Body Dissatisfaction in Adolescents with Eating Disorders: Associations with Maladaptive Perfectionism and Anxiety

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by

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ABSTRACT

Adolescent eating disorders are chronic, disabling illnesses associated with significant mortality rates (Crow et al., 2009). Body dissatisfaction has been demonstrated as a prominent risk factor for adolescent eating disorders. However few studies have examined psychological factors that predict body dissatisfaction. The present study examined maladaptive perfectionism and anxiety as possible risk factors for body dissatisfaction in adolescents with eating disorders and controls. Participants completed measures of body dissatisfaction, maladaptive perfectionism, and anxiety. Results demonstrated that maladaptive perfectionism and anxiety were significantly and positively associated with body dissatisfaction. However, these factors did not interact to predict elevated body dissatisfaction in eating disordered adolescents. These findings suggest that current body image treatments for adolescents with eating disorders and from nonclinical populations may be improved by including a focus on maladaptive perfectionism or anxiety. Future research should endeavour to conduct prospective, longitudinal studies that assess whether risk factors for body dissatisfaction are also causal factors. Finally, it is also important that researchers investigate whether body image treatments that target maladaptive perfectionism or anxiety effectively reduce body dissatisfaction in adolescents with and without eating disorders.

Eating is one of the most basic survival needs and one that is often taken for granted by humans (Herpertz-Dahlmann, 2009). Despite this, eating disorders have some of the highest mortality rates among all mental illnesses. Early research noted crude mortality rates for Anorexia Nervosa (AN) and Bulimia Nervosa (BN) as 3.3% and 3.1%, respectively (Patton, 1988). However recent research revealed that despite development of treatments for eating disorders, crude mortality rates remain high: 4.0% for AN, 3.9% for BN, and 5.2% for Eating Disorder Not Otherwise Specified (EDNOS; Crow et al., 2009). In addition, research has demonstrated significant relapse rates for eating disorders; one study found that in a sample of patients 48% had relapsed (Norring & Sohlberg, 1993). Furthermore, individuals who recover from this disease often suffer from long-term consequences such as cardiovascular problems, dental problems, osteoporosis, and fertility issues (American Psychiatric Association; APA, 2000).

Given the seriousness of eating disorders it is pertinent to examine factors that contribute to their development and maintenance. This discussion will review the features, prevalence, course, and comorbidity of eating disorders. I will then review risk factors for disordