety and its related disorders was associated with the high residual group supports the well established relationship between anxiety and eating pathology and suggests that this relationship still exists when body dissatisfaction is controlled for (Keel, Klump, Miller, McGue, & Iacono, 2005). It is possible that the individuals in the low residual group have low levels of anxiety characterised by a strong and optimistic sense of self and by employing adaptable ways to cope with stress (Morey, 1991). Such calmness and security may protect these women from developing and engaging in pathological eating behaviours because, although dissatisfied with her body, she may not view losing weight as a means of increasing her self-confidence as may be the case for women who are high in anxiety. Although this scale measured anxiety and not self-esteem, Morey's (1991) descriptions of low scorers on this scale are similar to how we might understand an individual with high self-esteem. Thus, this finding is perhaps consistent with the findings of Twamley and Davis (1999) who revealed that self-esteem may buffer the effects of body dissatisfaction on eating pathology among women.

Similarly, the finding that somatic features were less endorsed in the low residual group may be related to the lack of anxiety and concern experienced by individuals in this group. As mentioned earlier, low somatic features tend to reflect individuals who are optimistic and tend to have no concerns about their physical functioning. It may be possible that individuals in the low residual group are generally less likely to worry both about their body and about life in general. Further, the finding that borderline features and mania were lower among the low residual group may be

reflective of the affect regulation skills and secure sense of self among individuals in this group (Morey, 1991). Mood stability may prevent an individual from developing eating pathology because, although dissatisfied, she may have the ability to cope adaptively with her dissatisfaction. From looking at these findings collectively, it seems that the low residual group were less likely to exhibit emotional distress, for example mood lability and anxiety. It may also be possible that this low residual group was, just generally, more emotionally healthy.

Interestingly and similar to the BMI-BD discriminant analysis, schizophrenia and alcohol problems had negative coefficients suggesting that higher scores on these scales characterised the low residual group when other factors were controlled for. This finding may indicate a similar pattern that was found in the BMI-BD group, in that these factors were only characteristic of the groups above and beyond subjective distress. That is, individuals scoring high on schizophrenia may reflect social aloofness, attentional difficulties and unconventionality (Morey, 1991). Among these individuals, a lack of eating pathology may be due to a myriad of factors such as lack of awareness into dieting strategies. Finally, the finding that alcohol problems were characteristic of the low residual group when controlling for all other personality factors was surprising. It may be possible that women in the high residual group will avoid drinking because of the calories in alcohol. The finding that only two of the factors that had high DFCs, anxiety-related disorders and mania, also were significant in the univariate analyses indicated that these two factors best discriminated the groups when considered individually and when the effect if all variables were taken into account. Low mania may reflect an individual who has a stable mood and can regulate her affect adaptively. Further, low levels of anxiety-related problems may highlight an individual who is self assured and possesses realistic standards regarding weight and shape (Morey, 1991).

Because some of these findings may be rather complex to interpret, it is important that sweeping conclusions are not made. Considering the results of the *t* tests and discriminant function analysis, it seems that the low residual group may be best characterised by low scores on mania and anxiety. As with the BMI-BD findings, it may be possible that the low DFCs were due to intercorrelations between the scales thus contributing to the redundancy of some scales. If so, the structure coefficients may be more useful to examine to better understand the features of individuals in the low residual group.

Limitations of this Study

A major limitation of this study was the cross-sectional design from which one cannot infer causality. It is important to consider the need for longitudinal research to corroborate these findings before tentative implications are suggested. It is possible that a third uncontrolled variable was responsible for some significant findings. This study only examined personality and clinical factors, as measured by the PAI, and there may have been other factors that were reflective of the low residual group, for example, family factors. A further limitation is that the sample size was relatively small, and using a larger sample size would have been advantageous and is recommended. However, the number of participants that were to fall in these residual subgroups could not have been foreseen. Further, the participants in this study were university students who were primarily New Zealand European. This limitation brings into question the generalisability of these results to other ethnic groups, males and women who are not educated.

Implications of this Study

Despite these limitations, this research highlighted that the low residual group was distinct from the high residual group on a variety of personality and clinical

variables. The factors characteristic of the low residual groups may reflect features that could protect women who are at high risk for developing either body dissatisfaction or eating pathology. The current study has important implications for New Zealand women in terms of understanding the personality and clinical features of the women in these high-risk groups. Furthermore, this research points to potential targets in interrupting the development of eating pathology, whether that be at high BMI or the body dissatisfaction stage.

Based on the collective analyses, both low residual groups were significantly less anxious and less emotionally labile than the high residual groups (as measured by, for example, anxiety, anxiety-related disorders, borderline features). This trend suggests that targeting these factors among women with high BMIs and women with high body dissatisfaction may influence the related negative outcome. If longitudinal research supports these findings, interventions with women who are in these high-risk groups could benefit from focussing on targeting anxious and obsessive behaviours. Specifically, teaching alternative ways for dealing with anxiety and self-doubt, in the context of a positive body image programme or in a general anxiety management programme, could be of clinical utility. Further, targeting affect regulation may also encourage emotional stability and an optimistic view of the world and others, which may in turn decrease the likelihood of both body dissatisfaction and eating pathology. The encouragement of healthy and secure interpersonal relationships may also help these individuals.

Directions for Future Research

Longitudinal research should further explore the personality and clinical features researched in this study to verify the role of these factors among women who are high in body dissatisfaction and low in eating pathology, and those high in BMI yet

low in body dissatisfaction. Such research would enable a greater understanding of why some women develop body dissatisfaction and eating pathology and why some women do not and could be well utilised in intervention planning. Replicating this research with a larger sample may also be of benefit, as would be examining younger participants. Moreover, research should address additional factors and explore how they may characterise these high-risk groups.

GENERAL DISCUSSION

EDs are important health concerns for young women and girls in New Zealand and worldwide. The psychological and physiological effects of EDs can be devastating and longstanding, highlighting the need to understand the factors that lead to these problems. The broad aim of this research was to understand the factors that are associated with eating pathology among three age groups of New Zealand females. The goal of this set of studies was three-fold. First, these studies examined the validity of each measure within a New Zealand sample, to ensure that the same constructs are being measured among this sample, in order to make meaningful comparisons. These analyses are often overlooked by researchers, however are important when using a measure in a population different to the one in which it was developed. Second, this research measured the prevalence and correlates of eating pathology and established risk factors for eating pathology. These were examined in three age groups to identify the factors that may be important at different stages of life. Finally and importantly, these studies tested potential moderators of eating pathology. Given the strong relationships between different components of the Sociocultural Model of Eating Pathology, testing for moderators enabled the identification of factors that statistically influenced the effect of a predictor on its relative outcome.

This research has answered some important and long overdue questions related to eating pathology in New Zealand. The measures used in this research generally demonstrated measurement equivalence, in that the factor structure appeared similar to what has previously been found in other cultures. This finding suggests that these measures may be suitable for use in future New Zealand studies and can increase our confidence that they are measuring similar constructs in our culture. However, this research did not examine measurement equivalence to the stringent extent that it could

have (Horn & McArdle, 1992). Future research should aim to more comprehensively test for measurement equivalence

This research demonstrated that New Zealand adolescent and preadolescent girls report eating pathology and associated risk factors at rates comparable to those found overseas. There has been a paucity of risk factor research from New Zealand, including an absence of research into these factors during childhood. This research has revealed that younger New Zealand girls do engage in unhealthy eating attitudes and behaviours and to a similar extent as adolescent girls. Various factors were shown to be important in predicting eating pathology. Analyses sought to test predictors that had been examined in previous studies overseas, as well as other potential risk factors that have lacked empirical examination. Two of the three predictors of eating pathology (SP perfectionism and body dissatisfaction) were the same for preadolescents as they were for adolescents, potentially demonstrating some similarities between the groups. These findings contribute some potentially useful research leads regarding risk factors that could be targeted for girls at risk of developing eating pathology. Although body dissatisfaction has been found to be a strong predictor of eating pathology (Stice, 2002), the role of perfectionism in children and adolescence has not received much research attention. That SP perfectionism was a significant predictor for both children and adolescents demonstrates the salient role perfectionism plays and the importance of including this factor in future research. The precise nature of these associations should also be examined, giving attention to the utility of addressing perfectionism with adolescent girls who are highly dissatisfied with their bodies or who are engaging in pathological eating behaviours. Specifically, Saling and colleagues' (2005) finding that perfectionism predicted preadolescent dieting and weight preoccupation cross-sectionally but not longitudinally (over 10 months), emphasises that this relationship

needs to be tested by implementing a longer follow-up period. Additionally, research could specifically examine the origins of perfectionism and the way that perfectionistic attitudes and behaviours are transmitted. For example, the link between perfectionism and eating pathology may be due to social comparison adopted by one's peer group. Further research needs to test this suggestion. It has been recommended that prevention programmes are most effective when they are based on reducing established risk factors and may be more effective when they are implemented at a younger age (McVey & Davis, 2002; Stice & Shaw, 2004). For this reason, research should continue to examine disordered eating behaviours by following preadolescent children through to adulthood to understand how different risk factors may change over time.

Using the Sociocultural Model of Eating Pathology as a theoretical guide, this research also ascertained predictors of eating pathology and moderating factors that may amplify the effects of BMI, body dissatisfaction, media information and social pressure on their related negative outcome. The fact that there were more moderators in Study One than Study Two suggests potential age effects or measurement effects from using some of the assessment tools with children. In any case, isolating these moderating factors can aid our understanding of potential factors (for example, perfectionism, self-esteem and perceived media pressure) that may protect an individual from developing eating pathology. If corroborated by longitudinal research, accentuating these factors could help interrupt the conceptual chain of events that lead to eating pathology.

Among women, this research has supported findings regarding prevalence estimates from overseas and provided new insights into factors closely related to eating pathology in New Zealand. Although there were no statistically significant moderators in Study Three, research should continue to test the factors that may potentially

influence internalisation of the thin ideal, especially given that internalisation has been considered a key risk factor to eating pathology (Stice, 2001b). Taking another approach to studying salient risk factors, Study Four provided some useful leads in understanding the characteristics of those who are low in body dissatisfaction relative to their BMI and low in eating pathology, relative to their body dissatisfaction. Understanding these atypical and under researched groups may provide greater insight into what may be protecting them from the conjectured negative outcomes. Although a broad measure of personality and psychopathology was thought to be an appropriate start, future research should continue to explore the features that may characterise these groups, for example ethnicity and other prominent features in ED development, such as perfectionism. Although longitudinal research needs to corroborate the findings, this study does provide some idea of the factors that may protect high-risk women from developing eating pathology. In particular, emotional wellbeing, rational expectations about shape and weight and positive and supportive social relationships emerged as factors that may be a fruitful avenue to pursue. Although important, this is not surprising given the general benefits that accompany these healthy attitudes and interactions.

This research has answered many questions; it has also yielded many more about eating pathology in New Zealand. Future research should include longitudinal designs in order to better isolate cause and effect of the relationships tested in this thesis. Although theory can guide our hypotheses regarding which factor may precede an outcome, some factors, such as perfectionism and anxiety, are shown to be present in the premorbid, acute and recovery phases of an ED (Bardone-Cone et al., 2007; Holliday et al., 2006). Moreover, research should continue to examine other factors, such as family environment and obsessionality, which may be associated with eating

pathology in New Zealand females across the lifespan. Studying EDs among a male population is also an important direction for future research in New Zealand given that men can develop eating pathology, and no research has examined male eating pathology in New Zealand. Importantly, researching the pursuit of muscularity among men, and women alike, would enhance our understanding of these problems. Research into factors that contribute to these body image and eating problems among New Zealand females and males is paramount and greatly needed.

Given that many individuals with EDs are resistant to treatment, isolating the etiological factors that may increase the likelihood for one developing an ED is crucial. Interventions may be most effective when they focus on reducing established risk factors of ED development, yet interventions are hindered by the lack of understanding of these factors (Stice & Shaw, 2004; Taylor et al., 1998). Enhancing protective factors, through teaching New Zealand women and girls skills to manage their impression of the media, modify expectations of themselves and improve their emotional well-being more generally, may ameliorate the effects of media information and pressure, internalisation and body dissatisfaction, and eventual eating pathology, however longitudinal or experimental research is still needed. When we can understand why some women and girls progress to the next stage of eating pathology development and why some do not, we may be better enabled to reduce the risk of eating pathology among women and girls in New Zealand.

REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. California: Sage Publications.

Allen, M. J., & Yen, W. M. (2002). *Introduction to measurement theory*. Long Grove, IL: Waveland Press.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR* (4th ed., text revision ed.). Washington DC: American Psychiatric Association.

Anderluh, M. B., Tchanturia, K., Rabe-Hesketh, S., & Treasure, J. (2003). Childhood obsessive-compulsive personality traits in adult women with eating disorders: Defining a broader eating disorder phenotype. *American Journal of Psychiatry, 160*, 242-247.

Aqliata, A. K., Tantleff-Dunn, S., & Renk, K. (2007). Interpretation of teasing during early adolescence. *Journal of Clinical Psychology, 63*, 23-30.

Archibald, A. B., Graber, J. A., & Brooks-Gunn, J. (1999). Associations among parent-adolescent relationships, pubertal growth, dieting and body image in young adolescent girls: A short term longitudinal study. *Journal of Research on Adolescence, 9*, 395-415.

Attie, I., & Brooks-Gunn, J. (1989). Development of eating problems in adolescent girls: A longitudinal study. *Developmental Psychology, 25*, 70-79.

Bardone-Cone, A. M. (2007). Self-oriented and socially prescribed perfectionism dimensions and their associations with disordered eating. *Behaviour Research and Therapy, 45*, 1977-1986.

Bardone-Cone, A. M., Abramson, L. Y., Vohs, K. D., Heatherton, T. F., & Joiner, T. E. (2006). Predicting bulimic symptoms: An interactive model of self-efficacy, perfectionism, and perceived weight status. *Behaviour Research and Therapy, 44*, 27-42.

Bardone-Cone, A. M., Wonderlich, S. A., Frost, R. O., Bulik, C. M., Mitchell, J. E., Uppala, S., et al. (2007). Perfectionism and eating disorders: Current status and future directions. *Clinical Psychology Review, 27*, 384-405.

Barlow, S. E., & Dietz, W. H. (1998). Obesity evaluation and treatment: Expert committee recommendations. *Journal of Pediatrics, 102*, e29.

Basow, S. A. (1992). *Gender: Stereotypes and roles* (3rd ed.). Pacific Groves, California: Brooks/Cole Publishing Company.

Bean, P., Maddocks, M. B., Timmel, P., & Weltzin, T. (2005). Gender differences in the progression of co-morbid psychopathology symptoms of eating disordered patients. *Eating and Weight Disorders, 10*, 168-174.

Becker, A. E. (2004). Television, disordered eating, and young women in Fiji: Negotiating body image and identity during rapid social change. *Culture, Medicine and Psychiatry, 28*, 533-559.

Becker, A. E., Burwell, R. A., Herzog, D. B., Hamburg, P., & Gilman, S. E. (2002). Eating behaviours and attitudes following prolonged exposure to television among ethnic Fijian adolescent girls. *British Journal of Psychiatry, 180*, 509-514.

Bieling, P. J., Israeli, A. L., & Antony, M. M. (2004). Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Personality and Individual Differences, 36*, 1373-1385.

Birmingham, C. L., Su, J., Hlynsky, J. A., Goldner, E. M., & Gao, M. (2005). The mortality rate from anorexia nervosa. *International Journal of Eating Disorders, 38*, 143-146.

Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. In J. P. Robinson & P. R. Shaver (Eds.), *Measures of personality and social psychological attitudes. Measures of social psychological attitudes, Vol. 1* (pp. 115-160). San Diego, CA: Academic Press, Inc.

Blowers, L. C., Loxton, N. J., Grady-Flesser, M., Occhipinti, S., & Dawe, S. (2003). The relationship between sociocultural pressure to be thin and body dissatisfaction in preadolescent girl. *Eating Behaviors, 4*, 229-244.

Braet, C., Tanghe, A., Bode, P. D., Franckx, H., & Winckel, M. V. (2003). Inpatient treatment of obese children: A multicomponent program without stringent calorie restriction. *European Journal of Pediatrics, 162*, 391-396.

Brooks-Gunn, J. (1987). Pubertal processes and girls' psychological adaptation. In R. M. Lerner & T. T. Foch (Eds.), *Biological-psychosocial interactions in early adolescence. Child psychology* (pp. 123-153). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

Brown, T. A., Cash, T. F., & Lewis, R. J. (1989). Body-image disturbances in adolescent female binge-purgers: A brief report of the results of a national survey in the U.S.A. *Journal of Child Psychology & Psychiatry & Allied Disciplines, 30*, 605-613.

Brownell, K. D., & Rodin, J. (1994). The dieting maelstrom. Is it possible and advisable to lose weight? *American Psychologist, 49*, 781-791.

Bruch, H. (1973). *Eating disorders: Obesity, anorexia and the persona within*. New York: Basic Books.

Bulik, C. M. (1994). *Eating Disorders: Detection and Treatment*. Palmerston North, New Zealand: The Dunmore Press.

Bulik, C. M. (2004). Genetic and Biological Risk Factors. In J. K. Thompson (Ed.), *Handbook of eating disorders and obesity* (pp. 3-17). Hoboken, NJ, US: John Wiley & Sons

Bunnell, D. W., Cooper, P. J., Hertz, S., & Shenker, I. R. (1992). Body shape concerns among adolescents. *International Journal of Eating Disorders, 11*, 79-83.

Burns, D. (1980). The perfectionist's script for self-defeat. *Psychology Today, November*, 34-51.

Bushnell, J. A., Wells, J. E., Hornblow, A. R., Oakley-Browne, M. A., & et al. (1990). Prevalence of three bulimia syndromes in the general population. *Psychological Medicine, 20*(3), 671-680.

Butryn, M. L., & Wadden, T. A. (2005). Treatment of overweight in children and adolescents: Does dieting increase the risk of eating disorders? *International Journal of Eating Disorders, 37*, 285-293.

Button, E. J., Sonuga-Barke, E. J. S., Davies, J., & Thompson, M. (1996). A prospective study of self-esteem in the prediction of eating problems in adolescent schoolgirls: Questionnaire findings. *British Journal of Clinical Psychology, 35*, 193-203.

Byely, L., Archibald, A. B., Graber, J., & Brooks-Gunn, J. (2000). A prospective study of familial and social influences on girls' body image and dieting. *International Journal of Eating Disorders, 28*, 155-164.

Cachelin, F. M., Striegel-Moore, R. H., & Paget, W. B. (1997). Comparison of women with various levels of dietary restraint on body image, personality, and family environment. *Eating Disorders: The Journal of Treatment & Prevention, 5*, 205-215.

Cafri, G., & Thompson, J. K. (2004). Measuring male body image: A review of current methodology. *Psychology of Men and Masculinity, 5*, 18-29.

Cafri, G., Yamamiya, Y., Brannick, M., & Thompson, J. K. (2005). The Influence of Sociocultural Factors on Body Image:A Meta-Analysis. *Clinical Psychology: Science and Practice, 12*, 421-433.

Calogero, R. M., Davis, W. M., & Thompson, J. K. (2004). The Sociocultural Attitudes Toward Appearance Questionnaire (SATAQ-3): Reliability and normative comparisons of eating disordered patients *Body Image, 1*, 193-198.

Cash, T. F. (1990). The psychology of physical appearance: Aesthetics, attributes, and images. In T. F. Cash & T. Pruzinsky (Eds.), *Body images: Development, deviance, and change.* (pp. 51-79). New York, NY, US: Guilford Press.

Cash, T. F., & Henry, P. E. (1995). Women's body images: The results of a national survey in the USA. *Sex Roles, 33*, 19-28.

Cassin, S. E., & von Ranson, K. M. (2005). Personality and eating disorders: A decade in review. *Clinical Psychology Review, 25*, 895-916.

Castro-Fornieles, J., Gual, P., Lahortiga, F., Gila, A., Casula`, V., Fuhrmann, C., et al. (2007). Self-oriented perfectionism in eating disorders. *International Journal of Eating Disorders, 40*(562-568).

Cattarin, J. A., & Thompson, J. K. (1994). A three-year longitudinal study of body image, eating disturbance, and general psychological functioning in adolescent females. *Eating Disorders: The Journal of Treatment & Prevention, 2*, 114-125.

Cattarin, J. A., Thompson, J. K., Thomas, C., & Williams, R. (2000). Body image, mood, and televised images of attractiveness: The role of social comparison. *Journal of Social & Clinical Psychology, 19*, 220-239.

Cervera, S., Lahortiga, F., Martínez-González, M. A., Gual, P., de Irala-Estévez, J., & Alonso, Y. (2003). Neuroticism and low self-esteem as risk factors for incident eating disorders in a prospective cohort study. *International Journal of Eating Disorders, 33*, 271-280.

Chandy, J. M., Harris, L., Blum, R. W., & Resnick, M. D. (1995). Female adolescents of alcohol misusers: Disordered eating features. *International Journal of Eating Disorders, 17*, 283-289.

Christchurch City Council (2006). *Christchurch City Fact Pack 2007*.Christchurch. Retrieved 5 February 2008, from http://www.ccc.govt.nz/publications/FactPack/FactPack2007.pdf

Christchurch City Council (2007). *Profile of Christchurch Children and Youth (0 to 25 Years of Age)*.Christchurch. Retrieved April 2007, from http://www.ccc.govt.nz/Reports/2004/ChildrenAndYouthReport/ChildrenAndYouthReport.pdf

Clark, L., & Tiggemann, M. (2008). Sociocultural and individual psychological predictors of body image in young girls: A prospective study. *Developmental Psychology, 44*, 1124-1134.

Cockell, S. J., Hewitt, P. L., Goldner, E. M., Srikameswaran, S., & Flett, G. (1996). *Levels of perfectionism among women with anorexia and bulimia nervosa.* Paper presented at the 26th International Congress of Psychology, Montreal, Quebec, Canada.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied mulitvariate regression/correlation analysis for the behavioral sciences* (3 ed.). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Collins, M. E. (1991). Body figure perceptions and preferences among preadolescent children. *International Journal of Eating Disorders, 10*, 199-208.

Cooper, P. J., Taylor, M. J., Cooper, Z., & Fairburn, C. G. (1987). The development and validation of the body shape questionnaire. *International Journal of Eating Disorders, 6*, 485 - 494.

Cotrufo, P., Cella, S., Cremato, F., & Labella, A. G. (2007). Eating disorder attitude and abnormal eating behaviours in a sample of 11-13-year-old school children: the role of pubertal body transformation. *Eating and Weight Disorders, 12*, 154-160.

Crandall, C. S. (1988). Social contagion of binge eating. *Journal of Personality & Social Psychology, 55*, 588-598.

Cusumano, D. L., & Thompson, J. K. (2001). Media influence and body image in 8-11-year-old boys and girls: A preliminary report on Multidimensional Media Influence Scale. *International Journal of Eating Disorders, 29*, 37-44.

Davis, P., McLeod, K., Ransom, M., & Ongley, P. (1997). *The New Zealand Socioeconomic Index Occupational Status (NZSEI)* Wellington.

Davison, K. K., Markey, C. N., & Birch, L. L. (2000). Etiology of body dissatisfaction and weight concerns among 5-year-old girls. *Appetite, 35*, 143-151.

Dobmeyer, A. C., & Stein, D. M. (2003). A prospective analysis of eating disorder risk factors: drive for thinness, depressed mood, maladaptive cognitions, and ineffectiveness *Eating Behaviors, 4*, 135-147.

Dohnt, H., & Tiggemann, M. (2006). The contribution of peer and media influences to the development of body satisfaction and self-esteem in young girls: A prospective study. *Developmental Psychology, 42*(5), 929-936.

Donovan, C. L., Spence, S. H., & Sheffield, J. K. (2006). Investigation of a model of weight restricting behaviour amongst adolescent girls. *European Eating Disorders Review, 14*, 468-484.

Dorian, L., & Garfinkel, P. E. (2002). Culture and body image in Western culture. *Eating and Weight Disorders, 7*, 1-19.

Downey, C. A., & Chang, E. C. (2007). Perfectionism and symptoms of eating disturbances in female college students: Considering the role of negative affect and body dissatisfaction. *Eating Behaviors, 8*, 497-503.

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2006). Specific perfectionism components versus self-criticism in predicting maladjustment. *Personality and Individual Differences, 40*, 665-676.

Edlund, B., Halvarsson, K., Gebre-Medhin, M., & Sjoeden, P.-O. (1999). Psychological correlates of dieting in Swedish adolescents: A cross-sectional study. *European Eating Disorders Review, 7*, 47-61.

Eggert, J., Levendosky, A., & Klump, K. L. (2007). Relationships among attachment styles, personality characteristics, and disordered eating. *International Journal of Eating Disorders, 40*, 149-155.

Exterkate, C. C., Bakker-Brehm, D. T., & de Jong, C. A. J. (2007). MMPI-2 profiles of women with eating disorders in a Dutch day treatment sample. *Journal of Personality Assessment, 88*, 178-186.

Fabian, L. J., & Thompson, J. K. (1989). Body image and eating disturbance in young females. *International Journal of Eating Disorders, 8*, 63-74.

Fairburn, C. G., & Bohn, K. (2005). Eating disorder NOS (EDNOS): An example of the troublesome "not otherwise specified" (NOS) category in DSM-IV. *Behaviour Research and Therapy, 43*, 691-701.

Fairburn, C. G., & Cooper, P. J. (1982). Self-induced vomiting and bulimia nervosa: An undetected problem. *British Medical Journal, 284*, 1153-1155.

Fairburn, C. G., Cooper, Z., Doll, H. A., & Welch, S. L. (1999). Risk factors for anorexia nervosa: Three integrated case-control comparisons. *Archives of General Psychiatry, 56*, 468-476.

Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: A "transdiagnostic" theory and treatment. *Behaviour Research and Therapy, 41*, 509-528.

Fairburn, C. G., Shafran, R., & Cooper, Z. (1999). A cognitive behavioural theory of anorexia nervosa. *Behaviour Research and Therapy, 37*, 1-13.

Fear, J. L., Bulik, C. M., & Sullivan, P. F. (1996). The prevalence of disordered eating behaviours and attitudes in adolescent girls. *New Zealand Journal of Psychology, 25*, 7-12.

Feldman, W., Feldman, E., & Goodman, J. T. (1988). Culture versus biology: Children's attitudes toward thinness and fatness. *Pediatrics, 81*, 190-194.

Field, A. E., Camargo, C. A., Taylor, C. B., Berkey, C. S., Roberts, S. B., & Colditz, G. A. (2001). Peer, parent, and media Influences on the development of weight concerns and frequent dieting among preadolescent and adolescent girls and boys. *Pediatrics, 107*, 54-60.

Field, A. E., Cheung, L., Wolf, A. M., Herzog, D. B., Gortmaker, S. L., & Colditz, G. A. (1999). Exposure to the mass media and weight concerns among girls. *Pediatrics, 103*(3), 36-43.

Field, A. E., Wolf, A. M., Herzog, D. B., Cheung, L., & Colditz, G. A. (1993). The relationship of caloric intake to frequency of dieting among preadolescent and adolescent girls. *Journal of the American Academy of Child & Adolescent Psychiatry, 32*, 1246-1252.

Fingeret, M. C., & Gleaves, D. H. (2004). Sociocultural, feminist, and psychological influences on women's body satisfaction: A structural modeling analysis. *Psychology of Women Quarterly, 28*, 370-380.

Flannery-Schroeder, E. C., & Chrisler, J. C. (1996). Body esteem, eating attitudes, and gender-role orientation in three age groups of children. *Current Psychology: Developmental, Learning, Personality, Social, 15*, 235-248.

Flett, G. L., Hewitt, P. L., Boucher, D. J., Davidson, L. A., & Munro, Y. (1992). *The Child-Adolescent Perfectionism Scale: Development, validation and association with adjustment* Toronto, Canada: Department of Psychology Reports (No. 203). York University.

Flett, G. L., Hewitt, P. L., & Dyck, D. G. (1989). Self-oriented perfectionism, neuroticism and anxiety. *Personality & Individual Differences, 10*, 731-735.

Forbush, K., Heatherton, T. F., & Keel, P. K. (2007). Relationships between perfectionism and specific disordered eating behaviors. *International Journal of Eating Disorders, 40*, 37-41.

Franco-Paredes, K., Mancilla-Diaz, J. M., Vazquez-Arevalo, R., Lopez-Aguilar, X., & Alvarez-Rayon, G. (2005). Perfectionism and eating disorders: A review of the literature. *European Eating Disorders Review, 13*, 61-70.

Franzoi, S. L. (1994). Further evidence of the reliability and validity of the Body Esteem Scale. *Journal of Clinical Psychology, 50*, 237-239.

Franzoi, S. L., & Herzog, M. E. (1986). The Body Esteem Scale: A convergent and discriminant validity study. *Journal of Personality Assessment, 50*, 24-31.

Franzoi, S. L., & Shields, S. A. (1984). The Body Esteem Scale: Multidimensional structure and sex differences in a college population. *Journal of Personality Assessment, 48*, 173-178.

Franzois, S. L., & Herzog, M. E. (1986). The Body Esteem Scale: A convergent and discriminant validity study. *Journal of Personality Assessment, 50*, 24-31.

French, S. A., & Jeffery, R. W. (1994). Consequences of dieting to lose weight: Effects on physical and mental health. *Health Psychology, 13*, 195-212.

French, S. A., Perry, C. L., Leon, G. R., & Fulkerson, J. A. (1995). Dieting behaviors and weight change history in female adolescents. *Health Psychology, 14*, 548-555.

Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences, 14*, 119-126.

Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy & Research, 14*, 449-468.

Galbraith, C., Jenkin, G., Davis, P., & Coope, P. (2003). *New Zealand Socio-economic Index 1996: Users' Guide* Wellington, New Zealand.

Gardner, R. M., Stark, K., Friedman, B. N., & Jackson, N. A. (2000). Predictors of eating disorder scores in children ages 6 through 14: A longitudinal study. *Journal of Psychosomatic Research, 49*, 199-205.

Garfinkel, P. E., & Newman, A. (2001). The Eating Attitudes Test: Twenty-five years later. *Eating and Weight Disorders, 6*, 1-24.

Garner, D. M., & Bemis, K. M. (1982). A cognitive-behavioral approach to anorexia nervosa. *Cognitive Therapy and Research, 6*, 123-150.

Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2*, 15-34.

Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine, 12*, 871-878.

Geier, A. B., Schwartz, M. B., & Brownell, K. D. (2003). "Before and After" diet advertisements escalate weight stigma. *Eating and Weight Disorders, 8*, 282-288.

Gerner, B., & Wilson, P. H. (2005). The Relationship between friendship factors and adolescent Girls' body image concern, body dissatisfaction, and restrained eating. *International Journal of Eating Disorders, 37*, 313-320.

Gleaves, D. H., Brown, J. D., & Warren, C. S. (2005). The continuity/discontinuity models of eating disorders. *Behaviour Modification, 27*, 739-762

Goldner, E. M., Cockell, S. J., & Srikameswaran, S. (2002). Perfectionism and eating disorders. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment.* (pp. 319-340). Washington, DC, US: American Psychological Association.

Goodman, E., Hinden, B. R., & Khandelwal, S. (2000). Accuracy of teen and parental reports of obesity and body mass index. *Pediatrics, 106*, 52-58.

Graber, J. A., Brooks-Gunn, J., Paikoff, R. L., & Warren, M. P. (1994). Prediction of eating problems: An 8-year study of adolescent girls. *Developmental Psychology, 30*, 823-834.

Gralen, S. J., Levine, M. P., Smolak, L., & Murnen, S. K. (1990). Dieting and disordered eating during early and middle adolescence: Do the influences remain the same? *International Journal of Eating Disorders, 9*, 501-512.

Greenberg, B., Eastin, M., Hofschire, L., Lachlan, K., & Brownell, K. (2003). Portrayals of overweight and obese individuals on commercial television. *American Journal of Public Health, 93*, 1342-1348.

Grilo, C. M., Wilfley, D. E., Brownell, K. D., & Rodin, J. (1994). Teasing, body image, and self-esteem in a clinical sample of obese women. *Addictive Behaviors, 19*, 443-450

Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders, 31*, 1-16.

Halmi, K. A., Sunday, S. R., Strober, M., Kaplan, A., Woodside, D. B., Fichter, M., et al. (2000). Perfectionism in anorexia nervosa: Variation by clinical subtype, obsessionality, and pathological eating behavior. *American Journal of Psychiatry, 157*, 1799-1805.

Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology: A Journal of Human Behavior, 15*, 27-33.

Harrison, K. (2000). Television viewing, fat stereotyping, body shape standards, and eating disordered symptomatology in grade school children. *Communication Research, 27*, 617-640.

Harrison, K., & Cantor, J. (1997). The relationship between media consumption and eating disorders. *Journal of Communication, 47*, 40-67.

Harrison, K., & Hefner, V. (2006). Media exposure, current and future body ideals, and disordered eating among preadolescent girls: A longitudinal panel study. *Journal of Youth and Adolescence, 35*, 153-163.

Hayden-Wade, H. A., Stein, R., Ghaderi, A., Saelens, B. E., Zabinski, M. F., & Wilfley, D. E. (2005). Prevalence, characteristics, and correlates of teasing experiences among overweight children vs. non-overweight peers. *Obesity Research, 13*, 1381-1392.

Heatherton, T. F., & Polivy, J. (1992). Chronic dieting and eating disorders: A spiral model. In J. H. Crowther, D. L. Tennenbaum, S. E. Hobfold & M. A. Parris (Eds.), *The etiology of bulimia nervosa: The individual and familial context.* (pp. 133-155). Washington DC: Hemisphere.

Heinberg, L. J., & Thompson, J. K. (1995). Body image and televised images of thinness and attractiveness: A controlled laboratory investigation. *Journal of Social & Clinical Psychology, 14*, 325-338.

Heinberg, L. J., Thompson, J. K., & Matzon, J. L. (2001). Body image dissatisfaction as a motivator for healthy lifestyle change: Is some distress beneficial? In R. H. Striegel-Moore & L. Smolak (Eds.), *Eating disorders: Innovative directions in research and practice*. Washington, DC, US: American Psychological Association.

Helmes, E. (1993). A modern instrument for evaluating psychopathology: The Personality Assessment Inventory professional manual. *Journal of Personality Assessment, 61*, 414-417.

Hermes, S. F., & Keel, P. K. (2003). The Influence of puberty and ethnicity on awareness and internalization of the thin ideal. *International Journal of Eating Disorders, 33*, 465-467.

Herzog, D. B., Greenwood, D. N., Dorer, D. J., A.T, F., Ekeblad, E. R., Richards, A., et al. (2000). Mortality in eating disorders: A descriptive study *International Journal of Eating Disorders, 28*, 20-26.

Hesse-Biber, S., Marino, M., & Watts-Roy, D. (1999). A longitudinal study of eating disorders among college women: Factors that influence recovery. *Gender & Society, 13*, 385-408.

Hewitt, P. L., Caelian, C. F., Flett, G. L., Sherry, S. B., Collins, L., & Flynn, C. A. (2000). Perfectionism in children: Associations with depression, anger and anxiety. *Personality and Individual Differences, 32*, 1049-1061.

Hewitt, P. L., Caelian, C. F., Flett, G. L., Sherry, S. B., Collins, L., & Flynn, C. A. (2002). Perfectionism in children: Associations with depression, anger and anxiety. *Personality and Individual Differences, 32*, 1049-1061.

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality & Social Psychology, 60*, 456-470.

Hewitt, P. L., Flett, G. L., & Ediger, E. (1995). Perfectionism traits and perfectionistic self-presentation in eating disorder attitudes, characteristics, and symptoms. *International Journal of Eating Disorders, 18*, 317-326.

Heywood, S., & McCabe, M. P. (2006). Negative affect as a mediator between body dissatisfaction and extreme weight loss and muscle gain behaviors. *Journal of Health Psychology, 11*, 833-844.

Hill, A. J., & Bhatti, R. (1995). Body shape perception and dieting in preadolescent British Asian girls: Links with eating disorders. *International Journal of Eating Disorders, 17*, 175-183.

Hill, A. J., Oliver, S., & Rogers, P. J. (1992). Eating in the adult world:The rise of dieting in childhood and adolescence. *British Journal of Clinical Psychology, 31*, 95-105.

Hill, A. J., & Pallin, V. (1998). Dieting awareness and low self-worth: Related issues in 8-year-old girls. *International Journal of Eating Disorders, 24*, 405-413.

Hill, A. J., & Silver, E. K. (1995). Fat, friendless and unhealthy: 9-year old children's perception of body shape stereotypes. *International Journal of Obesity, 19*, 423-430.

Hoare, P., & Cosgrove, L. (1998). Eating habits, body-esteem and self-esteem in Scottish children and adolescents. *Journal of Psychosomatic Research, 45*, 425-431.

Hoerr, S. L., Bokram, L., Lugo, B., Bivins, T., & Keast, D. R. (2002). Risk for disordered eating relates to both gender and ethnicity for college students. *Journal of American College Nutrition, 21*, 307-314.

Hofschire, L., & Greenberg, B. (2002). Media's impact on adolescents' body dissatisfaction. In J. D. Brown, J. R. Steele & K. Walsh-Childers (Eds.), *Sexual Teens, Sexual Media: Investigating media's influence on adolescent sexuality.* New Jersey, U.S.A: Lawrence Erbaum.

Holiday, D. B., Ballard, J. E., & McKeown, B. C. (1995). PRESS-related statistics: regression tools for cross-validation and case diagnostics. *Medicine and science in sports and exercise, 27*, 612-620.

Holliday, J., Uher, R., Landau, S., Collier, D., & Treasure, J. (2006). Personality pathology among individuals with a lifetime history of anorexia nervosa. . *Journal of Personality Disorders, 20*, 417-430.

Holt, K., & Ricciardelli, L. A. (2002). Social comparisons and negative affect as indicators of problem eating and muscle preoccupation among children. *Journal of Applied Developmental Psychology, 23*, 285-304.

Horn, J. L., & McArdle, J. J. (1992). A practical and theoretical guide to measurement invariance in aging research. *Experimental Aging Research. Special Issue: Quantitative topics in research on aging, 18*, 117-144.

Hudson, J., Hiripi, E., Pope, H., & Kessler, R. (2007). The prevalence and correlates of eating disorders in the national comorbidity survey replication. *Biological Psychiatry, 61*, 348 - 358.

Johnson, F., & Wardle, J. (2005). Dietary restraint, body dissatisfaction, and psychological distress: A prospective analysis. *Journal of Abnormal Psychology, 114*, 119-125

Joiner, T. E., Jr., Catanzaro, S. J., & Laurent, J. (1996). Tripartite structure of positive and negative affect, depression, and anxiety in child and adolescent psychiatric inpatients. *Journal of Abnormal Psychology, 105*, 401-409.

Jose, P. E. (2003). ModGraph-I A programme to compute cell means for the graphical display of moderational analyses:The internet version

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*, 31-36.

Keel, P. K., Fulkerson, J. A., & Leon, G. R. (1997). Disordered eating precursors in pre- and early adolescent girls and boys. *Journal of Youth & Adolescence, 26*, 203-216.

Keel, P. K., Klump, K. L., Miller, K. B., McGue, M., & Iacono, W. G. (2005). Shared transmission of eating disorders and anxiety disorders *International Journal of Eating Disorders, 38*, 99-105.

Kelly, C., Ricciardelli, L. A., & Clarke, J. D. (1999). Problem eating attitudes and behaviours in young children. *International Journal of Eating Disorders, 25*, 281-286.

Kessler, R. C., Avenevolib, S., & Merikangas, K. R. (2001). Mood disorders in children and adolescents: an epidemiologic perspective. *Biological Psychiatry, 49*, 1002-1014.

Killen, J. D., Taylor, C. B., Hayward, C., Wilson, D. M., & et al. (1994). Pursuit of thinness and onset of eating disorder symptoms in a community sample of adolescent girls: A three-year prospective analysis. *International Journal of Eating Disorders, 16*, 227-238.

Lachenbruch, P. A. (1967). An almost unbiased method of obtaining confidence intervals for the probability of misclassification in discriminant analysis. *Biometrics, 23*, 639-645.

Lask, B., & Bryant-Waugh, R. (2000). Anorexia nervosa and related eating disorders in childhood and adolescence (2nd ed.). *Hove, England: Psychology Press/Taylor & Francis, 382*.

Latner, J. D., Rosewall, J., & Simmonds, M. (2007). Childhood obesity stigma: Association with television, videogame, and magazine exposure. *Body Image, 4*, 147-155.

Latner, J. D., & Stunkard, A. J. (2003). Getting worse: The stigmatization of obese children. *Obesity Research, 11*, 452-456.

Laurent, J., Catanzaro, S. J., Joiner, T. E., Jr., Rudolph, K. D., Potter, K. I., Lambert, S., et al. (1999). A measure of positive and negative affect for children: Scale development and preliminary validation. *Psychological Assessment, 11*, 326-338.

Lawrence, C. M., & Thelen, M. H. (1995). Body image, dieting, and self-concept: Their relation in African-American and Caucasian children. *Journal of Clinical Child Psychology, 24*, 41-48.

Leon, G. J., Fulkerson, J. A., Perry, C. L., & Early-Zald, M. B. (1995). Prospective analysis of personality and behavioral vulnerabilities and gender influences in

the later development of disordered eating. *Journal of Abnormal Psychology, 104*, 140-149.

Leon, G. R., Fulkerson, J. A., Perry, C. L., Keel, P. K., & Klump, K. L. (1999). Three to four year prospective evaluation of personality and behavioral risk factors for later disordered eating in adolescent girls and boys. *Journal of Youth and Adolescence, 28*, 181-196.

Levine, M. D., Ringham, R. M., Kalarchian, M. A., Wisniewski, L., & Marcus, M. D. (2001). Is family-based behavioral weight control appropriate for severe pediatric obesity? *International Journal of Eating Disorders, 30*, 318-328.

Levine, M. P., & Harrison, K. (2004). Media's role in the perpetuation and prevention of negative body image and disordered eating. In J. K. Thompson (Ed.), *Handbook of eating disorders and obesity* (pp. 695-717). Hoboken, NJ, US: John Wiley & Sons Inc.

Levine, M. P., & Smolak, L. (1992). Toward a model of the developmental psychopathology of eating disorders: The example of early adolescence. In J. Crowther, D. L. Tennenbaum, S. E. Hobfoll & M. A. P. Stephens (Eds.), *The etiology of bulimia nervosa: The individual and familial context* (pp. 59-80). Washington DC: Hemisphere.

Levine, M. P., & Smolak, L. (1996). Media as a context for the development of disordered eating. In L. Smolak & M. P. Levine (Eds.), *The develomental psychopathology of eating disorders:Implications for research, prevention and treatment* (pp. 253-257). New Jersey: Erlbaum.

Levine, M. P., & Smolak, L. (1998). The mass media and disordered eating: Implications for primary prevention. In W. Vandereycken & G. Noordenbos (Eds.), *The prevention of eating disorders. Studies in eating disorders: An international series.* (pp. 23-56). New York, NY, US: New York University Press.

Levine, M. P., Smolak, L., & Hayden, H. (1994). The relation of sociocultural factors to eating attitudes and behaviors among middle school girls. *Journal of Early Adolescence, 14*, 471-490.

Lewis, R. J., Cash, T. F., Jacobi, L., & Bubb-Lewis, C. (1997). Prejudice toward fat people: the development and validation of the antifat attitudes test. *Obesity Research, 5*, 297-307.

Li, S. T., Jenkins, S., & Sundsmo, A. (2007). Impact of Race and Ethnicity. In M. Hersen, S. M. Turner & D. C. Beidel (Eds.), *Adult Psychopathology and Diagnosis* (pp. 101-125). Hoboken, NJ, US: John Wiley & Sons.

Lieberman, M., Gauvin, L., Bukowski, W. M., & White, D. R. (2001). Interpersonal influence and disordered eating behaviors in adolescent girls: The role of peer modeling, social reinforcement, and body-related teasing. *Eating Behaviors, 2*, 215-236.

Lilenfield, L. R., Wonderlich, S., Riso, L. P., Crosby, R., & Mitchell, J. (2006). Eating disorders and personality: A methodological and empirical review. *Clinical Psychology Review, 26*, 299-320.

Lowe, H. C., Miles, S. W., & Richards, C. G. (1985). Eating attitudes in an adolescent schoolgirl population. *New Zealand Medical Journal*, 330-331.

Lowes, J., & Tiggemann, M. (2003). Body dissatisfaction, dieting awareness and the impact of parental influence in young children. *British Journal of Health Psychology, 8*, 135-147.

Lucero, L. D., Hill, F. A., & Ferraro, F. R. (1999). Body dissatisfaction in young children. *Psychology: A Journal of Human Behavior, 36*, 36-42.

Lundholm, J. K., & Littrell, J. M. (1986). Desire for thinness among high school cheerleaders: Relationship to disordered eating and weight control behaviors. *Adolescence, 21*, 573-579.

Lunner, K., Werthem, E. H., Thompson, J. K., Paxton, S. J., McDonald, F., & Halvaarson, K. S. (2000). A cross-cultural examination of weight-related teasing, body image, and eating disturbance in Swedish and Australian samples. *International Journal of Eating Disorders, 28*, 430-435.

Machado, P. P., Machado, B. C., Gonçalves, S., & Hoek, H. W. (2007). The prevalence of Eating Disorders Not Otherwise Specified. *International Journal of Eating Disorders, 40*, 212-217.

Maloney, M. J., McGuire, J., Daniels, S. R., & Specker, B. (1989). Dieting behavior and eating attitudes in children. *Pediatrics, 84*, 482-489.

Maloney, M. J., McGuire, J. B., & Daniels, S. R. (1988). Reliability testing of a children's version of the Eating Attitudes Test. *Journal of the American Academy of Child & Adolescent Psychiatry, 27*, 541-543.

Marchi, M., & Cohen, P. (1990). Early childhood eating behaviors and adolescent eating disorders. *Journal of American Academy of Child and Adolescent Psychiatry, 29*, 112-117.

Marshall, K., Gardiner, M., & Greely, T. (2004). The incidence of perfectionism and self-handicapping in gifted female students: An investigative study. *Australasian Journal of Gifted Education, 13*, 17-23.

Martin, G. C., Wertheim, E. H., Prior, M., Smart, D., Sanson, A., & Oberklaid, F. (2000). A longitudinal study of the role of childhood temperament in the later development of eating concerns. *International Journal of Eating Disorders, 27*, 150-162.

Martin, K. M., & Huebner, S. (2007). Peer victimization and prosocial experiences and emotional well-being of middle school students *Psychology in the Schools, 44*, 199-208.

McCabe, M., & Ricciardelli, L. A. (2001). Development of the perceived sociocultural influence on body image and body change questionnaire. *International Journal of Behavioural Medicine, 18*, 19-41.

McCabe, M. P., & Ricciardelli, L. A. (2003a). Body image and strategies to lose weight and increase muscle among boys and girls. *Health Psychology, 22*, 39-46.

McCabe, M. P., & Ricciardelli, L. A. (2003b). Sociocultural influences on body image and body changes among adolescent boys and girls. *Journal of Social Psychology, 143*, 5-26.

McCabe, M. P., Ricciardelli, L. A., & Banfield, S. (2001). Body image, strategies to change muscles and weight, and puberty. Do they impact on positive and negative affect among adolescent boys and girls? *Eating Behaviors, 2*, 129-149.

McCarthy, M. (1990). The thin ideal, depression and eating disorders in women. *Behaviour Research and Therapy, 28*, 205-215.

McVey, G. L., & Davis, R. (2002). A program to promote positive body image: A 1-year follow-up evaluation. *Journal of Early Adolescence, 22*, 96-108.

McVey, G. L., Pepler, D., Davis, R., Flett, G. L., & Abdolell, M. (2002). Risk and protective factors associated with disordered eating during early adolescence. *Journal of Early Adolescence, 22*, 75-95.

Mendelson, B. K., White, D. R., & Mendelson, M. J. (1995). Children's global self-esteem predicted by body-esteem but not by weight. *Perceptual and Motor Skills, 80*, 97-98.

Mendelson, B. K., White, D. R., & Mendelson, M. J. (1996). Self-esteem and body esteem: Effects of gender, age, and weight. *Journal of Applied Developmental Psychology, 17*, 321-346.

Miller, E., & Halberstadt, J. (2005). Media consumption, body image and thin ideals in New Zealand men and women. *New Zealand Journal of Psychology, 34*, 189-195.

Minarik, M. L., & Ahrens, A. H. (1996). Relations of eating behavior and symptoms of depression and anxiety to the dimensions of perfectionism among undergraduate women. *Cognitive therapy and research, 20*, 155-169.

Ministry of Education (2006). *Deciles information.* .Wellington, New Zealand. Retrieved September 2007, from http://www.minedu.govt.nz/index.cfm?layout=document&documentid=7693&indexid=11565&indexparentid=3963

Mizes, J. S. (1991). Construct validity and factor stability of the anorectic cognitions questionnaire. *Addictive Behavior, 16*, 89-93.

Mizes, J. S. (1992). Validity of the Mizes Anorectic Cognitions scale: A comparison between anorectics, bulimics, and psychiatric controls. *Addictive Behaviors, 17*, 283-289.

Mizes, J. S., Christiano, B., Madison, J., Post, G., Seime, R., & Varnado, P. (2000). Development of the Mizes Anorectic Cognitions Questionnaire-Revised: Psychometric properties and factor structure in a large sample of eating disorder patients. *International Journal of Eating Disorders, 28*, 415-421.

Morey, L. C. (1991). *Personality Assessment Inventory*. Lutz, FL: Psychological Assessment Resources, Inc.

Morey, L. C. (2003). *Essentials of PAI Assessment*. New Jersey: John Wiley & Sons, Inc.

Muris, P., Meesters, C., van de Blom, W., & Mayer, B. (2005). Biological, psychological, and sociocultural correlates of body change strategies and eating problems in adolescent boys and girls. *Eating Behaviors, 6*, 11-22.

National Heart Lung and Blood Institute. (1998). *Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: The evidence report.* Bethesda MD.

Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. . *Journal of Adolescent Health., 39*, 244-251.

Neumark-Sztainer, D. R., Wall, M. M., Haines, J. I., Story, M. T., Sherwood, N. E., & van den Berg, P. A. (2007). Shared risk and protective factors for overweight and disordered eating in adolescents. *American Journal of Preventive Medicine, 33*, 359-369.

Nichter, M., Ritenbaugh, C., Nichter, M., Vuckovic, N., & et al. (1995). Dieting and "watching" behaviors among adolescent females: Report of a multimethod study. *Journal of Adolescent Health, 17*, 153-162.

Nichter, M., & Vuckovic, N. (1994). Fat Talk: Body image among adolescent girls. In N. Sault (Ed.), *Many mirrors: Body image and social relations* (pp. 109-131). New Brunswick: Rutgers University Press.

Noordenbos, G. (1994). Problems and possibilities of the prevention of eating disorders. *European Eating Disorders Review, 2*, 126-142.

O'Brien, K. M., & Vincent, N. K. (2003). Psychiatric comorbidity in anorexia and bulimia nervosa: Nature, prevalence and causal relationships. *Clinical Psychology Review, 23*, 57-74.

O'Dea, J. A. (1995). Body image and nutritional status among adolescents and adults: A review of the literature. *Australian Journal of Nutrition and Dietetics 52*, 56-67.

O'Dea, J. A., & Abraham, S. (2000). Improving the body image, eating attitudes, and behaviors of young male and female adolescents: A new educational approach that focuses on self-esteem. *International Journal of Eating Disorders, 28*, 43-57.

Ogden, J., & Steward, J. (2000). The role of the mother-daughter relationship in explaining weight concern. . *International Journal of Eating Disorders, 28*, 78-83.

Oliver, K. K., & Thelen, M. H. (1996). Children's perceptions of peer influence on eating concerns. *Behaviour Therapy, 27*, 25-39.

Osman, A., Chiros, C. E., Gutierrez, P. M., Kopper, B. A., & Barrios, F. X. (2001). Factor structure and psychometric properties of the Brief Mizes Anorectic Cognitions Questionnaire. *Journal of Clinical Psychology, 57*, 785-799.

Patton, G. C., Selzer, R., Coffey, C., Carlin, J. B., & Wolfe, R. (1999). Onset of adolescent eating disorders: population based cohort study over 3 years. *BMJ (British Medical Journal), 318*, 765-768

Paxton, S. J., Schutz, H. K., Wertheim, E. H., & Muir, S. L. (1999). Friendship clique and peer influences on body image concerns, dietary restraint, extreme weight-loss behaviors, and binge eating in adolescent girls. *Journal of Abnormal Psychology, 108*, 255-266.

Pearson, C. A., & Gleaves, D. H. (2006). The multiple dimensions of perfectionism and their relation with eating disorder features. *Personality and Individual Differences, 41*, 225-235.

Pesa, J. (1999). Psychosocial factors associated with dieting behaviors among female adolescents. *Journal of School Health, 69*, 196-201.

Phares, V., Steinberg, A. R., & Thompson, J. K. (2004). Gender differences in peer and parental influences: body image disturbance, self-worth, and psychological functioning in preadolescent children. *Journal of Youth & Adolescence, 33*, 421-429.

Pike, K. M., & Rodin, J. (1991). Mothers, daughters, and disordered eating. *Journal of Abnormal Psychology, 100*, 198-204.

Podar, I., Hannus, A., & Allik, J. (1999). Personality and affectivity characteristics associated with eating disorders: A comparison of eating disordered, weight-preoccupied, and normal samples. *Journal of Personality Assessment, 73*, 133-147.

Polivy, J., & Herman, C. P. (2002). Causes of eating disorders. *Annual Review of Psychology, 53*, 187-213.

Posavac, H. D., Posavac, S. S., & Posavac, E. J. (1998). Exposure to media images of female attractiveness and concern with body weight among young women. *Sex Roles, 38*, 187-201.

Presnell, K., & Stice, E. (2003). An experimental test of the effect of weight-loss dieting on bulimic pathology: Tipping the scales in a different direction. *Journal of Abnormal Psychology, 112*, 166-170.

Pryor, T., & Wiederman, M. V. (1996). Measurement of nonclinical personality characteristics of women with anorexia nervosa and bulimia nervosa. *Journal of Personality Assessment, 67*, 414-421.

Puhl, R., & Brownell, K. D. (2001). Bias, discrimination, and obesity. *Obesity Research, 9*, 788-805.

Rastam, M., Gillberg, C., & Garton, M. (1989). Anorexia nervosa in a Swedish urban region: A population-based study. *British Journal of Psychiatry, 155*, 642-646.

Reas, D. L., & Grilo, C. M. (2004). Cognitive-behavioral assessment of body image disturbances. *Journal of Psychiatric Practice, 10*, 314-322.

Ricciardelli, L. A., & McCabe, M. P. (2001a). Children's body image concerns and eating disturbance: A review of the literature. *Clinical Psychology Review, 21*, 325-344.

Ricciardelli, L. A., & McCabe, M. P. (2001b). Self esteem and negative affect as moderators of socio-cultural influences on body dissatisfaction, strategies to decrease weight and increase muscle tone among adolescent boys and girls. *Sex Roles, 44*, 189-201.

Ricciardelli, L. A., McCabe, M. P., Holt, K. E., & Finemore, J. (2003). A biopsychosocial model for understanding body image and body change strategies among children. *Journal of Applied Developmental Psychology, 24*, 475-495.

Rieves, L., & Cash, T. F. (1996). Social developmental factors and women's body-image attitudes. *Journal of Social Behavior & Personality, 11*, 63-78.

Ritchie, J. (1988). Eating attitudes and behaviours of a sample of university students. *New Zealand Medical Journal, 101*, 238-240.

Rodin, J., Silberstein, L., & Striegel-Moore, R. (1984). Women and weight: A normative discontent. *Nebraska Symposium on Motivation, 32*, 267-307.

Rogers, R. L., & Petrie, T. A. (2001). Psychological correlates of anorexic and bulimic symptomatology. *Journal of Counseling and Development, 79*, 178-187.

Rolland, K., Farnill, D., & Griffiths, R. A. (1996). Children's perceptions of their currrent and ideal body sizes and body mass index. *Perceptual & Motor Skills, 82*, 651-656.

Rosen, J. C., Jones, A., Ramirez, E., & Waxman, S. (1996). Body Shape Questionnaire: Studies of validity and reliability. *International Journal of Eating Disorders, 20*, 315-319.

Rosen, J. C., Silberg, N. T., & Gross, J. (1988). Eating Attitudes Test and Eating Disorders Inventory: Norms for adolescent girls and boys. *Journal of Consulting and Clinical Psychology, 56*, 305-308.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton: Princeton University Press.

Saling, M., Ricciardelli, L. A., & McCabe, M. P. (2005). A prospective study of individual factors in the development of weight and muscle concerns among preadolescent children. *Journal of Youth and Adolescence, 34*, 651-661.

Sanftner, J. L., & Crowther, J. H. (1998). Variability in self-esteem, moods, shame, and guilt in women who binge. *International Journal of Eating Disorders, 23*, 391-397.

Schinka, J. A. (1995). Personality Assessment Inventory scale characteristics and factor structure in the assessment of alcohol dependency. *Journal of Personality Assessment, 64*, 101-111.

Schur, E. A., Sanders, M., & Steiner, H. (2000). Body dissatisfaction and dieting in young children. *International Journal of Eating Disorders, 27*, 74-82.

Schwartz, D. J., Phares, V., Tantleff-Dunn, S., & Thompson, J. K. (1999). Body image, psychological functioning, and parental feedback regarding physical appearance. *International Journal of Eating Disorders, 25*, 339-343.

Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: A cognitive-behavioural analysis. *Behaviour Research & Therapy, 40*, 773-791.

Shaw, H. E., Stice, E., & Springer, D. W. (2004). Perfectionism, body dissatisfaction, and self-esteem in predicting bulimic symptomatology: Lack of replication. *International Journal of Eating Disorders, 36*, 41-47.

Shisslak, C. M., Crago, M., Renger, R., & Clark-Wagner, A. (1998). Self-esteem and the prevention of eating disorders. *Eating Disorders: The Journal of Treatment & Prevention, 6*, 105-118.

Shore, R. A., & Porter, J. E. (1990). Normative and reliability data for 11 to 18 year olds on the Eating Disorder Inventory. *International Journal of Eating Disorders, 9*, 201-207.

Shroff, H., & Thompson, J. K. (2004). Body image and eating disturbance in india: Media and interpersonal influences. *International Journal of Eating Disorders, 35*, 198-203.

Shroff, H., & Thompson, J. K. (2006). The tripartite influence model of body image and eating disturbance: A replication with adolescent girls. *Body Image, 3*, 17-23.

Shunk, J. A., & Birch, L. L. (2004). Validity of dietary restraint among 5- to 9-year old girls. *Appetite, 42*, 241-247.

Slade, P. D. (1982). Towards a functional analysis of anorexia nervosa and bulimia nervosa. *British Journal of Clinical Psychology, 21*, 167-179.

Smolak, L. (2002). Body image development in children. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research and clinical practice* (pp. 65-73). New York: The Guilford Press.

Smolak, L., & Levine, M. P. (1994). Psychometric properties of the Children's Eating Attitudes Test. *International Journal of Eating Disorders, 16*, 275-282.

Spitzer, B., Henderson, K., & Zivian, M. (1999). Gender differences in population versus media body sizes: A comparison over four decades. *Sex Roles, 40*, 545-565.

SPSS Inc. (2006). Statistical Package for the Social Sciences (Version 15). Chicago, Illinois.

Srinivasagam, N. M., Kaye, W. H., Plotnicov, K. H., Greeno, C., & et al. (1995). Persistent perfectionism, symmetry, and exactness after long-term recovery from anorexia nervosa. *American Journal of Psychiatry, 152*, 1630-1634.

Steele, A., Corsini, N., & Wade, T. (2006). The interaction of perfectionism, perceived weight status, and self-esteem to predict bulimic symptoms: The role of 'benign' perfectionism. *Behaviour Research and Therapy, 45*, 1647-1655

Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). London: Lawrence Erlbaum Associates, Publishers.

Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. *Clinical Psychology Review, 14*, 633-661.

Stice, E. (1998). Modeling of eating pathology and social reinforcement of the thin ideal predict onset of bulimic symptoms. *Behaviour Research and Therapy, 36*, 931-944.

Stice, E. (2001a). A prospective test of the dual-pathway model of bulimic pathology: Mediating effects of dieting and negative affect. *Journal of Abnormal Psychology, 110*, 124-135.

Stice, E. (2001b). Risk factors for eating pathology: Recent advances and future directions. In R. H. Striegel-Moore & L. Smolak (Eds.), *Eating disorders: Innovative directions in research and practice* (pp. 51-73). Washington, DC: American Psychological Association.

Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128*, 825-848.

Stice, E., & Bearman, S. K. (2001). Body-image and eating disturbances prospectively predict increases in depressive symptoms in adolescent girls: A growth curve analysis. *Developmental Psychology, 37*, 597-607.

Stice, E., Burton, E. M., & Shaw, H. (2004). Prospective relations between bulimic pathology, depression, and substance abuse: Unpacking comorbidity in adolescent girls. *Journal of Consulting & Clinical Psychology, 72*, 62-71.

Stice, E., Davis, K., Miller, N. P., & Marti, C. N. (2008). Fasting increases risk for onset of binge eating and bulimic pathology: A 5-year prospective study. *Journal of Abnormal Psychology*, 941-946

Stice, E., Fisher, M., & Lowe, M. (2004). Are dietary restraint scales valid measures of acute dietary restriction? Unobtrusive observational data suggest not. *Psychological Assessment* 51-59.

Stice, E., Mazotti, L., Weibel, D., & Agras, W. S. (2000). Dissonance prevention program decreases thin-ideal internalization, body dissatisfaction, dieting, negative affect, and bulimic symptoms: A preliminary experiment. *International Journal of Eating Disorders, 27*, 206-217.

Stice, E., Schupak-Neuberg, E., Shaw, H. E., & Stein, R. I. (1994). Relation of media exposure to eating disorder symptomatology: An examination of mediating mechanisms. *Journal of Abnormal Psychology, 103*, 836-840.

Stice, E., & Shaw, H. (2004). Eating disorder prevention programs: A meta-analytic review. *Psychological Bulletin, 130*, 206-227.

Stice, E., Shaw, H., & Nemeroff, C. (1998). Dual pathway model of bulimia nervosa: Longitudinal support for dietary restraint and affect regulation mechanisms. *Journal of Social and Clinical Psychology, 17*, 129-149.

Stice, E., & Shaw, H. E. (2002). Role of body dissatisfaction in the onset and maintenance of eating pathology: A synthesis of research findings. *Journal of Psychosomatic Research, 53*, 985-993.

Stice, E., & Whitenton, K. (2002). Risk factors for body dissatisfaction in adolescent girls: A longitudinal investigation. *Developmental Psychology, 38*, 669-678.

Striegel-Moore, R. H., & Bulik, C. M. (2007). Risk factors for eating disorders. *American Psychologist, 62*, 181-198.

Striegel-Moore, R. H., & Smolak, L. (Eds.). (2001). *Eating disorders: Innovative directions in research and practice*. Washington, DC: American Psychological Association.

Stunkard, A. J., Sorenson, T., & Schulsinger, F. (1983). The genetics of neurological and psychiatric disorders. In S. S. Kety, L. P. Rowland, R. L. Sidman & S. W. Matthysse (Eds.), (pp. 115-120). New York: Raven Press.

Swarr, A. E., & Richards, M. H. (1996). Longitudinal effects of adolescents girls' pubertal development, perceptions of pubertal timing, and parental relations on eating problems. *Developmental Psychology, 32*, 636-646.

Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: HarperCollins.

Tasca, G. A. W., J, Demidenko, N., & Bissada, H. (2002). Using the PAI with an eating disordered population: Scale characteristics, factor structure, and differences among diagnostic groups. *Journal of Personality Assessment, 79*, 337-357.

Taylor, C. B., Sharpe, T., Shisslak, C., Bryson, S., Estes, L. S., Gray, N., et al. (1998). Factors associated with weight concerns in adolescent girls. *International Journal of Eating Disorders, 24*, 31-42.

Tester, M. L., & Gleaves, D. H. (2005). Self-deceptive enhancement and family environment: Possible protective factors against internalization of the thin ideal. *Eating Disorders: The Journal of Treatment & Prevention, 13*, 187-199.

Thelen, M. H., & Cormier, J. F. (1995). Desire to be thinner and weight control among children and their parents. *Behavior Therapy. , 26*, 85-99.

Thelen, M. H., Powell, A. L., Lawrence, C., & Kuhnert, M. E. (1992). Eating and body image concerns among children. *Journal of Clinical Child Psychology, 21*, 41-46.

Thompson, J. K. (2003). The (mis)measurement of body image: ten strategies to improve assessment for applied and research purposes. *Body Image, 1*, 7-14.

Thompson, J. K., & Altabe, M. N. (1991). Psychometric qualities of the Figure Rating Scale. *International Journal of Eating Disorders, 10*, 615-619.

Thompson, J. K., Cattarin, J. A., Fowler, B., & Fisher, E. (1995). The Perception of Teasing Scale (POTS): A revision and extension of the Physical Appearance Related Teasing Scale (PARTS). *Journal of Personality Assessment, 65*, 146-157.

Thompson, J. K., Coovert, M. D., Richards, K. J., Johnson, S., & et al. (1995). Development of body image, eating disturbance, and general psychological functioning in female adolescents: Covariance structure modeling and

longitudinal investigations. *International Journal of Eating Disorders, 18*, 221-236.

Thompson, J. K., Coovert, M. D., & Stormer, S. M. (1999). Body image, social comparison, and eating disturbance: A covariance structure modeling investigation. *International Journal Eating Disorders, 26*, 43-51.

Thompson, J. K., Fabian, L. J., Moulton, D. O., Dunn, M. E., & Altabe, M. N. (1991). Development and validation of the Physical Appearance Related Teasing Scale (PARTS). *Journal of Personality Assessment, 56*, 513-521.

Thompson, J. K., & Heinberg, L. J. (1999). The media's influence on body image disturbance and eating disorders: We've reviled them, now can we rehabilitate them. *Journal of Social Issues, 55*, 339-353.

Thompson, J. K., Heinberg, L. J., Altabe, M. N., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment and treatment of body image disturbance.* Washington, DC: American Psychological Association.

Thompson, J. K., & Stice, E. (2001). Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science, 10*, 181-183.

Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A. S., & Heinberg, L. J. (2004). The Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3): Development and validation. *International Journal of Eating Disorders, 35*, 293-304.

Tiggemann, M., & Pickering, A. S. (1996). Role of television in adolescent women's body dissatisfaction and drive for thinness. *International Journal of Eating Disorders, 21*, 279-284.

Twamley, E., & Davis, M. C. (1999). Sociocultural model of eating disturbance: The effects of personal attributes and family environment. *Journal of Social and Clinical Psychology, 18*, 467-489.

Tylka, T. L. (2004). The relation between body dissatisfaction and eating disorder symptomatology: An analysis of moderating variables. *Journal of Counseling Psychology, 51*, 178-191.

Tyrka, A. R., Waldron, I., Graber, J. A., & Brooks-Gunn, J. (2002). Prospective predictors of the onset of anorexic and bulimic syndromes. *International Journal of Eating Disorders, 32*, 282-290.

Usmiani, S., & Daniluk, J. (1997). Mothers and their adolescent daughters: Relationship between self-esteem, gender role identity, and body image. *Journal of Youth & Adolescence, 26*, 45-62.

van den Berg, P., & Neumark-Sztainer, D. (2007). Fat 'n happy 5 years later: Is it bad for overweight girls to like their bodies? *Journal of Adolescent Health 41*, 415-417.

van den Berg, P., Wertheim, E. H., Thompson, J. K., & Paxton, S. J. (2002). Development of body image, eating disturbance, and general psychological functioning in adolescent females: A replication using covariance structure modeling in an australian sample. *International Journal of Eating Disorders, 32*, 46-51.

Vander Wal, J. S., & Thelen, M. H. (2000). Eating and body image concerns among obese and average-weight children. *Addictive Behaviors, 25*, 775-778.

Vartanian, L. R., Herman, C. P., & Polivy, J. (2005). Implicit and explicit attitudes toward fatness and thinness: The role of the internalization of societal standards. *Body Image, 2*, 373-381.

Vitousek, K., & Manke, F. (1994). Personality variables and disorders in Anorexia Nervosa and Bulimia Nervosa. *Journal of Abnormal Psychology, 103*, 137-147.

Vohs, K. D., Bardone, A. M., Joiner, T. E., Abramson, L. Y., & Heatherton, T. F. (1999). Perfectionism, perceived weight status, and self esteem interact to predict bulimic symptoms: A model of bulimic symptom development. *Journal of Abnormal Psychology, 108*, 695-700.

Vohs, K. D., Voelz, Z. R., Pettit, J. W., Bardone, A. M., Katz, J., Abramson, L. Y., et al. (2001). Perfectionism, body dissatisfaction, and self-esteem: An interactive model of bulimic symptom development. *Journal of Social & Clinical Psychology, 20*, 476-497.

Wade, T., Tiggemann, M., Heath, A. C., Abraham, S., & Martin, N. G. (1995). EPQ-R personality correlates of bulimia nervosa in an Australian twin population. *Personality and Individual Differences, 18*, 283-285.

Wakeling, A. (1996). Epidemiology of anorexia nervosa. . *Psychiatry Research 62*, 3-9.

Wang, Y., & Lobstein, T. (2006). Worldwide trends in childhood overweight and obesity. *International Journal of Pediatric Obesity, 1*, 11-25.

Warren, C. S., Cepeda-Benito, A., Gleaves, D. H., Moreno, S., Rodriguez, S., Fernandez, M., et al. (2008). English and Spanish versions of the Body Shape Questionnaire: Measurement equivalence across ethnicity and clinical status. *International Journal of Eating Disorders, 41*, 265-272.

Warren, C. S., Gleaves, D. H., Cepeda-Benito, A., del Carmen Fernandez, M., & Rodriguez-Ruiz, S. (2005). Ethnicity as a protective factor against internalization of a thin ideal and body dissatisfaction. *International Journal of Eating Disorders, 37*, 241-249.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.

Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin, 98*, 219-235.

Wells, J. E., Bushnell, J. A., Hornblow, A. R., Joyce, P. R., & Oakley-Browne, M. A. (1989). Christchurch psychiatric epidemiology study, part I: Methodology and lifetime prevalance for specific psychiatric disorders. *Australian and New Zealand Journal of Psychiatry, 23*, 315-326.

Wertheim, E. H., Koerner, J., & Paxton, S. J. (2001). Longitudinal predictors of restrictive eating and bulimic tendencies in three different age groups of adolescent girls. *Journal of Youth & Adolescence, 30*, 69-81.

Wertheim, E. H., Mee, V., & Paxton, S. J. (1999). Relationships among adolescent girls' eating behaviors and their parents' weight-related attitudes and behaviors. *Sex Roles, 41*, 169-187.

Wertheim, E. H., Paxton, S. J., Schutz, H. K., & Muir, S. L. (1997). Why do adolescent girls watch their weight? An interview study examining sociocultural pressures to be thin. *Journal of Psychosomatic Research, 42*, 345-355.

Wichstrom, L. (2000). Psychological and behavioral factors unpredictive of disordered eating: A prospective study of the general adolescent population in Norway. *International Journal of Eating Disorders, 28*, 33-42.

Wilksch, S. M., Tiggemann, M., & Wade, T. D. (2006). Impact of interactive school-based media literacy lessons for reducing internalization of media ideals in young adolescent girls and boys. *International Journal of Eating Disorders, 39*, 385-393.

Williams, J. M., & Currie, C. (2000). Self-esteem and physical development in early adolescence: Pubertal timing and body image. *Journal of Early Adolescence. , 20*, 129-149.

Williams, T. L., Gleaves, D. H., Cepeda-Benito, A., Erath, S. A., & Cororve, M. B. (2001). The reliability and validity of a group-administered version of the Body Image Assessment *Assessment, 8*, 37-46.

Williamson, D. A., Anderson, D. A., Jackman, L. P., & Jackson, S. R. (1995). Assessment of eating disordered thoughts, feelings and behaviours. In D. B. Allison (Ed.), *Handbook of assessment methods for eating behaviors and weight-related problems: Measures, theory and research* (pp. 347-386). London: Sage Publications Inc.

Williamson, D. A., Davis, C. J., Bennett, S. M., & Goreczny, A. J. (1989). Development of a simple procedure for assessing body image disturbances. *Behavioral Assessment, 11*, 433-446

Wilson, G. T. (1993). Relation of dieting and voluntary weight loss to psychological functioning and binge eating. *Archives of Internal Medicine, 119*, 727-730.

Wilson, G. T. (2002). The controversy over dieting. In C. G. Fairburn & K. D. Brownell (Eds.), *Eating disorders and obesity: A comprehensive handbook* (2 ed.). London: Guilford Press.

Wiseman, C. V., Gray, J. J., Mosimann, J. E., & Ahrens, A. H. (1992). Cultural expectations of thinness in women: An update. *International Journal of Eating Disorders, 11*, 85-89.

Wood, K. C., Becker, J. A., & Thompson, J. K. (1996). Body image dissatisfaction in preadolescent children. *Journal of Applied Developmental Psychology, 17*, 85-100.

Yamamiya, Y., Cash, T. F., Melnyk, S. E., Posavac, H. D., & Posavac, S. S. (2005). Women's exposure to thin-and-beautiful media images: Body image effects of media-ideal internalization and impact-reduction interventions. *Body Image, 2*, 74-80.

Table 1*: Means and Standard Deviations for Demographics of the Adolescent Sample*

	M	*SD*
Age (years)	15.52	1.05
SES	36.49	17.34
BMI ($kg/m^{2)}$	21.90	3.87
Height (cm)	165.07	6.76
Weight (kg)	59.65	10.73

Table 2: *Ethnic Grouping Distribution of the Adolescent Sample*

Ethnic Group Mix	Participants *n*[a]	Participants %
New Zealand European	171	73.70
Māori/Part Māori	24	10.30
Pacific Island/Part Pacific Islander	13	5.60
Asian/Part Asian	7	2.60
Other	7	3.00

[a] Participant *n* does not equal total sample size because some participants did not endorse her ethnic group.

Table 3: *Means and Standard Deviations for Variables of Interest in the Adolescent Sample*

Measures	*M*	*SD*
Eating pathology	9.76	11.14
Self-esteem	28.90	4.89
Body dissatisfaction	10.86	7.68
Figure drawings	1.12	1.33
Negative affect	21.54	6.59
Perfectionism-Socially prescribed	28.54	7.36
Perfectionism-Self-oriented	35.40	6.66
Teasing frequency	8.39	4.27
Effect of weight teasing	2.76	1.19
Media lose	7.09	3.03
Perceived pressure	15.67	4.41

Note. Eating pathology as measured by EAT-26; Self-esteem as measured by the RSE; Body dissatisfaction as measured by the EDI-BD; Figure drawings as measured by Stunkard Figure Drawings; Negative affect as measured by the PANAS; Perfectionism as measured by the CAPS; Teasing frequency and effect as measured by the POTS; Media lose refers to perceived pressure from media to lose weight and Perceived pressure refers to perceived pressure from significant others including, mother, father, best female friend and best male friend, as measured by Sociocultural Influences on Body Image and Body Change Questionnaire.

Table 4: *Loadings of Rotated Factor Matrix for the EAT-26 in the Adolescent Sample*

Item	Factor 1	Factor 2	Factor 3	1 Factor Solution
1. Am terrified about being overweight	**.70**	.21	-.14	.65
2. Avoid eating when I am hungry	**.53**	.52	.20	.75
3. Find myself preoccupied with food	**.55**	-.25	.44	.46
4. Have gone on eating binges when I feel that I may not be able to stop	**.72**	.54	.29	.70
6. Aware of the calorie content of foods that I eat	**.56**	.24	.01	.59
7. Particularly avoid food with high carbohydrate content (i.e. bread, rice, potatoes, etc.)	**.55**	.32	.10	.68
10. Feel extremely guilty after eating	**.76**	.25	.03	.79
11. Am preoccupied with a desire to be thinner	**.79**	.22	-.01	.77
12. Think about burning up calories when I exercise	**.72**	.15	-.08	.66
14. Am preoccupied with the thought of having fat on my body	**.71**	.37	.04	.79
17. Eat diet foods	**.54**	.49	.00	.69
18. Feel that food controls my life	**.57**	.12	.39	.64

21. Give too much time and thought to food	**.71**	.00	.35	.69
22. Feel uncomfortable after eating sweets	**.57**	.44	.16	.73
23. Engage in dieting behaviour	**.80**	.30	.10	.84
24. Like my stomach to be empty	**.59**	.47	.23	.78
5. Cut my food into small pieces	.23	**.59**	.11	.51
9. Vomit after I have eaten	.26	**.48**	.42	.56
15. Take longer than other to eat my meals	.06	**.67**	-.01	.37
16. Avoid eating foods with sugar in them	.42	**.60**	.00	.64
19. Display self control around food	.15	**.40**	.04	.33
25. Enjoy trying rich new foods	.10	**-.42**	.37	-.03
26. Have the impulse to vomit after meals	.30	**.45**	.41	.57
8. Feel that other would prefer if I ate more	.04	.29	**.75**	.30
13. Other people think that I am too thin	-.17	-.17	**.68**	-.06
20. Feel that others pressure me to eat	.32	.28	**.62**	.56
Percentage of variance explained	28.89	14.25	10.09	38.18

Note. Figures in bold indicate predominant factor loadings

Table 5: *Loadings of Rotated Factor Matrix for the CAPS in the Adolescent Sample*

Item	Factor 1	Factor 2
3. My parents don't always expect me to be perfect in everything I do	**.52**	.00
5. There are people in my life who expect me to be perfect	**.74**	.18
8. My family expects me to be perfect	**.79**	.12
10. People expect more from me than I am able to give	**.78**	.00
11. I get mad at myself when I make a mistake	**.45**	.29
12. Other people think that I have failed if I do not do my very best all the time	**.74**	.01
13. Other people always expect me to be perfect.	**.83**	.12
15. People around me expect me to be great at everything	**.70**	.29
17. My teachers expect my work to be perfect	**.42**	.37
19. I am always expected to do better than others.	**.57**	.35
21. I feel that people ask too much of me	**.70**	.08
1. I try to be perfect in every thing I do	.02	**.74**
2. I want to be the best at everything I do	.04	**.64**
4. I feel that I have to do my best all the time	.28	**.64**
6. I always try for the top score on a test	-.04	**.65**
7. It really bothers me if I don't do my best all the time	.14	**.63**
9. I don't always try to be the best	-.22	**.51**
14. I get upset if there is even one mistake in my work	.46	**.47**
16. When I do something, it has to be perfect	.26	**.64**

18. I do not have to be the best at everything I do	.06	**.18**
20. Even when I pass, I feel that I have failed if I didn't get one of the highest marks in the class	.34	**.60**
22. I can't stand to be less than perfect	.36	**.59**
Percentage of variance explained	25.54	19.55

Note. Figures in bold indicate predominant factor loadings

Table 6: *Loadings of Rotated Factor Matrix for the PANAS in the Adolescent Sample*

Item	Factor 1	Factor 2
1. Interested	**.67**	-.05
3. Excited	**.65**	-.11
5. Strong	**.30**	.25
9. Enthusiastic	**.78**	.04
10. Proud	**.71**	-.11
12. Alert	**.49**	.30
14. Inspired	**.71**	.11
16. Determined	**.70**	.07
17. Attentive	**.51**	.17
19. Active	**.70**	-.05
2. Distressed	-.10	**.61**
4. Upset	-.19	**.71**
6. Guilty	.00	**.51**
7. Scared	.05	**.67**
8. Hostile	.11	**.62**
11. Irritable	.17	**.54**
13. Ashamed	-.06	**.51**
15. Nervous	.18	**.53**
18. Jittery	.23	**.55**
Percentage of variance explained	20.54	19.58

Note. Figures in bold indicate predominant factor loadings

Table 7: *Loadings of Factor Matrix for the RSE in the Adolescent Sample*

Item	Factor 1
1. I feel that I am a person of worth, at least on an equal plane with others.	**-.63**
2. I feel that I have a number of good qualities.	**-.70**
3. All in all, I am inclined to feel that I am a failure.	**.66**
4. I am able to do things as well as most other people.	**-.49**
5. I feel I do not have much to be proud of.	**.78**
6. I take a positive attitude toward myself.	**-.68**
7. One the whole, I am satisfied with myself.	**-.69**
8. I wish I could have more respect for myself	**.60**
9. I certainly feel useless at times.	**.70**
10. At times, I think I am no good at all.	**.76**
Percentage of variance explained	45.20

Table 8: *Loadings of Rotated Factor Matrix for the POTS in the Adolescent Sample*

Item	Factor 1	Factor 2
1. People made fun of you because you were heavy	**.85**	.19
2. People made jokes about you being heavy.	**.87**	.18
3. People laughed at you for trying out for sports because you were too heavy.	**.84**	.15
4. People called you names like "fatso."	**.82**	.14
5. People pointed at you because you were overweight.	**.83**	.19
6. People snickered about your heaviness when you walked into a room alone.	**.82**	.19
7. People made fun of you by repeating something you said because they thought it was dumb.	.26	**.73**
8. People made fun of you because you were scared to do something.	.39	**.57**
9. People said you acted dumb.	.18	**.82**
10. People laughed at you because you did not understand something.	.07	**.88**
11. People teased you because you did not get a joke.	.07	**.76**
Percentage of variance explained	40.71	27.86

Note. Figures in bold indicate predominant factor loadings

Table 9: *Zero-Order Correlations between Variables of Interest and Cronbach's Alphas for each Measure in the Adolescent Sample*

	α	1	2	3	4	5	6	7	8	9	10	11
1. Eating pathology	*.90*	.21**	.53**	.54**	-.41**	.47**	.32**	.51**	.25**	.29**	.31**	
2. BMI		*N/A*	.49**	.48**	-.27**	.12	.09	.24**	.51**	.05	.14	
3. Figure drawings			*N/A*	.71**	-.34**	.25**	.22*	.37**	.37**	.28**	.25**	
4. Body dissatisfaction				*.83*	-.52**	.26**	.19*	.39**	.42**	.30**	.32**	
5. Self-esteem					*.86*	-.29**	-.09	-.42**	-.31***	-.02	-.18*	
6. Perfectionism-SP						*.82*	.62**	.30**	.07	.09	.24**	
7. Perfectionism- SO							*.75*	.26**	.11	.07	.08	
8. Negative affect								*.87*	.18*	.14	.25**	
9. Teasing frequency									*.88*	.13	.27**	
10. Media lose										*.82*	.11	
11. Perceived pressure											*.73*	

*p<.05. **p<.01. Note: Perfectionism- SP refers to socially prescribed perfectionism and perfectionism-SO refers to self-oriented perfectionism

Table 10: *Summary of Hierarchical Regression Analysis for Variables Predicting Adolescent Eating Pathology*

Predictors	R^2	Adj. R^2	*PRESS*	β	*p* value
Step One	.48**	.44**	.41		
BMI				-.06	.45
Self-esteem				-.08	.31
Body dissatisfaction				.24**	.01
Negative affect				.26**	.00
Perfectionism - Self oriented				.03	.76
Perfectionism–Socially prescribed				.27**	.00
Teasing frequency				.05	.52
Media lose				.13	.06
Perceived pressure				.04	.55

** $p < .01$ level

Table 11: *Summary of Hierarchical Regression Analysis for Variables Predicting Adolescent Eating Pathology, including Effect of Weight Teasing*

Predictors	R^2	Adj. R^2	*PRESS*	β	*p* value
Step 1	.62**	.55**	.54		
BMI				-.07	.50
Self-esteem				-.07	.61
Body dissatisfaction				.27*	.04
Negative affect				.19	.14
Perfectionism - Self oriented				.01	.91
Perfectionism-Socially prescribed				.36**	.01
Effect of weight teasing				.09	.48
Media lose				.05	.66
Perceived pressure				.10	.33

* $p < .05$; ** $p < .01$

Table 12: *Summary of Zero-Order Correlations between Variables of Interest, including Effect of Weight Teasing, and Eating Pathology in the Adolescent Sample*

	Eating Pathology
BMI	.16
Body dissatisfaction	.60**
Figure drawings	.62**
Self-esteem	-.39**
Perfectionism - Socially prescribed	.67**
Perfectionism – Self oriented	.42**
Negative affect	.57**
Effect of weight teasing	.49**
Media lose	.26*
Perceived pressure	.40**

$p < .05$; ** $p < .01$

Table 13: *Comparison of Participants who indicated Effect of Weight Teasing vs. No Effect of Weight Teasing across Variables in the Adolescent Sample*

	Effect of weight teasing *M (SD)*	No Effect of weight teasing *M (SD)*	*t* value	Cohen's *d*
BMI	23.81 (4.40)	20.65 (2.85)	5.69**	0.85
Eating pathology	13.72 (13.39)	6.99 (8.29)	4.16**	0.60
Body dissatisfaction	14.93 (7.23)	8.02 (6.66)	7.23**	0.99
Figure drawings	1.74 (1.28)	0.68 (1.19)	6.42**	0.86
Negative affect	22.53 (6.35)	20.84 (6.69)	1.80	0.26
Self-esteem	27.43 (4.68)	29.95 (4.79)	-3.77**	-0.53
Perfectionism-SP	29.22 (7.45)	28.07 (7.29)	1.17	0.15
Perfectionism-SO	36.15 (6.80)	34.87 (6.53)	1.43	0.19
Media lose	11.86 (2.39)	10.21 (3.26)	4.39**	0.58
Perceived pressure	17.56 (4.64)	14.31 (3.70)	5.68**	0.77

** $p < .01$

Note. Perfectionism - SP refers to socially prescribed perfectionism and Perfectionism SO refers to self-oriented perfectionism

Table 14: *Summary of Moderator Effects from Regression Analyses in the Adolescent Sample*

Predictor	B	SE B	β	*p* value
Perfectionism-SO x Body dissatisfaction	2.39	.63	.23	.00
Perfectionism-SP x Body dissatisfaction	2.51	.62	.24	.00
Self-esteem x Body dissatisfaction	-1.91	.63	-.19	.00
Perceived pressure x Body dissatisfaction	1.46	.73	.13	.05
Negative affect x Body dissatisfaction	2.33	.61	.23	.00
Media lose x Body dissatisfaction	2.23	.68	.21	.00
Teasing frequency x Body dissatisfaction	1.15	.81	.11	.16

Note. Perfectionism - SP refers to socially prescribed perfectionism and Perfectionism SO refers to self-oriented perfectionism

Table 15: *Means and Standard Deviations for Demographics of the Preadolescent Sample*

	M	*SD*
Age (years)	11.25	0.73
SES code	45.15	15.85
BMI (kg/m^2)	19.71	3.51
Height (cm)	153.42	8.35
Weight (kg)	46.77	10.94

Table 16: *Ethnic Grouping Distribution of the Preadolescent Sample*

Ethnic Group/Mix	Participants *n*	Participants %
New Zealand European	136	81.40
Māori/Part Māori	10	6.00
Pacific Island/Part Pacific Islander	1	0.60
Asian/Part Asian	17	10.20
Other	3	1.80

Table 17: *Means and Standard Deviations for Variables of Interest in the Preadolescent Sample*

Measures	*M*	*SD*
Eating pathology	10.03	7.95
Self-esteem	30.29	4.95
Body dissatisfaction	7.05	7.00
Figure drawings	0.73	1.08
Negative affect	26.69	8.72
Perfectionism - Self oriented	24.04	7.82
Perfectionism - Socially prescribed	34.65	8.24
Teasing frequency	8.28	4.42
Effect of weight teasing	2.53	1.14
Media lose	7.95	3.93
Perceived pressure	14.07	5.32

Note. Eating pathology measured by ChEAT; Self-esteem measured by the RSE; Body dissatisfaction measured by the EDI-BD; Figure drawings as measured by Collins Figure Drawings; Negative affect as measured by the PANAS-C; Perfectionism measured by the CAPS; Teasing frequency and effect measured by the POTS; Media lose refers to perceived pressure from media to lose weight and perceived pressure refers to perceived pressure from significant others including, mother, father, best female friend and best male friend, measured by Sociocultural Influences on Body Image and Body Change Questionnaire.

Table 18: *Loadings of Rotated Factor Matrix for the ChEAT in the Preadolescent Sample*

Item	Factor 1	Factor 2	Factor 3	Factor 4	1 Factor Solution
1. I am scared about being overweight.	**.80**	.17	.05	.06	.71
2. I stay away from eating when I am hungry.	**.47**	.40	-.07	-.05	.49
4. I have gone on eating binges where I feel that I might not be able to stop.	**.50**	-.37	.30	.18	.38
10. I feel very guilty after eating.	**.63**	.06	.35	-.11	.60
11. I think a lot about wanting to be thinner.	**.90**	.08	.28	-.07	.76
12. I think about burning up energy (calories) when I exercise.	**.69**	.30	.12	.06	.74
14. I think a lot about having fat on my body.	**.83**	.13	-.07	.04	.72
17. I eat diet foods.	**.46**	.43	.15	-.09	.60
23. I have been dieting	**.46**	.32	.46	-.01	.71
5. I cut my food into small pieces.	.08	**.30**	.13	.01	.26
6. I am aware of the energy (calorie) content in foods that I eat.	.12	**.61**	.12	.11	.43
7. I try to stay away from foods such as breads, potatoes and rice.	.13	**.63**	.07	-.01	.41

16. I stay away from foods with sugar in them.	.02	**.77**	.10	.07	.02
22. I feel uncomfortable after eating sweets.	.22	**.39**	.39	.10	.54
24. I like my stomach to be empty.	.36	**.48**	.25	.21	.63
25. I enjoy trying new rich foods.	-.11	**-.25**	.23	-.05	-.09
3. I think about food a lot of the time.	.15	-.43	**.43**	-.19	.10
9. I vomit after I have eaten.	.08	.06	**.35**	.09	.26
15. I take longer than others to eat my meals.	.01	.14	**.37**	.04	.26
18. I think that food controls my life.	.17	-.03	**.64**	-.05	.42
21. I give to much time and thought to food.	.26	.15	**.60**	.19	.54
26. I have the urge to vomit after eating.	.02	.32	**.69**	-.10	.47
8. I feel that others would like me to eat more.	.03	.09	.10	**.83**	.20
13. Other people think I am too thin.	-.03	-.04	-.07	**.84**	.02
19. I can show self-control around food	-.20	.16	-.37	**.38**	-.21
20. I feel that others pressure me to eat.	.11	.15	.36	**.63**	.44
Percentage of variance explained	16.67	11.52	10.84	8.41	23.57

Note. Figures in bold indicate predominant factor loadings

Table 19: *Loadings of Rotated Factor Matrix for the CAPS in the Preadolescent Sample*

Item	Factor 1	Factor 2
3. My parents don't always expect me to be perfect in everything I do	**-.25**	-.02
5. There are people in my life who expect me to be perfect	**.64**	.21
8. My family expects me to be perfect	**.69**	.23
10. People expect more from me than I am able to give	**.75**	-.16
12. Other people think that I have failed if I do not do my very best all the time	**.66**	.00
13. Other people always expect me to be perfect.	**.79**	.19
15. People around me expect me to be great at everything	**.75**	.18
17. My teachers expect my work to be perfect	**.46**	.39
19. I am always expected to do better than others	**.39**	.33
21. I feel that people ask too much of me	**.73**	-.04
1. I try to be perfect in every thing I do	.05	**.66**
2. I want to be the best at everything I do.	.05	**.55**
6. I always try for the top score on a test	.01	**.57**
7. It really bothers me if I don't do my best all the time.	.17	**.52**
11. I get mad at myself when I make a mistake	.44	**.44**
14. I get upset if there is even one mistake in my work	.38	**.53**
16. When I do something, it has to be perfect	.38	**.69**
18. I do not have to be the best at everything I do	-.11	**-.44**

20. Even when I pass, I feel that I have failed if I didn't get one of the highest marks in the class	.46	**.43**
22. I can't stand to be less than perfect	.38	**.56**
Percentage of variance explained	22.43	18.61

Note. Figures in bold indicate predominant factor loadings

Table 20: *Loadings of Rotated Factor Matrix for the PANAS-C in the Preadolescent Sample*

Item	Factor 1	Factor 2
2. Sad	**.75**	-.24
3. Frightened	**.48**	.09
6. Ashamed	**.43**	-.21
7. Upset	**.81**	-.19
10. Nervous	**.42**	.09
11. Guilty	**.46**	.11
13. Scared	**.56**	-.04
15. Miserable	**.71**	-.19
16. Jittery	**.49**	.14
20. Afraid	**.60**	-.09
22. Lonely	**.56**	-.17
23. Mad	**.66**	-.08
25. Disgusted	**.47**	.02
27. Blue	**.74**	-.15
29. Gloomy	**.70**	.06
1. Interested	-.01	**.39**
4. Alert	.03	**.44**
5. Excited	.12	**.46**
8. Happy	-.14	**.68**
9. Strong	-.03	**.50**

12. Energetic	.02	**.68**
14. Calm	-.14	**.25**
17. Cheerful	-.20	**.69**
18. Active	-.15	**.58**
19. Proud	.01	**.60**
21. Joyful	-.15	**.65**
24. Fearless	.04	**.35**
26. Delighted	.04	**.71**
28. Daring	.03	**.56**
30. Lively	-.14	**.64**
Percentage of variance explained	18.56	16.74

Note. Figures in bold indicate predominant factor loadings

Table 21: *Loadings of Factor Matrix for the RSE in the Preadolescent Sample*

Item	Factor 1
1. I feel that I am a person of worth, at least on an equal plane with others.	-.50
2. I feel that I have a number of good qualities.	-.62
3. All in all, I am inclined to feel that I am a failure.	.63
4. I am able to do things as well as most other people.	-.58
5. I feel I do not have much to be proud of.	-.62
6. I take a positive attitude toward myself.	.70
7. One the whole, I am satisfied with myself.	-.69
8. I wish I could have more respect for myself.	.68
9. I certainly feel useless at times.	.71
10. At times, I think I am no good at all.	.73
Percentage of variance explained	42.24

Table 22: *Loadings of Rotated Factor Matrix for the POTS in the Preadolescent Sample*

Item	Factor 1	Factor 2
1. People made fun of you because you were heavy	**.86**	.24
2. People made jokes about you being heavy.	**.84**	.28
3. People laughed at you for trying out for sports because you were too heavy.	**.86**	.30
4. People called you names like "fatso."	**.87**	.21
5. People pointed at you because you were overweight.	**.84**	.26
6. People snickered about your heaviness when you walked into a room alone.	**.86**	.23
7. People made fun of you by repeating something you said because they thought it was dumb.	.22	**.69**
8. People made fun of you because you were scared to do something.	.35	**.73**
9. People said you acted dumb.	.14	**.79**
10. People laughed at you because you did not understand something.	.21	**.75**
11. People teased you because you did not get a joke.	.22	**.74**
Percentage of variance explained	42.39	28.21

Note. Figures in bold indicate predominant factor loadings

Table 23: *Zero-order Correlations between Variables of Interest and Cronbach's Alpha (α) for each Measure in the Preadolescent Sample*

	α	1	2	3	4	5	6	7	8	9	10	11
1. Eating pathology		*.80*	.29**	.43**	.69**	-.47**	.36**	.38**	.28**	.50**	.44**	.38**
2. BMI			*N/A*	.56**	.56**	-.36**	-.05	-.03	.21*	.53**	.40**	.60**
3. Figure drawings				*N/A*	.67**	-.41**	.15*	.21*	.29**	.44**	.47**	.50**
4. Body dissatisfaction					*.92*	-.60**	.17	.23*	.43**	.66**	.56**	.59**
5. Self-esteem						*.85*	-.25**	-.08	-.45**	-.51**	-.38**	-.39**
6. Perfectionism-SP							*.85*	.54**	.25**	.18	.25	.24**
7. Perfectionism-SO								*.81*	.02	.16	.27**	.17
8. Negative affect									*.87*	.33**	.31**	.34**
9. Teasing frequency										*.94*	.48**	.73**
10. Media lose											*.88*	.53**
11. Perceived pressure												*.76*

*$p < .05$. **$p < .01$. Note: Perfectionism- SP refers to socially prescribed perfectionism and perfectionism-SO refers to self-oriented perfectionism

Table 24: *Summary of Hierarchical Regression Analysis for Variables Predicting Preadolescent Eating Pathology*

Predictors	R^2	Adj. R^2	*PRESS*	β	*p* value
Step 1	.53**	.49**	.39		
BMI				-.06	.55
Self-esteem				-.06	.52
Body dissatisfaction				.54**	.00
Negative affect				-.04	.58
Perfectionism – Self oriented				.14	.10
Perfectionism–Socially prescribed				.18*	.04
Teasing frequency				.24*	.03
Media lose				.02	.78
Perceived pressure				-.19	.10

*$p < .05$; ** $p < .01$.

Table 25: *Summary of Hierarchical Regression Analysis for Variables Predicting Eating Pathology, including Effect of Weight Teasing, in the Preadolescent Sample*

Predictors	R^2	Adj. R^2	*PRESS*	β	*p* value
Step 2	.74**	.68**	.48		
BMI				-.01	.92
Self-esteem				-.18	.45
Body dissatisfaction				.83**	.00
Negative affect				-.10	.26
Perfectionism – Self oriented				.07	.57
Perfectionism– Socially prescribed				.47**	.00
Effect of weight teasing				-.12	.40
Media lose				.03	.79
Perceived pressure				-.12	.35

** $p < .01$

Table 26: *Summary of Zero-order Correlations between Variables of Interest, including Effect of Weight Teasing, and Eating Pathology in the Preadolescent Sample.*

	Eating Pathology
BMI	.20
Body dissatisfaction	.72**
Figure drawings	.42**
Self-esteem	-.48**
Perfectionism-Socially prescribed	.45**
Perfectionism-Self oriented	.43**
Negative affect	.19
Effect of weight teasing	.48**
Media lose	.37**
Perceived pressure	.30*

*$p < .05$; ** $p < .01$.

Table 27: *Comparison of Participants who Indicated Effect of Weight Teasing vs. No Effect of Weight Teasing across Variables in the Preadolescent Sample*

	Effect of Weight Teasing *M* (*SD*)	No Effect of Weight Teasing *M* (*SD*)	*t* value	Cohen's *d*
BMI	21.41 (4.03)	18.44 (2.39)	5.56**	0.90
Eating pathology	12.77 (9.31)	8.06 (6.15)	3.45**	0.60
Body dissatisfaction	10.97 (7.68)	3.86 (4.33)	6.86**	1.40
Figure drawings	1.22 (1.03)	0.36 (0.98)	5.49**	0.86
Negative affect	29.12 (8.73)	24.99 (8.36)	2.97**	0.48
Self-esteem	18.55 (5.33)	21.56 (4.26)	-4.01**	-0.62
Perfectionism-Socially prescribed	25.87 (8.41)	22.63 (7.07)	2.57*	0.42
Perfectionism –Self oriented	36.33 (8.11)	33.25 (8.03)	2.40*	0.38
Media lose	9.93 (3.94)	6.47 (3.22)	6.26**	0.96
Perceived pressure	17.26 (6.13)	11.69 (2.90)	7.14**	1.16

*$p < .05$; ** $p < .01$.

Table 28: *Summary of Moderator Effects from Regression Analyses in the Preadolescent Sample*

Predictor	B	SE B	β	*p* value
Perfectionism - SO x Body dissatisfaction	1.50	.47	.21	.00
Perfectionism - SP x Body dissatisfaction	1.34	.54	.16	.01
Negative affect x Body dissatisfaction	-.85	.60	-.10	.16
Self-esteem x Body dissatisfaction	-1.14	.57	-.14	.05
Teasing frequency x Body dissatisfaction	.13	.64	.03	.84
Media lose x Body dissatisfaction	1.24	.54	.17	.02
Perceived pressure x Body dissatisfaction	.30	.50	.06	.54

Note. Perfectionism - SP refers to socially prescribed perfectionism and Perfectionism SO refers to self oriented perfectionism

Table 29: *Means and Standard Deviations of Demographics for an Adult Women Sample*

	M	*SD*
Age (years)	20.75	4.52
SES code	46.41	14.70
BMI (kg/m^2)	22.54	3.96
Height (cm)	166.54	6.45
Weight (kg)	62.48	11.10

Table 30: *Ethnic Grouping of the Adult Women Sample*

Ethnic Group/Mix	Participants *n*	Participants %
New Zealand European	168	82.40
Māori/Part Māori	8	3.90
Pacific Island/Part Pacific Islander	3	1.50
Asian/Part Asian	22	10.80
Other	3	1.50

Table 31: *Means and Standard Deviations for Variables of Interest for an Adult Women Sample*

Measures	*M*	*SD*
Information	30.98	7.82
Thin-ideal internalisation	31.45	7.94
Social pressure	25.13	6.95
Perfectionism	99.74	20.52
Doubt over actions	11.24	3.78
Concern over mistakes	22.26	7.72
Parental criticism	7.92	3.56
Parental expectations	12.90	4.12
Personal standards	23.05	5.77
Organisation	22.37	5.15
Anti-fat attitudes	104.13	23.90
Anorectic cognitions	63.00	15.99

Note. Information, Social Pressure and Thin Ideal Internalisation were measured by respective subscales on the SATAQ-3; Perfectionism was measured by the Frost MPS; Antifat Attitudes were measured by the AFAT and Anorectic Cognitions were measured by the MAC.

Table 32: *Loadings of Rotated Factor Matrix for the AFAT in an Adult Women Sample*

Item	Factor 1	Factor 2	Factor 3	1 Factor Solution
2. If I were single, I would date a fat person	**-.49**	-.13	-.15	-.48
3. Jokes about fat people are funny	**.26**	.08	.15	.29
4. Most fat people buy too much junk food	**.42**	.13	.38	.53
5. Fat people are physically unattractive	**.63**	-.10	.30	.52
6. Fat people shouldn't wear revealing clothing in public.	**.42**	-.27	.38	.31
7. If someone in my family were fat, I'd be ashamed of him or her	**.57**	.27	.17	.63
8. I can't stand to look at fat people	**.62**	.29	.10	.65
10. Fat people are disgusting	**.60**	.38	.01	.65
11. If I have the choice, I'd rather not sit next to a fat person	**.69**	.13	.04	.58
12. Fat people don't care about anything except eating	**.42**	.41	.23	.66

13. I'd lose respect for a friend who started getting fat	**.39**	.19	.18	.46
16. Society is too tolerant of fat people	**.37**	.27	.37	.57
17. When fat people exercise, they look ridiculous	**.52**	.27	.12	.52
18. I hate it when fat people take up more room than they should in a theater, or on a bus or a plane	**.68**	.16	.38	.62
19. Most fat people are lazy	**.50**	.32	.38	.70
23. Being fat is sinful	**.44**	.27	.39	.46
24. It's disgusting to see fat people eating	**.52**	.23	.26	.61
25. Fat people have no will power	**.45**	.27	.44	.66
32. Its hard not to stare at fat people because they are so unattractive.	**.61**	.31	-.31	.64
33. If I owned a business, I would not hire fat people because of the way they look.	**.53**	.36	.10	.54
34. I'd feel self-conscious being seen in public with a fat person	**.58**	.29	.08	-.37
36. I would not want to continue in a romantic relationship if my partner became fat	**.53**	.15	.17	-.47
37. The existence of organizations to lobby for the rights of fat people in our society is a good idea	**-.29**	-.07	-.23	-.34

38. I don't understand how someone could be sexually attracted to a fat person	**.58**	.17	.30	.64
40. People who are fat have as much physical coordination as anyone.	**- .30**	-.24	-.05	-.37
14. Most fat people are boring I	.20	**.68**	.12	.58
15. I can't believe someone of average weight would marry a fat person	.49	**.50**	.03	.64
20. Most fat people don't care about anyone but themselves	.13	**.55**	.29	.52
21. Fat people are just as competent in their work as anyone.	-.03	**-.39**	-.03	-.30
27. Fat people don't care about their appearance	.25	**.41**	.28	.58
28. Most fat people are moody and hard to get along with	.26	**.63**	.12	.47
30. Most fat people don't keep their surroundings neat and clean	.25	**.65**	.09	.59
41. Fat people are unclean	.35	**.60**	.19	.66
44. It's hard to take fat people seriously	.33	**.57**	.25	.66
46. Fat people obviously have a character flaw, otherwise they wouldn't become fat	.03	**.55**	.37	.48
47. It makes me angry to hear anybody say insulting things about people because they are fat	-.09	**-.23**	-.20	-.28
9. If fat people don't get hired, its their own fault	.37	**.42**	.18	.57

26. I prefer not to associate with fat people	.44	**.47**	.10	.61
29. If bad things happen to fat people, they deserve it	.10	**.63**	-.07	.39
1. There's no excuse for being fat.	.06	.10	**.69**	.39
22. If fat people really wanted to lose weight they could	-.05	.07	**.63**	.27
31. Society should respect the rights of fat people	-25	-.17	**-.31**	-.34
35. The idea that genetics cause people to be fat is just an excuse	.09	.00	**.66**	.66
39. If fat people knew how bad they looked, they would lose weight	.15	.42	**.47**	.54
42. Fat people should be encouraged to accept themselves the way they are	-.29	-.20	**-.34**	-.47
43. Most fat people will latch onto almost any excuse for being fat	.30	.10	**.53**	.50
45. Fat people do not necessarily eat more than other people	-.18	-.17	**-.47**	-.43
Percentage of variance explained	16.48	12.21	8.99	28.25

Note. Figures in bold indicate predominant factor loadings

Table 33: *Loadings of Rotated Factor Matrix for the SATAQ-3 in an Adult Women Sample*

Item	Factor 1	Factor 2	Factor 3	Factor 4
1. TV programs are an important source of information about fashion and "being attractive	**.81**	-.02	.11	-.04
5. TV commercials are an important source of information about fashion and "being attractive	**.77**	.10	.03	-.02
9. Music videos on TV are not an important source of information about fashion and "being attractive."	**-.47**	.12	-.13	-.12
13. Magazine articles are not an important source of information about fashion and "being attractive	**-.55**	-.15	-.06	-.06
17. Magazine advertisements are an important source of information about fashion and "being attractive."	**.82**	.25	.15	.01
21. Pictures in magazines are an important source of information about fashion and "being attractive."	**.78**	.28	.14	-.05
25. Movies are an important source of information about fashion and "being attractive."	**.75**	.23	.19	.11

28. Movie stars are not an important source of information about fashion and "being attractive."	**-.56**	-.14	-.01	-.10
29. Famous people are an important source of information about fashion and "being attractive."	**.73**	.29	.06	.01
3. I do not care if my body looks like the body of people who are on TV.	.01	**-.51**	-.23	-.09
4. I compare my body to the bodies of people who are on TV.	.19	**.63**	.39	.11
7. I would like my body to look like the models who appear in magazines.	.25	**.79**	.04	.07
8. I compare my appearance to the appearance of TV and movie stars.	.13	**.75**	.22	.10
11. I would like my body to look like the people who are in movies.	.36	**.68**	.23	.30
12. I do not compare my body to the bodies of people who appear in magazines.	-.17	**-.69**	-.31	-.19
15. I wish I looked like the models in music videos.	.36	**.63**	.26	.21
16. I compare my appearance to the appearance of people in magazines.	.20	**.67**	.38	.19
27. I do not try to look like the people on TV	-.16	**-.42**	-.13	-.18
2. I've felt pressure from TV or magazines to lose weight.	.15	.17	**.80**	.18
6. I do not feel pressure from TV or magazines to look pretty.	.05	-.41	**-.45**	.05
10. I've felt pressure from TV and magazines to be thin	.14	.29	**.77**	.17

14. I've felt pressure from TV or magazines to have a perfect body	.17	.46	**.69**	.11
18. I've felt pressure from TV or magazines to diet	.12	.15	**.79**	.12
22. I've felt pressure from TV or magazines to exercise	.12	.15	**.75**	.15
26. I've felt pressure from TV or magazines to change my appearance	.18	.47	**.61**	.06
19. I do not wish to look as athletic as the people in magazines.	.04	-.08	-.02	**-.68**
20. I compare my body to that of people in "good shape"	.03	.16	.40	**.49**
23. I wish I looked as athletic as sports stars	.10	.12	.11	**.88**
24. I compare my body to that of people who are athletic	.02	.14	.20	**.82**
30. I try to look like sports athletes	.01	.14	.12	**.78**
Percentage of variance explained				

Note. Figures in bold indicate predominant factor loadings

Table 34: *Loadings of Rotated Factor Matrix for the MPS in an Adult Women Sample*

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
4. If I do not set the highest standards for myself, I am likely to end up a second-rate person	**.49**	.05	.32	.16	.26	.11
9. If I fail at work/school, I am a failure as a person.	**.67**	.00	.21	.07	.27	-.03
10. I should be upset if I make a mistake	**.62**	.05	.08	.18	.16	-.03
13. If someone does a task at work/school better than me, then I feel like I failed the whole task.	**.64**	.08	.12	.19	.32	-.23
14. If I fail partly, it is as bad as being a complete failure	**.71**	.04	.15	.21	.19	-.08
21. People will probably think less of me if I make a mistake	**.77**	.07	.08	.12	.11	.13
23. If I do not do as well as other people, it means I am an inferior human being	**.71**	.04	.06	.09	.16	.20
25. If I do not do well all the time, people will not respect me	**.77**	-.06	.26	.09	.00	.18
34. The fewer mistakes I make, the more people will like me	**.75**	.02	.04	.06	-.06	.27
2. Organization is very important to me.	-.03	**.80**	.20	.03	.07	.03

7. I am a neat person.	.03	**.85**	.13	.02	.07	-.05
8. I try to be an organized person.	.02	**.76**	.17	.05	.09	.02
27. I try to be a neat person	.02	**.82**	.10	-.02	.10	-.07
29. Neatness is very important to me.	.13	**.85**	.15	.06	.07	.11
31. I am an organized person.	.03	**.82**	.24	.00	-.09	.02
6. It is important to me that I be thoroughly competent in everything I do	.07	.19	**.63**	.15	.22	-.12
12. I set higher goals for myself than most people	.21	.18	**.79**	.03	-.10	.12
16. I am very good at focusing my efforts on attaining a goal.	-.08	.27	**.65**	-.04	-.22	.06
18. I hate being less than the best at things	.43	.15	**.47**	.21	.34	-.11
19. I have extremely high goals	.16	.24	**.84**	.05	.05	.03
24. Other people seem to accept lower standards from themselves than I do.	.22	.07	**.68**	.13	.14	.12
30. I expect higher performance in my daily tasks than most people	.28	.29	**.66**	.10	.02	.11
1. My parents set very high standards for me	.05	.11	.09	**.74**	-.05	-.18
11. My parents wanted me to be the best at everything	.13	-.04	.16	**.72**	.09	.05

15. Only outstanding performance is good enough in my family	.31	.08	.09	**.61**	.00	.23
20. My parents have expected excellence from me	.03	.09	.28	**.77**	.00	.00
22. I never felt like I could meet my parents' expectations	.30	-.06	-.03	**.63**	.20	.45
26. My parents have always had higher expectations for my future than I have.	.15	-.01	-.16	**.66**	.21	.23
17. Even when I do something very carefully, I often feel that it is not quite done right	.31	.05	.24	.28	**.58**	-.02
28. I usually have doubts about the simple everyday things I do.	.53	-.02	-.18	.09	**.56**	.01
32. I tend to get behind in my work because I repeat things over and over	.25	.18	.00	.00	**.72**	.22
33. It takes me a long time to do something 'right'.	.27	.13	.04	.05	**.72**	.25
3. As a child, I was punished for doing things less than perfectly	.07	.13	.13	.37	.15	**.68**
5. My parents never tried to understand my mistakes	.14	-.04	.12	.09	.15	**.74**
35. I never felt like I could meet my parents' standards.	.35	-.10	-.07	.67	.09	**.36**
Percentage of variance explained	13.83	12.65	11.15	10.31	6.79	5.70

Note: Figures in bold indicate predominant factor loadings

Table 35: *Loadings of Rotated Factor Matrix for the MAC in an Adult Women Sample*

Item	Factor 1	Factor 2	Factor 3	1 Factor Solution
1. I feel victorious over my hunger when I am able to refuse sweets	**.73**	.25	.04	.65
4. I am proud of myself when I control my urge to eat	**.72**	.27	-.15	.73
9. When I am overweight, I am not happy with my appearance. Gaining weight will take away the happiness I have with myself	**.74**	.16	-.09	.65
11. When I eat something fattening, it doesn't bother me that I have temporarily let myself eat something I'm not supposed to	**-.58**	-.21	.20	-.61
13. If my weight goes up, my self-esteem goes down	**.70**	.21	-.20	.70
18. Having a second serving of a high calorie food I really like doesn't make me feel guilty	**-.69**	-.21	.11	-.65
20. When I overeat, it has no effect on whether or not I feel like a strong person	**-.79**	-.18	.16	-.72
23. I rarely criticize myself if I have let my weight go up a few pounds	**-.67**	-.14	.15	-.61
2. No matter how much I weigh, fats, sweets, breads, and cereals are bad food because they	.41	**.61**	-.05	.68

always turn into fat				
3. No one likes fat people; therefore, I must remain thin to be liked by others	.31	**.45**	-.25	.59
5. When I eat desserts, I get fat. Therefore, I must never eat desserts so I won't be fat	.44	**.56**	-.17	.71
7. If I don't establish a daily routine, everything will be chaotic and I won't accomplish anything	.22	**.47**	.18	.37
12. If I eat a sweet, it will be converted instantly into stomach fat	.13	**.65**	-.17	.54
14. I can't enjoy anything because it will be taken away	.14	**.70**	-.26	.62
16. When I see someone who is overweight, I worry that I will be like him/her	.39	**.51**	.00	.58
17. All members of the opposite sex want a mate who has a perfect, thin body	.30	**.45**	-.24	.57
19. If I can cut out all carbohydrates, I will never be fat	.03	**.60**	-.28	.49
22. If I gain one pound, I'll go on and gain a hundred pounds, so I must keep precise control of my weight, food, and exercise	.31	**.63**	-.19	.67
6. How much I weigh has little to do with how popular I am	-.05	.00	**.46**	-.21
8. My friends will like me regardless of how much I weigh	-.03	-.22	**.62**	-.38
10. People like you because of your personality, not whether you are overweight or not	-.14	-.16	**.70**	-.45

15. It is more important to be a good person than it is to be thin	-.02	-.39	**.57**	-.46
21. Members of the opposite sex are more interested in "who" you are rather than whether or not you are thin	-.28	-.06	**.55**	-.44
24. I try to attract members of the opposite sex through my personality rather than by being thin	-.20	-.11	**.65**	-.45
Percentage of variance explained	20.70	15.96	11.24	33.38

Note: Figures in bold indicate predominant factor loadings

Table 36: *Loadings of Rotated Factor Matrix for the MPS Subscales in an Adult Women Sample*

Predictor variables	Factor One (Neurotic perfectionism)	Factor Two (Normal Perfectionism)
Concern over mistakes	**.72**	.37
Doubt over actions	**.68**	.27
Parental criticism	**.85**	-.04
Parental expectations	**.77**	.04
Personal standards	.33	**.77**
Organisation	-.05	**.87**
Percentage of variance explained	46.07	19.82

Note. Figures in bold indicate predominant factor loadings

Table 37: *Zero-Order Correlations between Variables of Interest and Cronbach's Alpha for the Measures in an Adult Women Sample*

	1	2	3	4	5	6	7
1. BMI	*N/A*	.00	-.01	.21**	-.01	-.18**	.14*
2. Information		*.89*	.51**	.36**	.31**	.27**	.37**
3. Internalization			*.80*	.69**	.31**	.20**	.52**
4. Social pressure				*.90*	.32**	.10	.54**
5. Neurotic perfectionism[a]					*.91*	.21**	.48**
6. Anti-fat attitudes						*.94*	.42**
7. Anorectic cognitions							*.91*

[a] Neurotic perfectionism was made up four of the MPS subscales that loaded on to a separate factor. This factor analysis is explained further on in this chapter.

**p<.01; *p<.05

Table 38: *Regression Analyses for Variables Predicting Internalisation of the Thin Ideal in an Adult Women Sample*

Predictor	B	SE B	β	*t* value	*p* value
Information	.27	.05	.27**	5.03	.00
Social pressure	.60	.07	.52**	8.98	.00
Neurotic perfectionism	-.12	.43	-.02	-.28	.78
Anti-fat attitudes	.01	.02	.03	.58	.57
Anorectic cognitions	.06	.03	.13	1.95	.05

**$p<.01$

Table 39: *Summary of Regression Analyses for Moderator Effects with Variables of Interest in an Adult Women Sample*

Predictor	B	SE B	β	*p* value
Neurotic perfectionism x Information	.41	.48	.05	.39
Anti-fat attitudes x Information	.93	.51	.11	.07
Anorectic cognitions x Information	-.83	.49	-.09	.09
Neurotic perfectionism x Social pressure	.08	.40	.01	.84
Anti-fat attitudes x Social pressure	.05	.43	.01	.91
Anorectic cognitions x Social pressure	.70	.38	.10	.07

Table 40: *Means and Standard Deviations for Demographics of an Adult Women Sample*

	M	*SD*
Age (years)	21.46	4.08
SES code	45.84	14.76
BMI (kg/m^2)	22.83	3.45
Height (cm)	166.01	6.93
Weight (kg)	62.91	9.96

Table 41: *Ethnic Grouping Distribution of an Adult Women Sample*

Ethnic Group/Mix	Participants *n*	Participants %
New Zealand European	134	78.90
Māori/Part Māori	5	3.00
Pacific Island/Part Pacific Islander	2	1.20
Asian/Part Asian	22	13.30
Other	6	3.60

Table 42: *Means and Standard Deviations for the Variables Measured in an Adult Women Sample*

Measures	*M*	*SD*
Eating pathology	8.50	8.89
Body dissatisfaction		
Body Image Assessment	1.46	1.45
Body Shape Questionnaire	93.80	34.18
Body Esteem Scale	26.68	9.05
Personality factors		
Somatic complaints	51.86	9.77
Anxiety	55.51	11.43
Anxiety-related disorders	53.34	12.45
Depression	53.15	11.26
Mania	52.92	10.35
Paranoia	51.46	10.44
Schizophrenia	51.52	10.57
Borderline features	56.61	11.55
Antisocial features	54.33	9.61
Alcohol problems	52.76	9.87
Drug problems	49.45	8.18
Dominance	47.85	10.59
Warmth	50.91	9.49
Positive impression	45.39	10.32

Negative impression	52.12	9.01

Note. Eating Pathology as measured by the EAT-26 and Personality Factors as measured by the respective subscales of the PAI.

Table 43: *Loadings of Rotated Factor Matrix for the EAT-26 in an Adult Women Sample*

Item	Factor 1	Factor 2	Factor 3	1 Factor Solution
1. Am terrified about being overweight	**.63**	.17	.05	.65
3. Find myself preoccupied with food	**.64**	-.02	-.17	.54
4. Have gone on eating binges where I feel I may not be able to stop	**.36**	.32	.21	.48
6. Aware of the calorie content of the foods I eat.	**.57**	.17	.06	.59
7. Particularly avoid food with a high carbohydrate content (bread, rice, potatoes etc.)	**.49**	.25	.30	.60
10. Feel extremely guilty after eating	**.61**	.01	.35	.64
11. Am preoccupied with a desire to be thinner	**.78**	.15	.11	.78
12. Think about burning up calories when I exercise	**.70**	.09	.16	.71
14. Am preoccupied with the thought of having fat on my body	**.73**	.25	-.07	.73
16. Avoid foods with sugar in them	**.44**	.11	.34	.52
17. Eat diet foods	**.66**	-.18	.21	.58

18. Feel that food controls my life	**.65**	.10	-.08	.61
21. Give too much time and thought to food	**.71**	.15	-.03	.69
22. Feel uncomfortable after eating sweets	**.52**	.39	.10	.64
23. Engage in dieting behaviour	**.73**	.11	.23	.75
2. Avoid eating when I am hungry	.28	**.40**	-.08	.38
5. Cut my food into small pieces	.18	**.50**	.25	.40
8. Feel that others would prefer if I ate more	.11	**.67**	-.15	.31
13. Other people think I am too thin	.00	**.62**	-.19	.18
15. Take longer than others to eat my meals	-.12	**.58**	.15	.13
20. Feel that others pressure me to eat	.30	**.37**	.09	.43
24. Like my stomach to be empty	.48	**.51**	.25	.67
9. Vomit after I have eaten	-.06	.00	**.76**	.12
26. Have the impulse to vomit after meals	.02	.13	**.81**	.24
Percentage of variance explained	24.39	9.83	7.95	28.09

Note: Figures in bold indicate predominant factor loadings.

Table 44: *Loadings of Factor Matrix for the BSQ in an Adult Women Sample*

Item	Factor 1
1. Has feeling bored made you brood about your shape?	.75
2. Have you been so worried about your shape that you have been feeling you ought to diet?	.86
3. Have you thought that your thighs, hips or bottom are too large for the rest of you?	.77
4. Have you been afraid that you might become fat (or fatter)?	.82
5. Have you worried about your flesh being not firm enough?	.72
6. Has feeling full (e.g. after eating a large meal) made you feel fat?	.76
7. Have you felt so bad about your shape that you have cried?	.70
8. Have you avoided running because your flesh might wobble?	.66
9. Has being with thin women made you feel self-conscious about your shape?	.78
10. Have you worried about your thighs spreading out when sitting down?	.72
11. Has eating even a small amount of food made you feel fat?	.74
12. Have you noticed the shape of other women and felt that your own shape compared unfavorably?	.82
13. Has thinking about your shape interfered with your ability to concentrate (e.g. while watching television, reading, listening to conversations)?	.72
14. Has being naked, such as when taking a bath, made you feel fat?	.82

15. Have you avoided wearing clothes which make you particularly aware of the shape of your body?	.74
16. Have you imagined cutting off fleshy areas of your body?	.63
17. Has eating sweets, cakes, or other high calorie food made you feel fat?	.79
18. Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape?	.64
19. Have you felt excessively large and rounded?	.79
20. Have you felt ashamed of your body?	.84
21. Has worry about your shape made you diet?	.78
22. Have you felt happiest about your shape when your stomach has been empty (e.g. in the morning)?	.69
23. Have you thought that you are in the shape you are because you lack self-control?	.72
24. Have you worried about other people seeing rolls of fat around your waist or stomach?	.82
25. Have you felt that it is not fair that other women are thinner than you?	.73
26. Have you vomited in order to feel thinner?	.33
27. When in company have your worried about taking up too much room (e.g. sitting on a sofa, or a bus seat)?	.63
28. Have you worried about your flesh being dimply?	.67
29. Has seeing your reflection (e.g. in a mirror or shop window) made you feel bad about your shape?	.84
30. Have you pinched areas of your body to see how much fat there is?	.64

31. Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming pools)?	.66
32. Have you taken laxatives in order to feel thinner?	.28
33. Have you been particularly self-conscious about your shape when in the company of other people?	.83
34. Has worry about your shape made you feel you ought to exercise?	.75
Percentage of variance explained	53.13

Table 45: *Loadings of Rotated Factor Matrix for the BES in an Adult Women Sample*

Item	Factor 1	Factor 2	Factor 3
2. Appetite	**.57**	.16	.25
8. Waist	**.60**	.17	.17
10. Thighs	**.74**	.18	.03
12. Biceps	**.41**	.26	.13
14. Body Build	**.80**	.13	.18
16. Buttocks	**.63**	.26	.09
23. Hips	**.64**	.15	.26
24. Legs	**.67**	.20	.08
25. Figure of Physique	**.83**	.24	.20
29. Appearance of Stomach	**.53**	.21	.18
35. Weight	**.82**	.07	.25
4. Physical Stamina	.29	**.74**	-.09
5. Reflexes	.19	**.61**	.30
7. Muscular Strength	.10	**.58**	.12
9. Energy Level	.19	**.66**	-.11
15. Physical Coordination	.31	**.38**	.26
17. Agility	.29	**.69**	.20
30. Health	.17	**.61**	.14
33. Physical Condition	.52	**.64**	.16
1. Body Scent	.18	.11	**.43**
3. Nose	.21	-.02	**.34**

6. Lips	.01	.22	**.45**
11. Ears	.10	.07	**.48**
13. Chin	.40	-.01	**.42**
20. Chests or breasts	.19	.25	**.33**
21. Appearance of eyes	.21	.00	**.37**
22. Cheeks/cheekbones	.23	-.01	**.59**
26. Sex Drive	-.10	.48	**.49**
28. Sex Organs	.22	.27	**.59**
31. Sex Activities	-.03	.41	**.57**
32. Body hair	.12	.22	**.43**
Percentage of variance explained	19.23	11.93	11.26

Note: Figures in bold indicate predominant factor loadings.

Table 46: *Loadings of Rotated Factor Matrix for the PAI in an Adult Women Sample*

Scales	Factor 1	Factor 2	Factor 3	Factor 4
Somatic Complaints	**.65**	.09	.16	-.12
Anxiety	**.84**	.03	.13	-.04
Anxiety-related Disorders	**.82**	.12	.12	.01
Depression	**.88**	-.04	.17	.12
Paranoia	**.76**	.20	.23	*.23*
Schizophrenia	**.77**	.21	-.04	*.30*
Borderline Features	**.87**	.28	.10	.01
Suicide	**.65**	-.02	.20	.02
Stress	**.56**	.29	.29	.05
Non-Support	**.67**	.07	.04	*.39*
Treatment Rejection	**-.82**	.01	-.08	.21
Negative Impression Management	**.70**	.22	.18	.10
Positive Impression Management	**-.75**	-.35	-.09	.21
Warmth	**-.57**	.09	.11	*-.55*
Mania	.30	**.79**	-.02	-.07
Dominance	*-.44*	**.66**	-.04	-.01
Aggression	.33	**.65**	.22	.20
Antisocial Problems	.23	**.73**	*.35*	.05
Alcohol Problems	.08	.41	**.53**	-.09
Drug Problems	.10	.23	**.81**	.05
Inconsistency	.33	-.11	**.60**	.10

Infrequency	-.13	.06	.10	**.80**
Percentage of variance explained	37.88	12.29	8.22	6.47

Note. Figures in bold indicate predominant factor loadings. Figure in italics indicate cross-loadings.

Table 47: *Summary of BMI-Body Dissatisfaction and Body Dissatisfaction-Eating Pathology Relationships in an Adult Women Sample*

Dependent variable	R^2	Adjusted R^2	Predictor	β
Body dissatisfaction	.26	.26	BMI	.51**
Eating pathology	.27	.26	Body dissatisfaction	.52**

**p<.01

Table 48: *Zero-order Correlations between Personality Variables and BMI-BD and BD-EP Residuals, and Cronbach's Alpha of each Variable in an Adult Women Sample*

	α	BMI-BD residuals	BD-EP residuals
Somatic complaints	.88	.21**	.21**
Anxiety	.92	.36**	.36**
Anxiety related disorders	.86	.34**	.38**
Depression	.91	.37**	.24**
Mania	.84	.01	.26**
Paranoia	.88	.28**	.15
Schizophrenia	.88	.20*	.18*
Borderline features	.90	.38**	.24**
Antisocial features	.84	-.03	-.03
Alcohol problems	.86	.16*	-.08
Drug problems	.80	.04	-.01
Dominance	.80	-.31**	-.10
Warmth	.80	-.26**	-.08
Positive impression	.75	-.31**	-.26**
Negative impression	.70	-.28**	-.15

*p <.05. **p <.01.

Table 49: *Personality, Clinical Variables and Impression Management by BMI-BD Residual Group: Means and Standard Deviations in an Adult Women Sample*

Variable	High Residuals (n = 27)	Low Residuals[a] (n = 31)	t value	Effect Sizes (d)
Somatic	53.22 (10.73)	48.84 (8.71)	1.17*	0.44
Anxiety	61.30 (11.71)	49.94 (8.36)	4.22**	1.12
Anxiety related	58.04 (11.75)	47.52 (9.22)	3.82**	1.00
Depression	58.48 (13.30)	48.03 (11.01)	3.27**	0.86
Mania	51.89 (9.17)	51.94 (10.31)	.08	-0.01
Paranoia	53.89 (8.03)	47.94 (10.13)	2.45**	0.65
Schizophrenia	49.81 (11.02)	53.15 (12.46)	1.81	0.28
Borderline	60.48 (9.61)	50.23 (10.37)	4.65**	1.03
Antisocial	51.59 (6.99)	54.19 (11.30)	1.04	-0.28
Alcohol	54.41 (10.27)	51.61 (10.92)	.10	0.26
Drug	50.89 (8.79)	48.87 (8.70)	.44	0.23
Dominance	41.81 (11.43)	52.29 (9.09)	-3.89**	-1.01
Warmth	48.00 (9.75)	54.32 (9.26)	-2.53**	-0.66
Positive impression	41.85 (10.46)	51.59 (9.90)	3.67**	-0.96
Negative impression	54.00 (10.10)	48.66 (6.99)	-2.32*	0.61

[a] Low residuals = residuals 1 *SD* or more below regression line, High residuals = residuals 1 *SD* or more above regression line.

*p <.05. **p <.01

Table 50: *Standardised Discriminant Function and Structure Coefficients of the Discriminant Analysis for the BMI-BD Model in an Adult Women Sample*

	Standardized DCFs	Structure Coefficients
Anxiety	.58	.56
Borderline	.70	.51
Dominance	-.26	-.51
Anxiety related	.06	.50
Depression	.40	.43
Warmth	-.34	-.33
Paranoia	-.39	.32
Somatic complaints	-.43	.23
Schizophrenia	-.74	.14
Antisocial	-.82	-.14
Alcohol	.69	.13
Drug	-.06	.06
Mania	.45	.00

Table 51: *Personality, Clinical Variables and Impression Management by BD-EP Residual Group: Means and Standard Deviations in an Adult Women Sample*

Variable	High residuals (n = 23)	Low residuals (n = 21)	t value	Effect Size (d)
Somatic	57.68 (9.56)	51.67 (8.62)	2.02*	0.66
Anxiety	65.61 (11.01)	54.29 (11.57)	3.33**	1.00
Anxiety related	64.48 (13.95)	51.71 (13.69)	3.06**	0.92
Depression	60.04 (13.09)	53.62 (9.99)	1.84	0.55
Mania	58.17 (10.57)	48.38 (7.07)	3.64**	1.09
Paranoia	56.17 (10.90)	51.86 (8.07)	1.48	0.45
Schizophrenia	56.04 (13.31)	51.43 (12.19)	1.20	0.36
Borderline	64.70 (9.29)	56.86 (9.29)	2.80*	0.84
Antisocial	54.48 (8.38)	53.00 (6.73)	.64	0.19
Alcohol	51.28 (7.90)	54.43 (10.10)	-.72	-.04
Drug	48.95 (7.58)	48.95 (6.77)	.00	.00
Dominance	46.30 (11.48)	45.57 (12.34)	.20	0.06
Warmth	49.74 (8.69)	50.10 (10.53)	-.12	-0.04
Positive impression	39.26 (8.15)	47.48 (11.11)	2.82**	-0.84
Negative impression	56.35 (11.71)	52.05 (7.94)	-1.44	0.43

*p <.05; **p <.01

Table 52: *Standardised and Structure Coefficients of the Discriminant Analysis for the BD-EP Model in an Adult Women Sample*

	Standardized DCFs	Structure Coefficients
Mania	.67	.55
Anxiety	.40	.51
Anxiety-related	.86	.47
Borderline	.07	.43
Somatic complaints	.02	.31
Depression	.46	.28
Paranoia	.10	.23
Schizophrenia	-1.34	.18
Alcohol	-.54	-.11
Antisocial	.29	.10
Dominance	-.05	.03
Warmth	.17	-.02
Drugs	-.14	.00

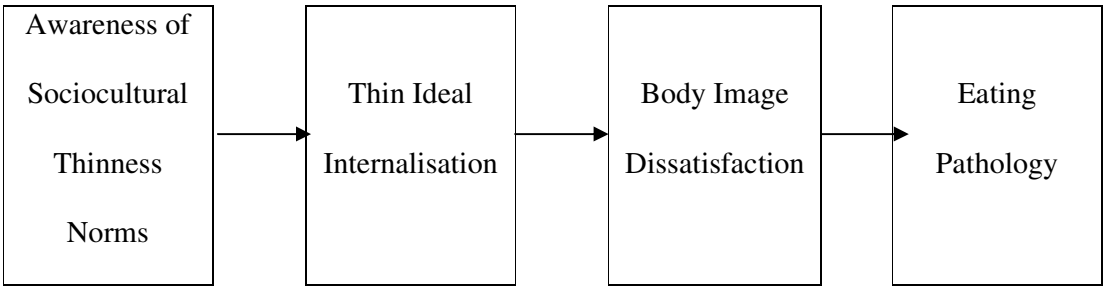


Figure 1: Sociocultural Model of Eating Pathology. Adapted from Twamley and Davis (1999).

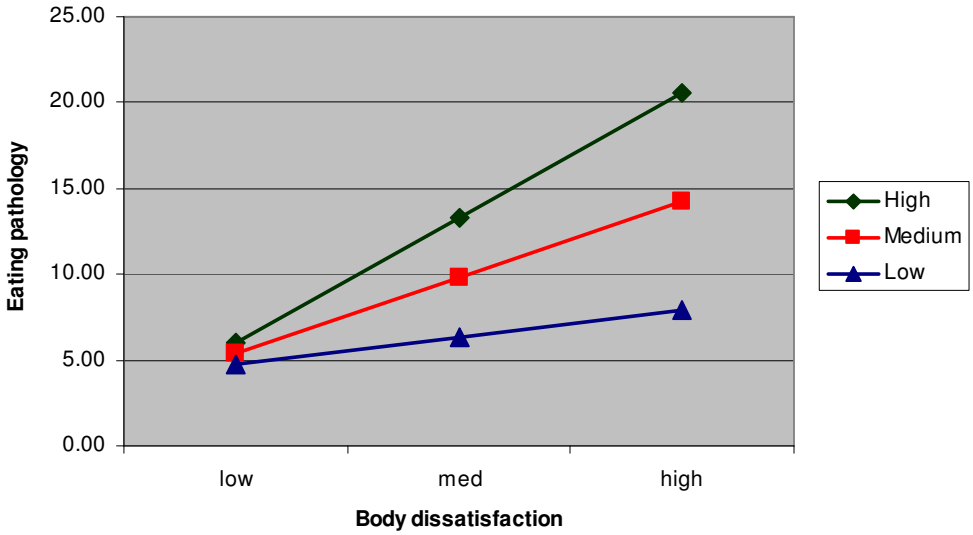


Figure 2: Moderator effects of SP perfectionism in predicting eating pathology from body dissatisfaction in the adolescent sample

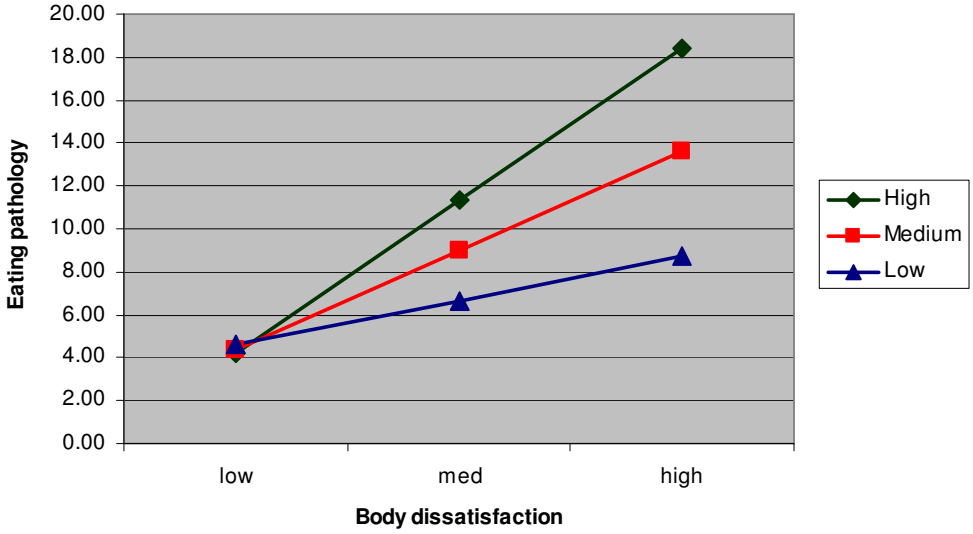


Figure 3: Moderator effects of SO perfectionism in predicting eating pathology from body dissatisfaction in the adolescent sample

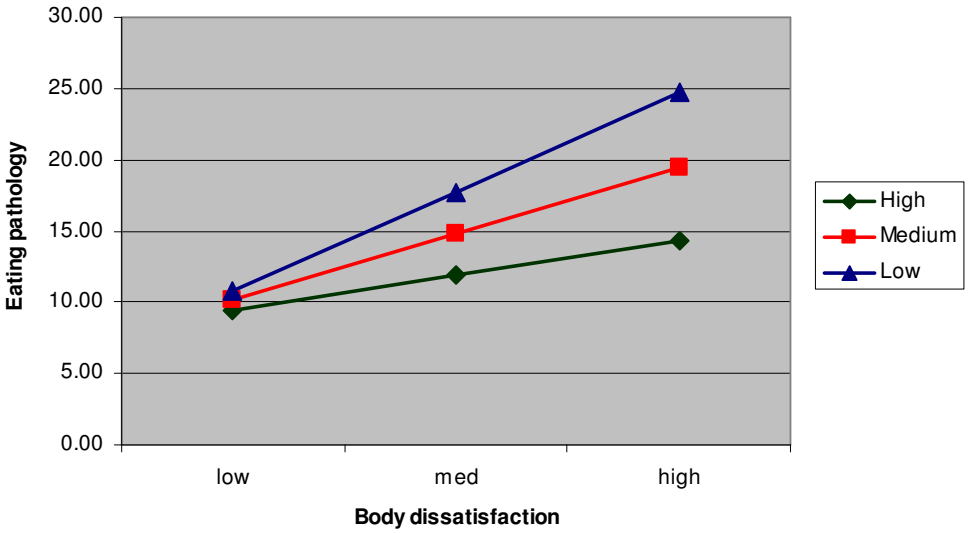


Figure 4: Moderator effects of self-esteem in predicting eating pathology from body dissatisfaction in the adolescent sample

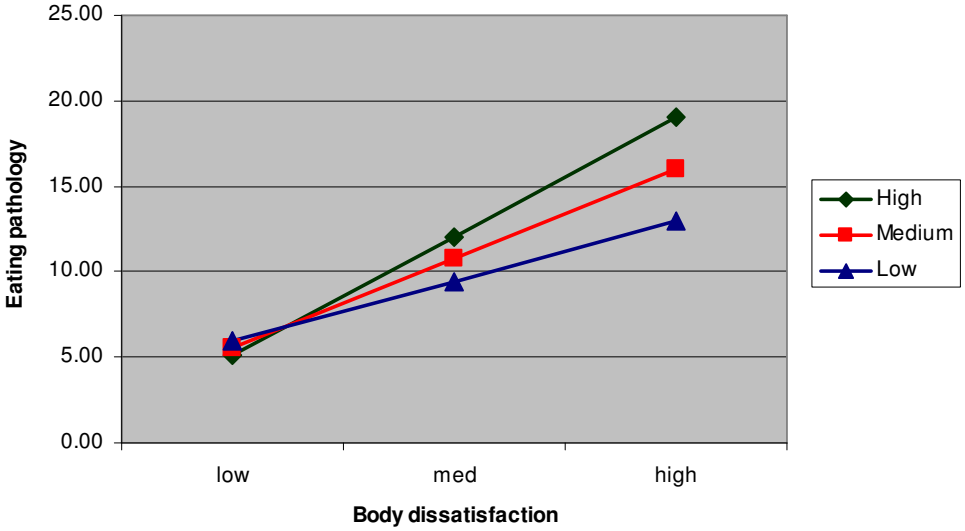


Figure 5: Moderator effects of perceived pressure in predicting eating pathology from body dissatisfaction in the adolescent sample

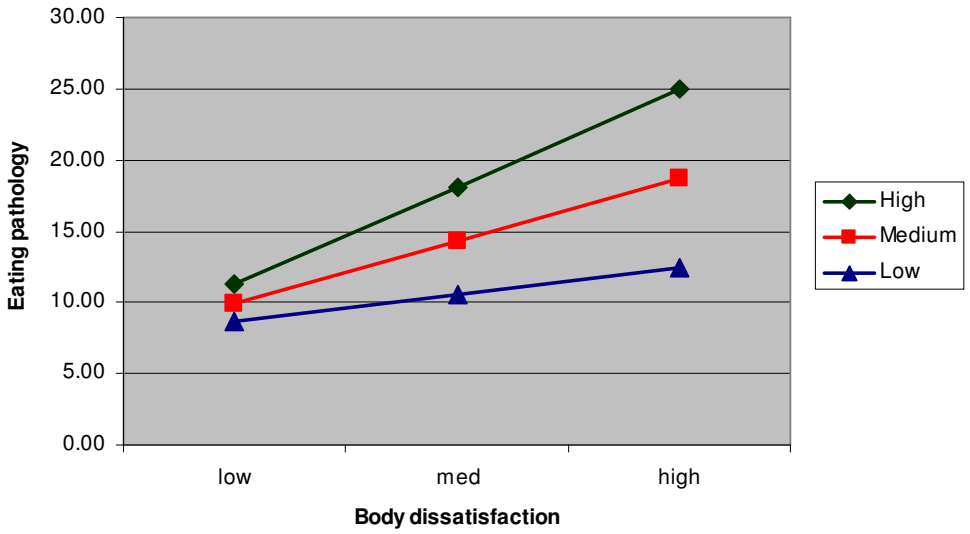


Figure 6: Moderator effects of negative affect in predicting eating pathology from body dissatisfaction in the adolescent sample

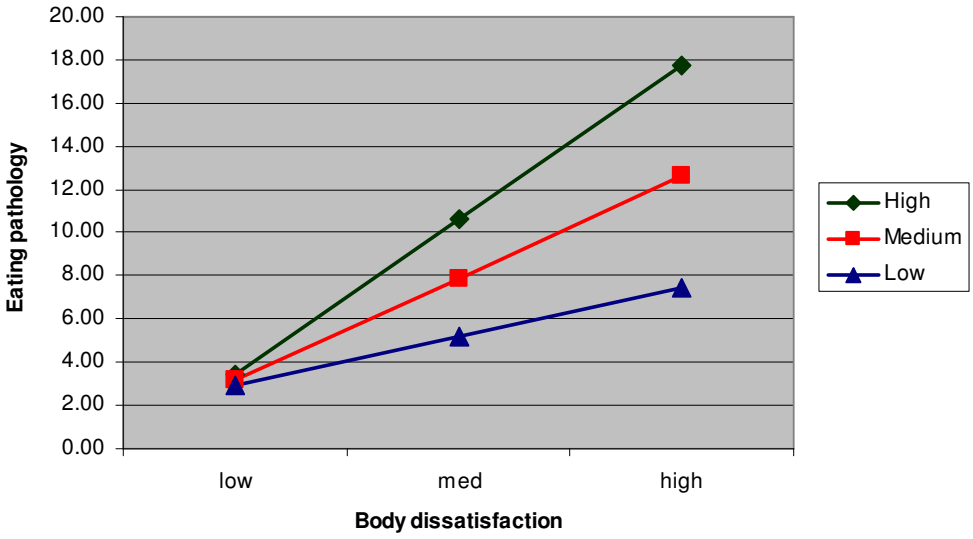


Figure 7: Moderator effects of perceived media pressure in predicting eating pathology from body dissatisfaction in the adolescent sample

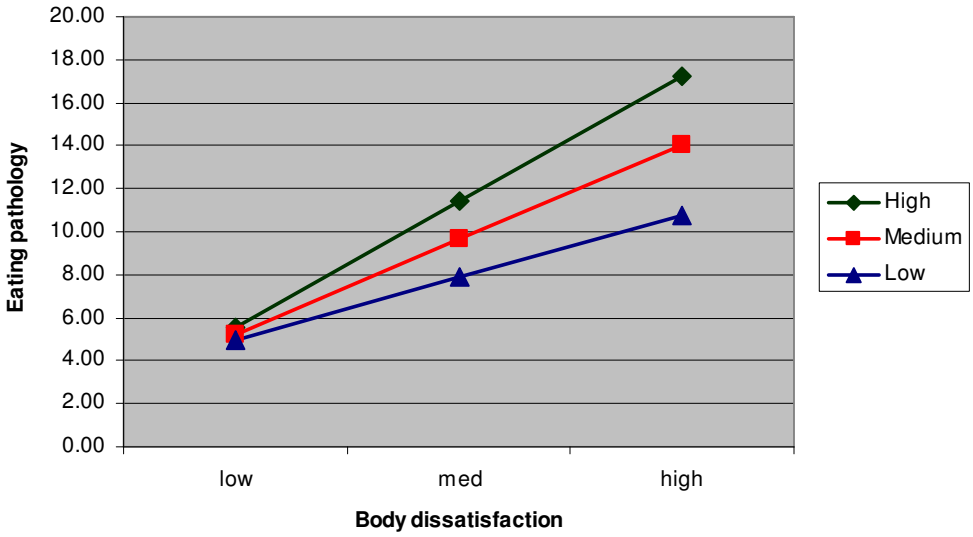


Figure 8: Three-way interaction predicting eating pathology body dissatisfaction, SP perfectionism and medium levels of self-esteem in the preadolescent sample

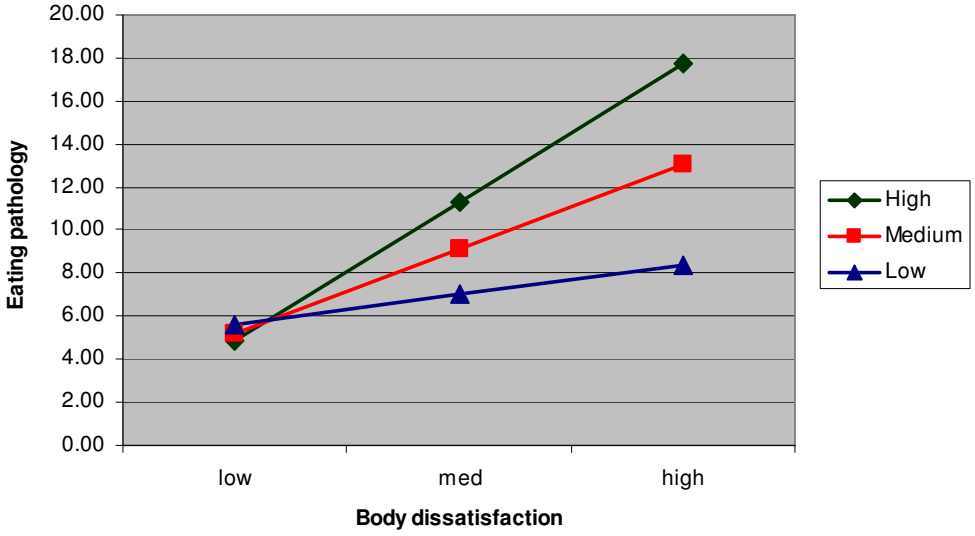


Figure 9: Three-way interaction predicting eating pathology body dissatisfaction, SO perfectionism and medium levels of self-esteem in the preadolescent sample

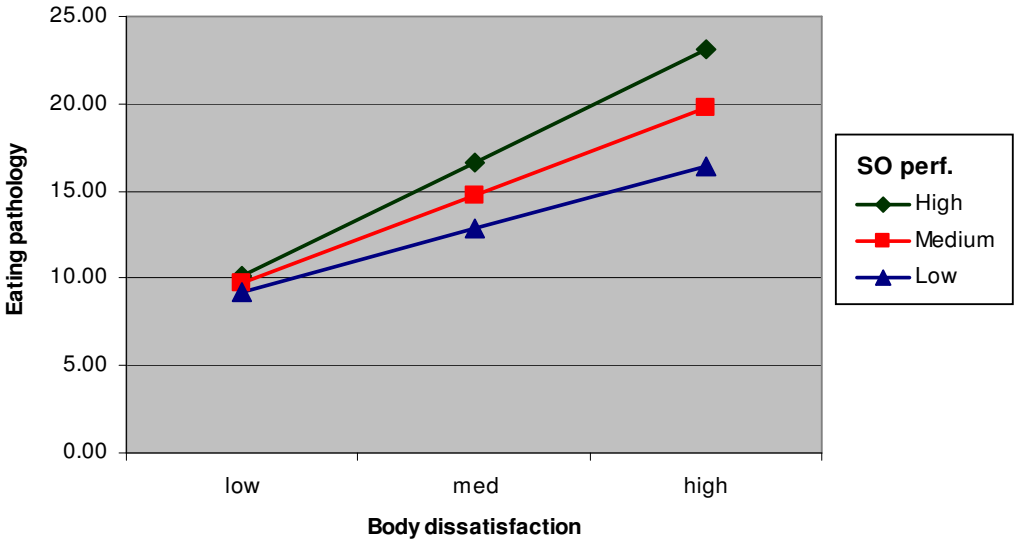


Figure 10: Moderator effects of SO perfectionism in predicting eating pathology from body dissatisfaction in the preadolescent sample

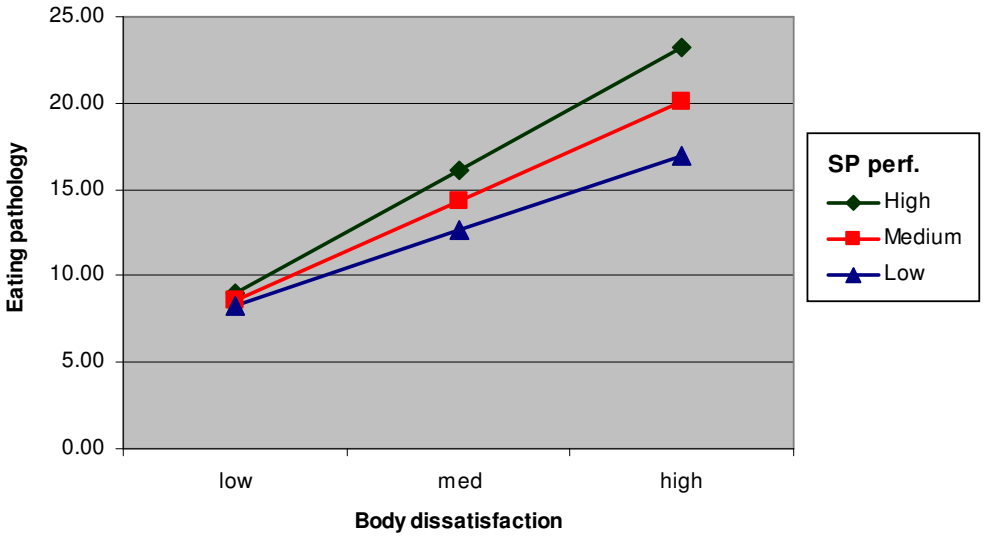


Figure 11: Moderator effects of SP perfectionism in predicting eating pathology from body dissatisfaction in the preadolescent sample

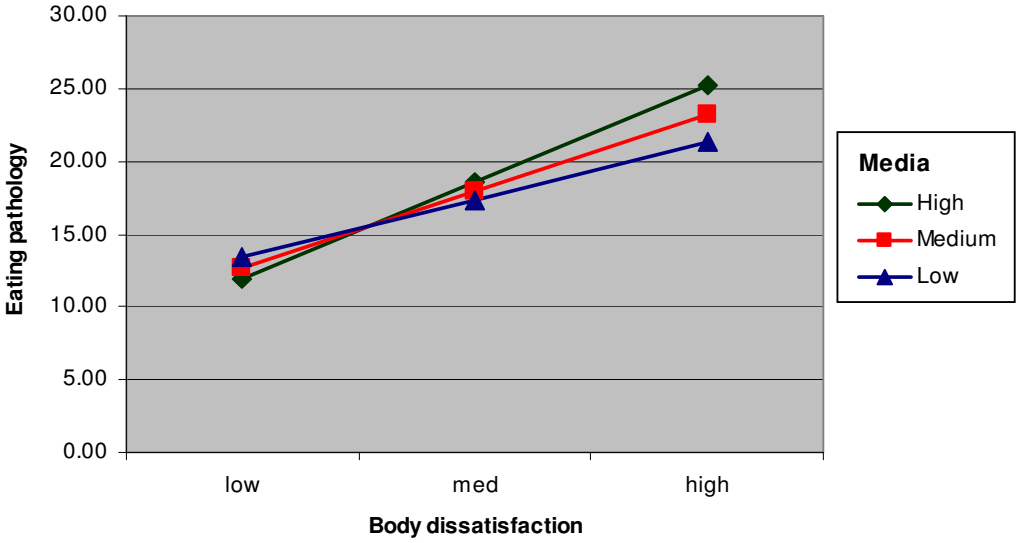


Figure 12: Moderator effects of perceived media pressure in predicting eating pathology from body dissatisfaction in the preadolescent sample

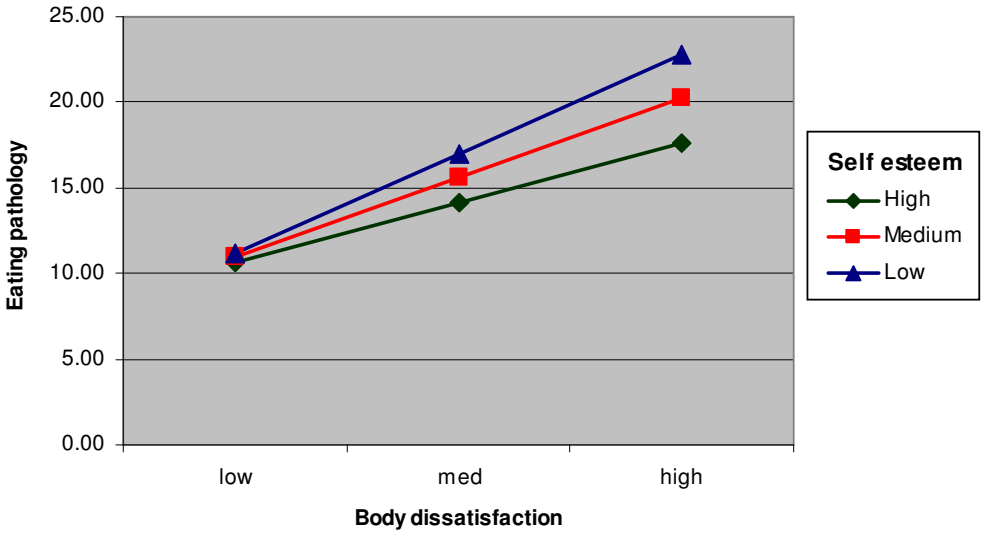


Figure 13: Moderator effect of self-esteem in predicting eating pathology from body dissatisfaction in the preadolescent sample

Appendix A: Study One Questionnaires

TELL ME ABOUT YOU

Age (in years) _____

Ethnic Group _____

Year Group (please circle) 10 11 12 13

What is your **mother's occupation**? _____

What is your **father's occupation**? _____

Height (in cm) _____

Weight (in kg) _____

FEELINGS SCALE

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the **past few weeks**. Use the following scale to record your answers.

	Very slightly or not at all	**A little**	**Moderately**	**Quite a bit**	**Extremely**
Interested	1	2	3	4	5
Distressed	1	2	3	4	5
Excited	1	2	3	4	5
Upset	1	2	3	4	5
Strong	1	2	3	4	5
Guilty	1	2	3	4	5
Scared	1	2	3	4	5
Hostile	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Proud	1	2	3	4	5
Irritable	1	2	3	4	5
Alert	1	2	3	4	5
Ashamed	1	2	3	4	5
Inspired	1	2	3	4	5
Nervous	1	2	3	4	5
Determined	1	2	3	4	5
Attentive	1	2	3	4	5
Jittery	1	2	3	4	5
Active	1	2	3	4	5
Afraid	1	2	3	4	5

FEELINGS ABOUT YOURSELF SCALE

Below is a list of statements dealing with your feelings about yourself. If you **strongly agree** circle **SA**. If you **agree** circle **A**. If you **disagree** circle **D**. If you **strongly disagree** circle **SD.**

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
I feel that I am a person of worth, at least on an equal plane with others.	**SA**	**A**	**D**	**SD**
I feel that I have a number of good qualities.	**SA**	**A**	**D**	**SD**
All in all, I am inclined to feel that I am a failure.	**SA**	**A**	**D**	**SD**
I am able to do things as well as most other people.	**SA**	**A**	**D**	**SD**
I feel I do not have much to be proud of.	**SA**	**A**	**D**	**SD**
I take a positive attitude toward myself.	**SA**	**A**	**D**	**SD**
One the whole, I am satisfied with myself.	**SA**	**A**	**D**	**SD**
I wish I could have more respect for myself.	**SA**	**A**	**D**	**SD**
I certainly feel useless at times.	**SA**	**A**	**D**	**SD**
At times, I think I am no good at all.	**SA**	**A**	**D**	**SD**

FEELINGS ABOUT PERSONAL EXPECTATIONS

The five possible answers for each sentence are listed below**:**

1	2	3	4	5
False - Not at all True of me	Mostly False	Neither True Nor False	Mostly True	Very True Of Me

Please enter the number that best describes how you feel.

1. I try to be perfect in every thing I do _____
2. I want to be the best at everything I do _____
3. My parents don't always expect me to be perfect in everything I do _____
4. I feel that I have to do my best all the time _____
5. There are people in my life who expect me to be perfect _____
6. I always try for the top score on a test _____
7. It really bothers me if I don't do my best all the time _____
8. My family expects me to be perfect _____
9. I don't always try to be the best _____
10. People expect more from me than I am able to give _____
11. I get mad at myself when I make a mistake _____
12. Other people think that I have failed if I do not do my very best all the time _____
13. Other people always expect me to be perfect _____
14. I get upset if there is even one mistake in my work _____
15. People around me expect me to be great at everything _____
16. When I do something, it has to be perfect _____
17. My teachers expect my work to be perfect _____
18. I do not have to be the best at everything I do _____
19. I am always expected to do better than others _____
20. Even when I pass, I feel that I have failed if I didn't get one of the highest marks in the class _____
21. I feel that people ask too much of me _____
22. I can't stand to be less than perfect _____

FEELINGS ABOUT EATING

Height _____ Weight _____

Please tick the response for each of the following statements:

	Always	Usually	Often	Sometimes	Rarely	Never
1. Am terrified about being overweight	___	___	___	___	___	___
2. Avoid eating when I am hungry	___	___	___	___	___	___
3. Find myself preoccupied with food	___	___	___	___	___	___
4. Have gone on eating binges when I feel that I may not be able to stop	___	___	___	___	___	___
5. Cut my food into small pieces	___	___	___	___	___	___
6. Aware of the calorie content of foods that I eat	___	___	___	___	___	___
7. Particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes, etc.)	___	___	___	___	___	___
8. Feel that others would prefer if I ate more	___	___	___	___	___	___
9. Vomit after I have eaten	___	___	___	___	___	___
10. Feel extremely guilty after eating	___	___	___	___	___	___
11. Am preoccupied with a desire to be thinner	___	___	___	___	___	___
12. Think about burning up calories when I exercise	___	___	___	___	___	___
13. Other people think that I am too thin	___	___	___	___	___	___
14. Am preoccupied with the thought of having fat on my body	___	___	___	___	___	___
15. Take longer than other to eat my meals	___	___	___	___	___	___
16. Avoid eating foods with sugar in them	___	___	___	___	___	___
17. Eat diet foods	___	___	___	___	___	___
18. Feel that food controls my life	___	___	___	___	___	___
19. Display self control around food	___	___	___	___	___	___
20. Feel that others pressure me to eat	___	___	___	___	___	___
21. Give too much time and thought to food	___	___	___	___	___	___
22. Feel uncomfortable after eating sweets	___	___	___	___	___	___
23. Engage in dieting behaviour	___	___	___	___	___	___

24. Like my stomach to be empty	___	___	___	___	___	___
25. Enjoy trying rich new foods	___	___	___	___	___	___
26. Have the impulse to vomit after meals	___	___	___	___	___	___

Please respond to the following questions:

1) Have you gone on eating binges where you feel that you may not be able to stop? (Eating much more than most people would eat under the same circumstances)

No [ ]
Yes [ ] → How many times in the last 6 months? _____

2) Have you ever made yourself sick (vomited) to control your weight or shape?

No [ ]
Yes [ ] → How many times in the last 6 months? _____

3) Have you ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?

No [ ]
Yes [ ] → How many times in the last 6 months? _____

4) Have you ever been treated for an eating disorder?

No [ ]
Yes [ ] → When? _____

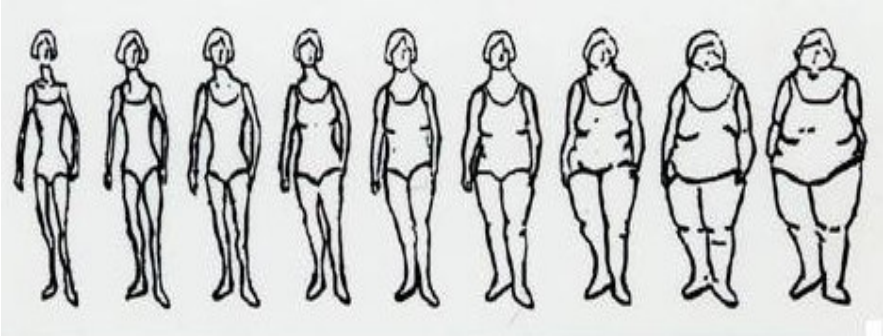
Please fill in the gap with a number that <u>best describes how you feel yourself</u>

1	2	3	4	5	6
Never	Rarely	Sometimes	Often	Very Often	Always

1. I think that my stomach is too big. _____
2. I think that my thighs are too large. _____
3. I think that my stomach is just the right size. _____
4. I feel satisfied with the shape of my body. _____
5. I like the shape of my buttocks. _____
6. I think my hips are too big. _____
7. I think that my thighs are just the right size. _____
8. I think my buttocks are too large. _____
9. I think that my hips are just the right size. _____

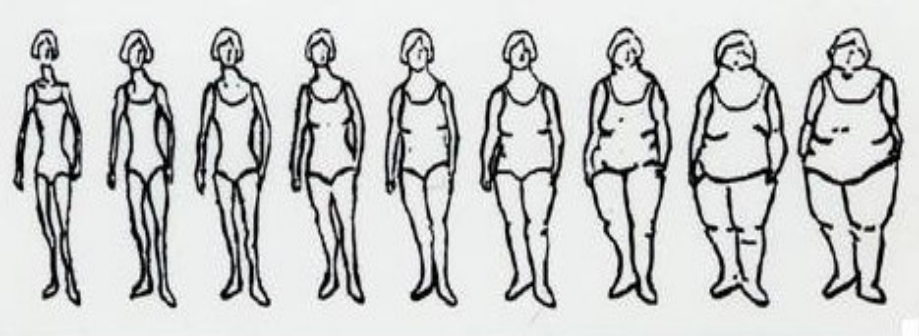
FEELINGS ABOUT YOUR BODY

1. Please circle the one figure which you believe most **resembles what you look like now.**



1 2 3 4 5 6 7 8 9

2. Please circle the one figure which most **resembles yourself as you would ideally wish to be.**



1 2 3 4 5 6 7 8 9

FRIENDS AND FAMILY

Type of Feedback (Comments) from your father or important adult male in your life e.g. uncle or step-father. If you do not have such a person in you life, leave this section blank and go to question 4. Extremely good means good comments, extremely negative means bad comments.

1. Does your father encourage you to lose weight?

Always | Almost Always | Frequently | Sometimes | Never

2. Does your father diet to lose weight?

Always | Almost Always | Frequently | Sometimes | Never

3. Does your father tease you because you should eat less?

Always | Almost Always | Frequently | Sometimes | Never

Type of Feedback (Comments) from your mother or important adult female your life e.g. aunt or step-mother. If you do not have such a person in you life, leave this section blank and go to question 23. Extremely good means good comments, extremely negative means bad comments.

4. Does your mother encourage you to lose weight?

Always | Almost Always | Frequently | Sometimes | Never

5. Does your mother diet to lose weight?

Always | Almost Always | Frequently | Sometimes | Never

6. Does your mother tease you because you should eat less?

Always | Almost Always | Frequently | Sometimes | Never

Type of Feedback (Comments) from your best male friend. Extremely good means good comments, extremely negative means bad comments.

7. Does your best male friend encourage you to lose weight?

Always | Almost Always | Frequently | Sometimes | Never

8. Does your best male friend diet to lose weight?

Always | Almost Always | Frequently | Sometimes | Never

9. Does your best male friend tease you because you should eat less?

Always | Almost Always | Frequently | Sometimes | Never

Type of Feedback (Comments) from <u>your best female friend</u>. Extremely good means good comments, extremely negative means bad comments.

10. Does your best female friend encourage you to lose weight?

Always | Almost Always | Frequently | Sometimes | Never

11. Does your best female friend diet to lose weight?

Always | Almost Always | Frequently | Sometimes | Never

12. Does your best female friend tease you because you should eat less?

Always | Almost Always | Frequently | Sometimes | Never

THE MEDIA

1. Do the media (i.e. TV, Movies, Magazines and Newspapers) give you the idea that you should **be slimmer**?

Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree

2. Do the media give you the idea that you should **eat less** to lose weight?

Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree

3. Do the media give you the idea that you should **exercise more** to lose weight?

Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree

4. Do the media give you the idea that you should **gain weight**?

Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree

5. Do the media give you the idea that you should **exercise more** to gain weight?

Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree

6. Do the media give you the idea that you should **eat more** to gain weight?

Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree

We want to know if people have ever teased you and how this made you feel.
Please circle how <u>often you think you were teased.</u> If you answered "never" <u>go to the next question.</u> If you did not answer "never', please circle <u>how upset you were by the teasing .</u>

1. People made fun of you because you were heavy

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

If so, how upset were you?

1	2	3	4	5
Not Upset	A Little	Quite Upset	Upset	Very Upset

2. People made jokes about you being heavy.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

If so, how upset were you?

1	2	3	4	5
Not Upset	A Little	Quite Upset	Upset	Very Upset

3. People laughed at you for trying out for sports because you were too heavy.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

If so, how upset were you?

1	2	3	4	5
Not Upset	A Little	Quite Upset	Upset	Very Upset

4. People called you names like "fatso."

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

If so, how upset were you?

1	2	3	4	5
Not Upset	A Little	Quite Upset	Upset	Very Upset

5. People pointed at you because you were overweight.

1	2	3	4	5

Never | Rarely | Sometimes | Often | Very Often

If so, how upset were you?

1 | 2 | 3 | 4 | 5

Not Upset | A Little | Quite Upset | Upset | Very Upset

6. People snickered about your heaviness when you walked into a room alone.

1 | 2 | 3 | 4 | 5

Never | Rarely | Sometimes | Often | Very Often

If so, how upset were you?

1 | 2 | 3 | 4 | 5

Not Upset | A Little | Quite Upset | Upset | Very Upset

7. People made fun of you by repeating something you said because they thought it was dumb.

1 | 2 | 3 | 4 | 5

Never | Rarely | Sometimes | Often | Very Often

If so, how upset were you?

1 | 2 | 3 | 4 | 5

Not Upset | A Little | Quite Upset | Upset | Very Upset

8. People made fun of you because you were scared to do something.

1 | 2 | 3 | 4 | 5

Never | Rarely | Sometimes | Often | Very Often

If so, how upset were you?

1 | 2 | 3 | 4 | 5

Not Upset | A Little | Quite Upset | Upset | Very Upset

9. People said you acted dumb.

1 | 2 | 3 | 4 | 5

Never | Rarely | Sometimes | Often | Very Often

If so, how upset were you?

1	2	3	4	5
Not Upset	A Little	Quite Upset	Upset	Very Upset

10. People laughed at you because you did not understand something.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

If so, how upset were you?

1	2	3	4	5
Not Upset	A Little	Quite Upset	Upset	Very Upset

11. People teased you because you did not get a joke.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

If so, how upset were you?

1	2	3	4	5
Not Upset	A Little	Quite Upset	Upset	Very Upset

The End

Thank you for taking the time to participate in this project-your cooperation is very much appreciated!

Appendix B: Principal's invitation letter

Dear Principal,

This letter is an invitation for your school to participate in the research project "Eating patterns and behaviours in preadolescent and adolescent girls".

The study is designed to identify the factors associated with body dissatisfaction, dieting behaviours and eating attitudes among young girls and boys between the ages of 10-12 years and girls 14-17 years. The findings of this research will help identify the risk factors to unhealthy eating behaviours and body attitudes in children. A potential benefit of this study is a greater understanding of those factors involved with unhealthy body image and eating and the potential for such attitudes and behaviours to be detected at an earlier age. Moreover, these research findings may be used in future efforts to develop an effective school-based self-esteem and body image programme for children.

The testing period should take approximately one hour and will require the students to answer a booklet of questionnaires regarding body image, eating patterns, dieting and self-esteem. Permission slips will be sent home with each girl and participation will take place on the basis of informed parental consent. If required, an alternative activity can be arranged for students who choose not to participate in this project.

Participation in this project is voluntary. The findings of this research may be published but confidentiality of the students will be assured at all times. You may have the right to withdraw from this project at any time, including withdrawal of any information provided. Written feedback outlining the findings of this research will be given to you once all the data had been collected and analysed.

This research is being conducted by Juliet Rosewall under the supervision of Dr Janet Latner and Dr Julia Rucklidge of the Psychology Department at the University of Canterbury. I would be glad to discuss any questions in regard to this project and can be reached by phone 364.2987 ext.7189 or by email at jka23@student.canterbury.ac.nz.

We greatly appreciate your contribution to this important research. Thank you for taking the time to consider this request and we look forward to hearing from you.

Yours sincerely,

Juliet Rosewall
Primary Researcher

Janet Latner Ph.D
Primary Supervisor

Appendix C: Parent's invitation letter

Dear Parent or Caregiver,

This is an invitation for your daughter to take part in the research project "Eating patterns and behaviours in adolescent and preadolescent girls" being conducted by the University of Canterbury. The study is looking at the factors associated with body dissatisfaction, dieting and eating attitudes among young girls between the ages of 10-12 and 15-17. The findings of this research will help identify the things that cause problem eating behaviours and body attitudes in girls. A potential benefit of this study is a better understanding of unhealthy body image and eating, which can begin at a young age.

The procedure should take approximately 45 minutes and will require the girls to answer a booklet of questionnaires related to body image, eating patterns and dieting, during school time. There is no foreseeable risk to participating in this study, however, some questions may lead the girls to think more about issues regarding eating, dieting, and thinness. If the questions in the booklet are in any way upsetting to your daughter, she may stop filling out the questionnaire at that stage and will be able to talk with someone. Please note: if you wish to view this questionnaire please contact Juliet on the below details.

The findings of this research may be published but your daughter's identity will remain confidential. Once your daughter hands in her questionnaire, her data will not be able to be removed because it will be anonymous. Feedback outlining the findings of this research will be given to XX School once all the data has been collected and looked at. Participation is voluntary. If you are willing for your daughter to take part in this project, please indicate so below and have her return the form to the school office or to XX by **XX**.

This research has been reviewed and approved by the Human Ethics Committee at the University of Canterbury and is being conducted by Juliet Rosewall of the Psychology department at the University of Canterbury under the supervision of Dr. Janet Latner and Dr. Julia Rucklidge of the Psychology Department at the University of Canterbury. I would be glad to discuss any questions in regard to this project and can be reached by phone at 364.2987 ext.7189, email jka23@student.canterbury.ac.nz or post, c-Department of Psychology, University of Canterbury, PO Box 4800, Christchurch. Alternatively, Dr Janet Latner can be reached by phone at 364-2987 ext.3416, email janet.latner@canterbury.ac.nz or post, c-Department of Psychology, University of Canterbury, and PO Box 4800, Christchurch.
Your daughter's contribution to this important research would be greatly appreciated.
Yours Sincerely,

Juliet Rosewall

Primary Researcher

- -

I do/do not wish for ______________________________ to be involved in the research project entitled "Eating patterns and behaviours in adolescent and preadolescent girls."

Signed _______________________________ Date _____________________

Appendix D: Study One Information Sheet

Today you are going to take part in a project about how teenage girls feel about food, eating and their bodies. I am here to ask you some questions about these things. If you do not want to take part today, you are welcome to go to _____ and do another activity.

This is not a test and there is no right or wrong answers, so answer these questions as honestly as possible. I am the only person who will see this booklet so no one will know which answers belong to which person.

Please try to answer every question. If you do not understand something, you can ask me any questions at any time. If you have any questions just put your hand up and I will help you. If you feel uncomfortable doing this activity, please let me know and you can stop.

Thank you for your time! You are helping us understand what teenagers think about food, eating and their bodies.

Please sign below if you agree to complete this questionnaire

Signed _____ Date _____

Appendix E: Study One Debriefing Sheet

THANK YOU FOR HELPING WITH THIS STUDY

Thank you for helping me by answering these questionnaires. The reason we did this today is to try to help adults understand what teenage girls feel about food and their bodies.

All your answers will be put together with other girls' answers into one big group. This way you don't need to worry about anyone finding out your own answers.

It is important to remember that everybody is different. It is good to accept yourself for who you are on the inside. And remember to not judge people by the way they look.

We all come in different shapes, colours and sizes. It is what is on the inside that counts!!

THANKS AGAIN – YOU DID A WONDERFUL JOB AND I COULD NOT HAVE DONE THIS STUDY WITHOUT YOU!

Appendix F: Study Two Questionnaires

TELL ME ABOUT YOU

What is your **age?** (in years) _____

What is your **ethnic group?** _____

What **year group** are you in**?** (please circle) 3 4 5 6

What is your **mother's job**? _____

What is your **father's job**? _____

What is your **height?** (in cm) _____

What is your **weight?** (in kg) _____

TELL ME ABOUT YOUR FEELINGS!

The words below describe different feelings. Read each item and then circle the best answer next to that word.

How much have you felt this way during the past two weeks?

	Not much	A little	Medium	Quite a bit	Lots
Interested	1	2	3	4	5
Sad	1	2	3	4	5
Frightened	1	2	3	4	5
Alert	1	2	3	4	5
Excited	1	2	3	4	5
Ashamed	1	2	3	4	5
Upset	1	2	3	4	5
Happy	1	2	3	4	5
Strong	1	2	3	4	5
Nervous	1	2	3	4	5
Guilty	1	2	3	4	5
Energetic	1	2	3	4	5
Scared	1	2	3	4	5
Calm	1	2	3	4	5
Miserable	1	2	3	4	5
Jittery	1	2	3	4	5
Cheerful	1	2	3	4	5
Active	1	2	3	4	5
Proud	1	2	3	4	5
Afraid	1	2	3	4	5

How much have you felt this way during the past two weeks?

	Not Much	A little	Medium	Quite a bit	Lots
Joyful	1	2	3	4	5
Lonely	1	2	3	4	5
Mad	1	2	3	4	5
Fearless	1	2	3	4	5
Disgusted	1	2	3	4	5
Delighted	1	2	3	4	5
Blue	1	2	3	4	5
Daring	1	2	3	4	5
Gloomy	1	2	3	4	5
Lively	1	2	3	4	5

TELL ME YOUR FEELINGS ABOUT YOURSELF!

Below is a list of statements dealing with your **feelings about yourself**. If you **strongly agree** circle **SA**. If you **agree** circle **A**. If you **disagree** circle **D**. If you **strongly disagree** circle **SD.**

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
I feel that I am a person of worth and am on an equal plane with others.	**SA**	**A**	**D**	**SD**
I feel that I have a number of good qualities.	**SA**	**A**	**D**	**SD**
Most of the time, I feel that I am a failure.	**SA**	**A**	**D**	**SD**
I am able to do things as well as most other people.	**SA**	**A**	**D**	**SD**
I take a positive attitude toward myself.	**SA**	**A**	**D**	**SD**
I feel I do not have much to be proud of.	**SA**	**A**	**D**	**SD**
Overall, I am satisfied with myself.	**SA**	**A**	**D**	**SD**
I wish I could have more respect for myself.	**SA**	**A**	**D**	**SD**
I definitely feel useless at times.	**SA**	**A**	**D**	**SD**
At times, I think I am no good at all.	**SA**	**A**	**D**	**SD**

TELL ME ABOUT YOUR EXPECTATIONS!

The five possible answers for each sentence are listed below**:**

1	2	3	4	5
False - Not at all True of me	**Mostly False**	**Neither True Nor False**	**Mostly True**	**Very True Of Me**

Please enter the number that best describes how you feel.

23. I try to be perfect in every thing I do _____
24. I want to be the best at everything I do _____
25. My parents don't always expect me to be perfect in everything I do _____
26. I feel that I have to do my best all the time _____
27. There are people in my life who expect me to be perfect _____
28. I always try for the top score on a test _____
29. It really bothers me if I don't do my best all the time _____
30. My family expects me to be perfect _____
31. I don't always try to be the best _____
32. People expect more from me than I am able to give _____
33. I get mad at myself when I make a mistake _____
34. Other people think that I have failed if I do not do my very best all the time _____
35. Other people always expect me to be perfect _____
36. I get upset if there is even one mistake in my work _____
37. People around me expect me to be great at everything _____
38. When I do something, it has to be perfect _____
39. My teachers expect my work to be perfect _____
40. I do not have to be the best at everything I do _____
41. I am always expected to do better than others _____
42. Even when I pass, I feel that I have failed if I didn't get one of the highest marks in the class _____
43. I feel that people ask too much of me _____
44. I can't stand to be less than perfect _____

TELL ME ABOUT YOUR EATING!

The five possible answers for each sentence are listed below**:**

1	2	3	4	5	6
Always	**Very Often**	**Often**	**Sometimes**	**Rarely**	**Never**

Please enter the number that best applies to the statements below.

1. I am scared about being overweight. _____
2. I stay away from eating when I am hungry. _____
3. I think about food a lot of the time. _____
4. I have gone on eating binges where I feel that I might not be able to stop. _____
5. I cut my food into small pieces. _____
6. I am aware of the energy (calorie) content in foods that I eat. _____
7. I try to stay away from foods such as breads, potatoes and rice. _____
8. I feel that others would like me to eat more. _____
9. I vomit after I have eaten. _____
10. I feel very guilty after eating. _____
11. I think a lot about wanting to be thinner. _____
12. I think about burning up energy (calories) when I exercise. _____
13. Other people think I am too thin. _____
14. I think a lot about having fat on my body. _____
15. I take longer than others to eat my meals. _____
16. I stay away from foods with sugar in them. _____
17. I eat diet foods. _____
18. I think that food controls my life. _____
19. I can show self-control around food. _____
20. I feel that others pressure me to eat. _____
21. I give to much time and thought to food. _____
22. I feel uncomfortable after eating sweets. _____
23. I have been dieting. _____
24. I like my stomach to be empty. _____
25. I enjoy trying new rich foods. _____

26. I have the urge to vomit after eating. _____

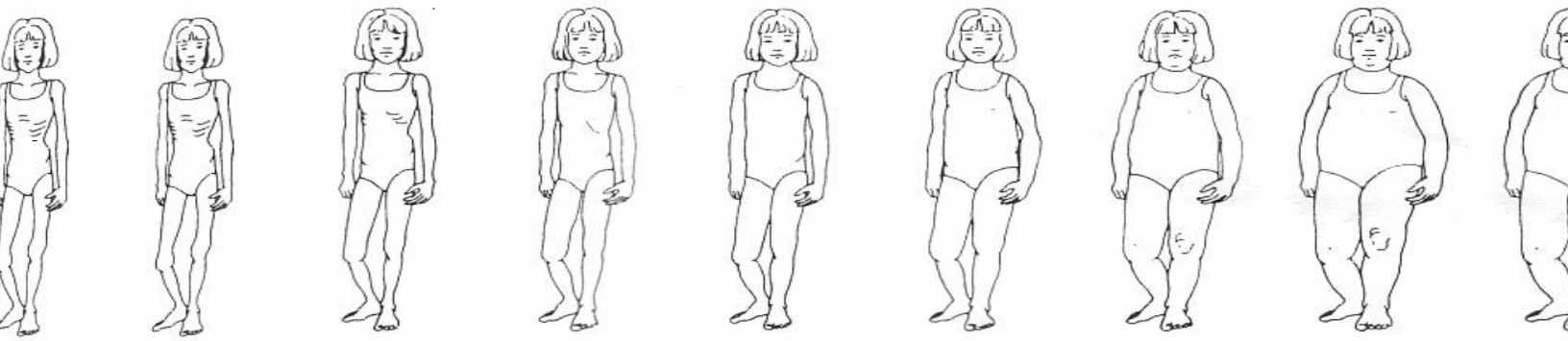
TELL ME ABOUT YOUR FEELINGS ABOUT BODIES!

Please fill in the gaps with the number that best describes how you feel.

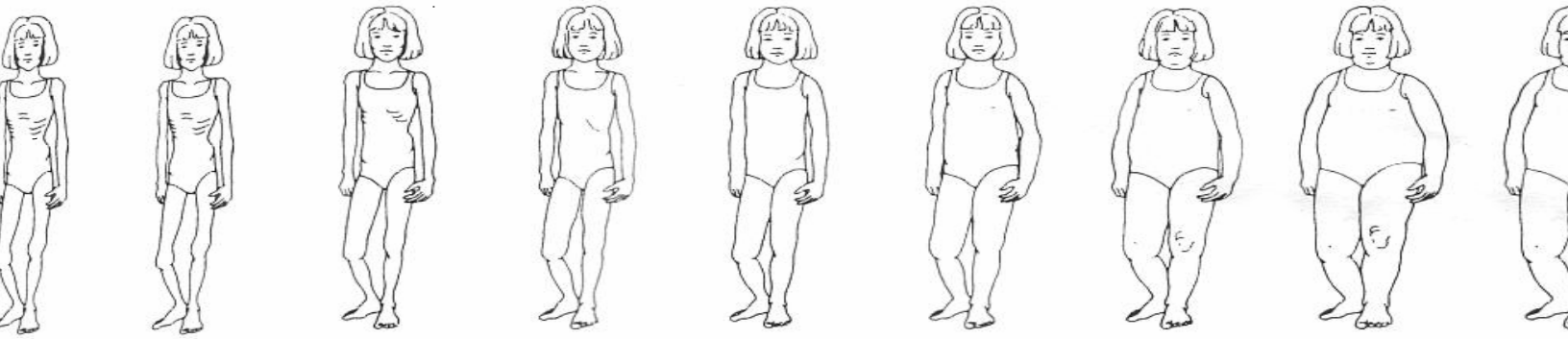
1	2	3	4	5	6
Never	**Hardly Ever**	**Sometimes**	**Often**	**Very Often**	**Always**

1. I think that my stomach is too big. _____
2. I think that my thighs are too large. _____
3. I think that my stomach is just the right size. _____
4. I feel satisfied with the shape of my body. _____
5. I like the shape of my buttocks. _____
6. I think my hips are too big. _____
7. I think that my thighs are just the right size. _____
8. I think my buttocks are too large. _____
9. I think that my hips are just the right size. _____

Please circle the one picture you think looks MOST LIKE YOU.



Please circle the one picture that shows the way YOU WANT TO LOOK.



The next part is about comments from <u>your father or important adult male in your life</u> e.g. uncle or step-father. <u>If you do not</u> have such a person in your life please <u>skip to question 4</u>

1	2	3	4	5	6
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**	**Always**

1. Does your father encourage you to lose weight? _____
2. Does your father diet to lose weight? _____
3. Does your father tease you because you are too big? _____

The next part is about comments from <u>your mother or important adult female in your life</u> e.g. aunt or step-mother. <u>If you do not</u> have such a person in your life please <u>skip to question 9</u>

1	2	3	4	5	6
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**	**Always**

4. Does your mother encourage you to lose weight? _____
5. Does your mother diet to lose weight? _____
6. Does your mother tease you because you are too big? _____

The next part is about comments from <u>your best friend.</u>

1	2	3	4	5	6
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**	**Always**

7. Does your best friend encourage you to lose weight? _____
8. Does your best friend diet to lose weight? _____
9. Does your best friend tease you because you are too big? _____

The next part is about comments from <u>television.</u>

1	2	3	4	5	6
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**	**Always**

10. Does the TV give you the idea you should be **thinner**? _____
11. Does the TV give you the idea you should **eat less** to lose weight? _____
12. Does the TV give you the idea you should **exercise more** to lose weight? _____

TELL ME ABOUT OTHER PEOPLE!

We want to know if people have ever teased you and how this made you feel. Please circle how often you think you were teased. If you answered "never" go to the next question. If you did not answer "never', please circle how upset you were by the teasing .

1. People made fun of you because you were heavy

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

2. People made jokes about you being heavy.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

3. People laughed at you for playing sports because you were heavy.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

4. People called you names like "fatso."

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

5. People pointed at you because you were overweight.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

6. People laughed about your weight when you walked into a room alone.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

7. People made fun of you by copying something you said because they thought it was dumb.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

8. People made fun of you because you were scared to do something.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

9. People said you acted dumb.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

10. People laughed at you because you did not know something.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

11. People teased you because you did not get a joke.

1	2	3	4	5
Never	**Rarely**	**Sometimes**	**Often**	**Very Often**

If so, how upset were you?

1	2	3	4	5
Not Upset	**A Little**	**Quite Upset**	**Upset**	**Very Upset**

The End
Thank you for taking part in this project!

Appendix G: Study Two Information Sheet

HELLO EVERYBODY!

Today you are going to take part in a project about how children feel about food, eating and their bodies. I am here to ask you some questions about these things. If you do not want to take part today, you are welcome to go to _____ and do another activity.

All the questions you need to answer are in this booklet. This is not a test and there is no right or wrong answers, so answer these questions as honestly as possible. I am the only person who will see this booklet so no one will know which answers belong to which person. You do not even have to put your name on the booklet if you do not want to.

Please try to answer every question. If you do not understand something, you can ask me any questions at any time. If you have any questions just put your hand up and I will help you. If you feel uncomfortable doing this activity, please let me know and you can stop.

Thank you for your time! You are helping us understand what kids think about food, eating and their bodies.

Please sign below if you agree to complete this questionnaire

Signed _____ Date _____

Appendix H: Study Two Debriefing Sheet

THANK YOU FOR HELPING WITH THIS STUDY

Thank you for helping me by answering my questions. The reason we did this today is to try to help adults understand what children feel about food and their bodies. This helps adults to look after children and make sure they keep feeling happy and healthy.

All your answers will be put together with other children's answers into one big group. This way you don't need to worry about anyone finding out your own answers.

It is important to remember that everybody is different. It is good to accept yourself for who you are on the inside. And remember to not judge people by the way they look.

We all come in different shapes, colours and sizes. It is what is on the inside that counts!!

THANKS AGAIN – YOU DID A WONDERFUL JOB AND I COULD NOT HAVE DONE THIS STUDY WITHOUT YOU!

Appendix I: Study Three Questionnaires

DEMOGRAPHIC QUESTIONNAIRE

Age (in years and months) _____

Ethnic Group _____

What is your current (or last main) **occupation?** (please be specific)

_____

What are your **parent's/caregivers occupations** (please be specific)?

Mother:_____

Father:_____

Height (in cm) _____

Weight (in kg) _____

INSTRUCTIONS - PLEASE READ CAREFULLY

In order to complete the questionnaire, read each statement carefully and decide how much you personally disagree or agree. Using a scale like the one below, indicate your answer in the space to the right of each item. There are no right or wrong answers--only opinions. Just give the answer that most accurately states your opinion. Remember, your responses are anonymous, so please be completely honest. Please give an answer to all of the items.

AFAT

The following pages contain a series of statements or opinions about fat people. You should indicate honestly how much you agree or disagree with each of the opinion statements listed below.

1	2	3	4	5
Definitely Disagree	**Mostly Disagree**	**Neither Agree Nor Disagree**	**Mostly Agree**	**Definitely Agree**

1. There's no excuse for being fat. _____
2. If I were single, I would date a fat person. _____
3. Jokes about fat people are funny. _____
4. Most fat people buy too much junk food. _____
5. Fat people are physically unattractive. _____
6. Fat people shouldn't wear revealing clothing in public. _____
7. If someone in my family were fat, I'd be ashamed of him or her _____
8. I can't stand to look at fat people. _____
9. If fat people don't get hired, its their own fault. _____
10. Fat people are disgusting. _____
11. If I have the choice, I'd rather not sit next to a fat person. _____
12. Fat people don't care about anything except eating. _____
13. I'd lose respect for a friend who started getting fat. _____
14. Most fat people are boring. _____
15. I can't believe someone of average weight would marry a fat person. _____
16. Society is too tolerant of fat people. _____
17. When fat people exercise, they look ridiculous. _____
18. I hate it when fat people take up more room than they should in a theater, or on a bus or plane _____
19. Most fat people are lazy. _____
20. Most fat people don't care about anyone but themselves. _____

21. Fat people are just as competent in their work as anyone. _____
22. If fat people really wanted to lose weight they could. _____
23. Being fat is sinful. _____
24. It's disgusting to see fat people eating. _____
25. Fat people have no will power. _____
26. I prefer not to associate with fat people. _____
27. Fat people don't care about their appearance. _____
28. Most fat people are moody and hard to get along with. _____
29. If bad things happen to fat people, they deserve it. _____
30. Most fat people don't keep their surroundings neat and clean. _____
31. Society should respect the rights of fat people. _____
32. Its hard not to stare at fat people because they are so unattractive. _____
33. If I owned a business, I would not hire fat people because of the way they look. _____
34. I'd feel self-conscious being seen in public with a fat person. _____
35. The idea that genetics cause people to be fat is just an excuse. _____
36. I would not want to continue in a romantic relationship if my partner became fat. _____
37. The existence of organizations to lobby for the rights of fat people in our society is a good idea. _____
38. I don't understand how someone could be sexually attracted to a fat person. _____
39. If fat people knew how bad they looked, they would lose weight. _____
40. People who are fat have as much physical coordination as anyone. _____
41. Fat people are unclean. _____
42. Fat people should be encouraged to accept themselves the way they are. _____
43. Most fat people will latch onto almost any excuse for being fat. _____
44. It's hard to take fat people seriously. _____
45. Fat people do not necessarily eat more than other people. _____
46. Fat people obviously have a character flaw, otherwise they wouldn't become fat. _____
47. It makes me angry to hear anybody say insulting things about people because they are fat. _____

SATAQ-3

Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

1	2	3	4	5
Definitely Disagree	**Mostly Disagree**	**Neither Agree Nor Disagree**	**Mostly Agree**	**Definitely Agree**

1. TV programs are an important source of information about fashion and "being attractive." _____
2. I've felt pressure from TV or magazines to lose weight. _____
3. I do not care if my body looks like the body of people who are on TV. _____
4. I compare my body to the bodies of people who are on TV. _____
5. TV commercials are an important source of information about fashion and "being attractive." _____
6. I do not feel pressure from TV or magazines to look pretty. _____
7. I would like my body to look like the models who appear in magazines. _____
8. I compare my appearance to the appearance of TV and movie stars. _____
9. Music videos on TV are not an important source of information about fashion and "being attractive." _____
10. I've felt pressure from TV and magazines to be thin. _____
11. I would like my body to look like the people who are in movies. _____
12. I do not compare my body to the bodies of people who appear in magazines. _____
13. Magazine articles are not an important source of information about fashion and "being attractive." _____
14. I've felt pressure from TV or magazines to have a perfect body. _____
15. I wish I looked like the models in music videos. _____
16. I compare my appearance to the appearance of people in magazines. _____
17. Magazine advertisements are an important source of information about fashion and "being attractive." _____
18. I've felt pressure from TV or magazines to diet. _____
19. I do not wish to look as athletic as the people in magazines. _____
20. I compare my body to that of people in "good shape." _____
21. Pictures in magazines are an important source of information about fashion and "being attractive." _____
22. I've felt pressure from TV or magazines to exercise. _____
23. I wish I looked as athletic as sports stars. _____
24. I compare my body to that of people who are athletic. _____

25. Movies are an important source of information about fashion and _____ "being attractive."
26. I've felt pressure from TV or magazines to change my appearance. _____
27. I do not try to look like the people on TV. _____
28. Movie starts are not an important source of information about fashion and "being attractive." _____
29. Famous people are an important source of information about fashion and "being attractive." _____
30. I try to look like sports athletes. _____

Please write the option that best reflects your opinion, using the rating system below.

1	2	3	4	5
Definitely Disagree	**Mostly Disagree**	**Neither Agree Nor Disagree**	**Mostly Agree**	**Definitely Agree**

1. My parents set very high standards for me _____
2. Organization is very important to me. _____
3. As a child, I was punished for doing things less than perfectly. _____
4. If I do not set the highest standards for myself, I am likely to end up a second-rate person. _____
5. My parents never tried to understand my mistakes. _____
6. It is important to me that I be thoroughly competent in everything I do _____
7. I am a neat person. _____
8. I try to be an organized person. _____
9. If I fail at work/school, I am a failure as a person. _____
10. I should be upset if I make a mistake. _____
11. My parents wanted me to be the best at everything. _____
12. I set higher goals for myself than most people. _____
13. If someone does a task at work/school better than me, then I feel like I failed the whole task. _____
14. If I fail partly, it is as bad as being a complete failure. _____
15. Only outstanding performance is good enough in my family. _____
16. I am very good at focusing my efforts on attaining a goal. _____
17. Even when I do something very carefully, I often feel that it is not _____

quite done right.

18. I hate being less than the best at things. _____
19. I have extremely high goals. _____
20. My parents have expected excellence from me. _____
21. People will probably think less of me if I make a mistake. _____
22. I never felt like I could meet my parents' expectations. _____
23. If I do not do as well as other people, it means I am an inferior human being. _____
24. Other people seem to accept lower standards from themselves than I do. _____
25. If I do not do well all the time, people will not respect me. _____
26. My parents have always had higher expectations for my future than have _____
27. I try to be a neat person. _____
28. I usually have doubts about the simple everyday things I do. _____
29. Neatness is very important to me. _____
30. I expect higher performance in my daily tasks than most people. _____
31. I am an organized person. _____
32. I tend to get behind in my work because I repeat things over and over. _____
33. It takes me a long time to do something 'right'. _____
34. The fewer mistakes I make, the more people will like me. _____
35. I never felt like I could meet my parents' standards. _____

MAC

This is an inventory of beliefs and attitudes about eating and weight. There are a number of statements with which you may tend to agree or disagree. For each statement, you should circle one of the numbers, according to your own reaction to the item:

Circle 1 if you Strongly Disagree
Circle 2 if you Moderately Disagree
Circle 3 if you Neither Agree nor Disagree
Circle 4 if you Moderately Agree
Circle 5 if you Strongly Agree

	SD	MD	N	MA	SA
1. I feel victorious over my hunger when I am able to refuse sweets……	1	2	3	4	5
2. No matter how much I weigh, fats, sweets, breads, and cereals are bad food because they always turn into fat……..	1	2	3	4	5
3. No one likes fat people; therefore, I must remain thin to be liked by others…….	1	2	3	4	5
4. I am proud of myself when I control my urge to eat..	1	2	3	4	5
5. When I eat desserts, I get fat. Therefore, I must never eat desserts so I won't be fat……..	1	2	3	4	5
6. How much I weigh has little to do with how popular I am…….	1	2	3	4	5
7. If I don't establish a daily routine, everything will be chaotic and I won't accomplish anything..	1	2	3	4	5
8. My friends will like me regardless of how much I weigh…….	1	2	3	4	5
9. When I am overweight, I am not happy with my appearance. Gaining weight will take away the happiness I have with myself……..	1	2	3	4	5
10. People like you because of your personality, not whether you are overweight or not…….	1	2	3	4	5
11. When I eat something fattening, it doesn't bother me that I have temporarily let myself eat something I'm not supposed to…….	1	2	3	4	5

12. If I eat a sweet, it will be converted instantly into stomach fat……	1	2	3	4	5
13. If my weight goes up, my self-esteem goes down.	1	2	3	4	5
14. I can't enjoy anything because it will be taken away..	1	2	3	4	5
15. It is more important to be a good person than it is to be thin……	1	2	3	4	5
16. When I see someone who is overweight, I worry that I will be like him/her…….	1	2	3	4	5
17. All members of the opposite sex want a mate who has a perfect, thin body……	1	2	3	4	5
18. Having a second serving of a high calorie food I really like doesn't make me feel guilty……	1	2	3	4	5
19. If I can cut out all carbohydrates, I will never be fat..	1	2	3	4	5
20. When I overeat, it has no effect on whether or not I feel like a strong person……..	1	2	3	4	5
21. Members of the opposite sex are more interested in "who" you are rather than whether or not you are thin..	1	2	3	4	5
22. If I gain one pound, I'll go on and gain a hundred pounds, so I must keep precise control of my weight, food, and exercise……	1	2	3	4	5
23. I rarely criticize myself if I have let my weight go up a few pounds……	1	2	3	4	5
24. I try to attract members of the opposite sex through my personality rather than by being thin……...	1	2	3	4	5

Please double check that you have answered every question.
Thanks you for taking the time to fill out this questionnaire.

Appendix J: Study Three Advertisements-Print/Email

You are invited to take part in a study on female body image!

We are looking for women between 18 and 40 years of age

Participants will complete a series of questionnaires. This will take approximately 20-35 minutes. Participants will go into the draw to win a $100 Westfield voucher! This study is confidential and your anonymity will be maintained.

E-mail Juliet: jka23@student.canterbury.ac.nz
Phone: 3642987 ext. 7189

Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 37189	Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 37189	Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 1789	Body Image Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image Study

Hi there,

You are invited to participate in a brief study investigating body image in women. The study consists of filling out some questionnaires taking 10-20 minutes and going into the draw to WIN a $100 Westfield Mall voucher.

The aim of this project is to identify factors associated with eating attitudes and body image, in women of various ages and characteristics. The results of the project may be published, but you may be assured of the complete anonymity of data gathered in this investigation.

If you are a women, aged between 18 and 40 and interested in participating in this research email Juliet at jka23@student.canterbury.ac.nz to arrange a suitable time to collect a questionnaire.

This project has been reviewed and approved by the Human Ethics Committee at the University of Canterbury.

Kind Regards,
Juliet Rosewall

Appendix K: Study Three Information Sheet and Consent Form

University of Canterbury
Department of Psychology

INFORMATION SHEET

You are invited to participate in the research project "Body Image in women".

The aim of this project is to identify factors associated with eating attitudes and body image, in women of various ages and characteristics.

Your involvement in this project will involve completing a questionnaire that will take about 20 to 35 minutes. You have the right to withdraw from this exercise at any time, although once your questionnaire has been handed your data will not be able to be removed because it will be anonymous. The results of the project may be published, but you may be assured of the complete anonymity of data gathered in this investigation. To ensure anonymity, all data will be coded using numbers rather than participant names. Data will be stored in a locked filing cabinet in a locked office.

There is no foreseeable risk to participating in this study, however, some questions may lead you to think more about issues regarding eating and thinness. You may discuss these concerns and receive guidance from the investigators at any time.

This project is being carried out by Ms.Juliet Rosewall under the supervision of Dr. David Gleaves. If you have any questions you may have about participation in this project, Juliet can be contacted by phone on 3642-987 ext.7189 or email at jka23@student.canterbury.ac.nz. Alternatively, Dr. David Gleaves can be contacted by phone at 3642-987 ext. 6169 or email at david.gleaves@canterbury.ac.nz.

This project has been reviewed and approved by the Human Ethics Committee at the University of Canterbury.

University of Canterbury
Department of Psychology

CONSENT FORM

"Body Image in Women."

I have read and understood the description of the above-named project. On this basis I agree to participate as a subject in the project, and I give consent to publication of the results of the project with the understanding that anonymity will be preserved.

I understand also that I may at any time withdraw from the project, including withdrawal of any information I have provided.

Signed: _____ Date: _____

Email address (for the prize draw): _____

Appendix L: Study Three Debriefing Sheet

University of Canterbury
Department of Psychology

DEBRIEFING SHEET

Thank you for your participation in this study! You have contributed towards important research that will further advance the study of women's health. Please make sure that you have answered all of the questions.

The emergence of thinness as a Western female beauty ideal has been linked to the growing rate of eating pathology and unhealthy body image amongst women and girls. The sociocultural model of eating pathology suggests that awareness of the media ideal of thinness precedes the internalisation or "buying into" of these ideals, which in turn may lead to subsequent body dissatisfaction and eating pathology. Although most women are aware of the thin ideal, not all women internalize this ideal. The aim of this study was to look at the factors that protect women from internalizing the thin ideal. Research into internalisation of the thin ideal is important given the role it plays in contributing to body dissatisfaction and potential eating disorder symptomotology. Specifically, this study looked at the role of antifat attitudes, perfectionism and anorectic cognitions and if these factors contribute to the likelihood of an individual internalizing the thin ideal.

By examining the specific role perfectionism**,** antifat attitudes and anorectic cognitions play in internalising the thin ideal, this study will inform future prevention programs aimed at reducing the severity and frequency of eating disorders. The findings of this research will help identify the things that cause problem eating behaviours and body attitudes in women. A potential benefit of this study is a better understanding of unhealthy body image and eating.

The consent forms are stored separately from your questionnaire, so your anonymity will be maintained. Given the nature of the study, it is possible that some issues may have been raised for you. If so, please feel free to talk to either the researcher Juliet Rosewall, who can be contacted at 364-2987 ext. 7189. Alternatively, please get in touch with one of the following referrals.

<u>Organizations to call about treatment options</u>:

Eating Awareness Team: 366-7725, or visit them at 325 Montreal St

Princess Margaret Hospital: (ask for eating disorders unit): 337-7899

Dieticians: the Christchurch public hospital has dietitians and that can individuals can meet with for free, with a referral from a G.P. For your doctor's information, the phone number is 364-0630.

Weight Watchers (for weight issues): 0800-009-009

Appendix M: Study Four Questionnaires

University of Canterbury
Department of Psychology

Age (in years and months) _____

Ethnic Group _____

What is your current (or last main) **occupation?** (please be specific)
_____

_____

What are your **parent's/caregivers occupations** (please be specific)?

Mother:_____

Father:_____

Height (in cm) _____

Weight (in kg) _____

EAT-26

The following questionnaire has been designed to examine your attitude towards food and eating. Please answer the following questions as honestly as possible by ticking the box that best applies to you. ***I …***

	Always	**Usually**	**Often**	**Sometimes**	**Rarely**	**Never**
1. Am terrified about being overweight						
2. Avoid eating when I am hungry						
3. Find myself preoccupied with food						
4. Have gone on eating binges where I feel I may not be able to stop						
5. Cut my food into small pieces						
6. Aware of the calorie content of the foods I eat.						
7. Particularly avoid food with a high carbohydrate content (bread, rice, potatoes etc.)						
8. Feel that others would prefer if I ate more						
9. Vomit after I have eaten						
10. Feel extremely guilty after eating						
11. Am preoccupied with a desire to be thinner						
12. Think about burning up calories when I exercise						
13. Other people think I am too thin						
14. Am preoccupied with the thought of having fat on my body						
15. Take longer than others to eat my meals						
16. Avoid foods with sugar in them						

	Always	Usually	Often	Sometimes	Rarely	Never
17. Eat diet foods						
18. Feel that food controls my life						
19. Display self control around food						
20. Feel that others pressure me to eat						
21. Give too much time and thought to food						
22. Feel uncomfortable after eating sweets						
23. Engage in dieting behaviour						
24. Like my stomach to be empty						
25. Have the impulse to vomit after meals						
26. Enjoy trying new rich foods						

BIA

Using the figures on the following page, please respond to the following questions as honestly as possible.

1. Please select the figure that most closely matches your current body size. ☐

2. Please select the figure that most closely matches your ideal body size. ☐

BSQ

The following questions assess how you have been feeling ***about your appearance*** over the **PAST FOUR WEEKS**. Please read each question and tick in the appropriate box.

Has feeling bored made you brood about your shape?	Always	Very often	Often	Sometimes	Rarely	Never
2. Have you been so worried about your shape that you have been feeling you ought to diet?	Always	Very often	Often	Sometimes	Rarely	Never
3. Have you thought that your thighs, hips or bottom are too large for the rest of you?	Always	Very often	Often	Sometimes	Rarely	Never
4. Have you been afraid that you might become fat (or fatter)?	Always	Very often	Often	Sometimes	Rarely	Never
5. Have you worried about your flesh being not firm enough?	Always	Very often	Often	Sometimes	Rarely	Never
6. Has feeling full (e.g. after eating a large meal) made you feel fat?	Always	Very often	Often	Sometimes	Rarely	Never
7. Have you felt so bad about your shape that you have cried?	Always	Very often	Often	Sometimes	Rarely	Never
8. Have you avoided running because your flesh might wobble?	Always	Very often	Often	Sometimes	Rarely	Never
9. Has being with thin women made you feel self-conscious about your shape?	Always	Very often	Often	Sometimes	Rarely	Never
10. Have you worried about your thighs spreading out when sitting down?	Always	Very often	Often	Sometimes	Rarely	Never
11. Has eating even a small amount of food made you feel fat?	Always	Very often	Often	Sometimes	Rarely	Never
12. Have you noticed the shape of other women and felt that your own shape compared unfavorably?	Always	Very often	Often	Sometimes	Rarely	Never
13. Has thinking about your shape interfered with your ability to concentrate (e.g. while watching television, reading, listening to conversations)?	Always	Very often	Often	Sometimes	Rarely	Never
14. Has being naked, such as when taking a bath, made you feel fat?	Always	Very often	Often	Sometimes	Rarely	Never
16. Have you imagined cutting off fleshy areas of your body?	Always	Very often	Often	Sometimes	Rarely	Never
17. Has eating sweets, cakes, or other high calorie food made you feel fat?	Always	Very often	Often	Sometimes	Rarely	Never

18. Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape?	Always	Very often	Often	Sometimes	Rarely	Never
19. Have you felt excessively large and rounded?	Always	Very often	Often	Sometimes	Rarely	Never
20. Have you felt ashamed of your body?	Always	Very often	Often	Sometimes	Rarely	Never
21. Has worry about your shape made you diet?	Always	Very often	Often	Sometimes	Rarely	Never
22. Have you felt happiest about your shape when your stomach has been empty (e.g. in the morning)?	Always	Very often	Often	Sometimes	Rarely	Never
23. Have you thought that you are in the shape you are because you lack self-control?	Always	Very often	Often	Sometimes	Rarely	Never
24. Have you worried about other people seeing rolls of fat around your waist or stomach?	Always	Very often	Often	Sometimes	Rarely	Never
25. Have you felt that it is not fair that other women are thinner than you?	Always	Very often	Often	Sometimes	Rarely	Never
26. Have you vomited in order to feel thinner?	Always	Very often	Often	Sometimes	Rarely	Never
27. When in company have your worried about taking up too much room (e.g. sitting on a sofa, or a bus seat)?	Always	Very often	Often	Sometimes	Rarely	Never
28. Have you worried about your flesh being dimply?	Always	Very often	Often	Sometimes	Rarely	Never
29. Has seeing your reflection (e.g. in a mirror or shop window) made you feel bad about your shape?	Always	Very often	Often	Sometimes	Rarely	Never
30. Have you pinched areas of your body to see how much fat there is?	Always	Very often	Often	Sometimes	Rarely	Never
31. Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming pools)?	Always	Very often	Often	Sometimes	Rarely	Never
32. Have you taken laxatives in order to feel thinner?	Always	Very often	Often	Sometimes	Rarely	Never
33. Have you been particularly self-conscious about your shape when in the company of other people?	Always	Very often	Often	Sometimes	Rarely	Never
34. Has worry about your shape made you feel you ought to exercise?	Always	Very often	Often	Sometimes	Rarely	Never

BES

On this page is listed a number of body parts and functions. Please read each item and indicate how you feel about this part of function of your own body by using the following scale:

1 = Have strong negative feelings
2 = Have moderate negative feelings
3 = Have no feeling one way or the other
4 = Have moderate positive feeling
5 = Have strong positive feelings

---

1. body scent _____
2. appetite _____
3. nose _____
4. physical stamina _____
5. reflexes _____
6. lips _____
7. muscular strength _____
8. waist _____
9. energy level _____
10. thighs _____
11. ears _____
12. biceps _____
13. chin _____
14. body build _____
15. physical coordination _____
16. buttocks _____
17. agility _____
18. width of shoulders _____
19. arms _____
20. chests or breasts _____
21. appearance of eyes _____
22. cheeks/cheekbones _____
23. hips _____
24. legs _____
25. figure or physique _____

1 = Have strong negative feelings
2 = Have moderate negative feelings
3 = Have no feeling one way or the other
4 = Have moderate positive feeling
5 = Have strong positive feelings

---

26. sex drive _____
27. feet _____
28. sex organs _____
29. appearance of stomach _____
30. health _____
31. sex activities _____
32. body hair _____
33. physical condition _____
34. face _____
35. weight _____

Please double check that you have answered every question.
Thank you for taking the time to fill out this questionnaire.

Appendix N: Study Four Advertisement

You are invited to take part in a study on body image and eating attitudes in women.

We are looking for women between 18 and 40 years of age

:

Participants will complete a series of questionnaires. This will take approximately 30 minutes. Participants will all receive a $5 UCSA voucher!

This study is confidential.

E-mail Juliet: jka23@student.canterbury.ac.nz
Phone: 3642987 ext. 7189

Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 37189	Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 1789	Body Image & Eating Attitudes Study jka23@student.canterbury.ac.nz Phone: 3642987 ext. 7189	Body Image & Eating Attitudes Study

Appendix O: Study Four Information Sheet and Consent Form

University of Canterbury
Department of Psychology

INFORMATION SHEET

You are invited to participate in the research project "Personality, Body Image and Eating Patterns in Women".

The aim of this project is to identify personality factors associated with body image and eating attitudes, in women of various ages and characteristics.

Your involvement in this project will involve completing a questionnaire that will take about 45 minutes to one hour. You have the right to withdraw from this exercise at any time, although once your questionnaire has been handed your data will not be able to be removed because it will be anonymous. The results of the project may be published, but you may be assured of the complete anonymity of data gathered in this investigation. To ensure anonymity, all data will be coded using numbers rather than participant names. Data will be stored in a locked filing cabinet in a locked office.

There is no foreseeable risk to participating in this study; however, some questions may lead you to think more about issues regarding eating and thinness. You may discuss these concerns and receive guidance from the investigators at any time.

This project is being carried out by Ms.Juliet Rosewall under the supervision of Dr. David Gleaves. If you have any questions you may have about participation in this project, Juliet can be contacted by phone on 3642-987 ext.7189 or email at jka23@student.canterbury.ac.nz. Alternatively, Dr. David Gleaves can be contacted by phone at 3642-987 ext. 6169 or email at david.gleaves@canterbury.ac.nz.

This project has been reviewed and approved by the Human Ethics Committee at the University of Canterbury.

University of Canterbury
Department of Psychology

CONSENT FORM

"Personality, Body Image and Eating Patterns in Women."

I have read and understood the description of the above-named project. On this basis I agree to participate as a subject in the project, and I give consent to publication of the results of the project with the understanding that anonymity will be preserved.

I understand also that I may at any time withdraw from the project, including withdrawal of any information I have provided.

Signed: _____ Date: _____

Appendix P: Study Four Debriefing Sheet

University of Canterbury
Department of Psychology

DEBRIEFING SHEET

Thank you for your participation in this study! You have contributed towards important research that will further advance the study of women's health. Please make sure that you have answered all of the questions.

Body dissatisfaction can have negative impacts on an individual. It is related to an increased risk of unhealthy eating behaviours, dieting, bulimia symptomotology, depression and lower levels of psychosocial adjustment. However, body dissatisfaction, although problematic, is often present in women without diagnosable eating disorders and may not always be present in women with EDs. In other words, not everyone who is dissatisfied with his or her body will go on to develop an eating disorder. Also, there is a strong relationship between BMI and body dissatisfaction. However, not all women who have a high BMI are dissatisfied,

The aim of this study was to examine the factors that protect women who are dissatisfied with their bodies from developing unhealthy eating behaviours and those with high BMIs from being dissatisfied. Specifically, it will identify whether there is a group of participants who exhibit these features, and to see if this can be predicted by personality variables.

The findings of this research will help identify the factors that cause problem eating behaviors and body attitudes in women. A better understanding of these factors will provide information to inform future prevention programs aimed at reducing the severity and frequency of eating disorders.

Given the nature of the study, it is possible that some issues may have been raised for you. If so, please feel free to talk to either the researcher Juliet Rosewall, who can be contacted at 364-2987 ext. 7189 or Dr David Gleaves, who can be contacted at 364-2987 ext. 6169. Alternatively, please get in touch with one of the following referrals.

<u>Organizations to call about treatment options</u>:

Eating Awareness Team: 366-7725, or visit them at 325 Montreal St

Princess Margaret Hospital: (ask for eating disorders unit): 337-7899

Dieticians: the Christchurch public hospital has dietitians and that can individuals can meet with for free, with a referral from a G.P. For your doctor's information, the phone number is 364-0630.

Weight Watchers (for weight issues): 0800-009-009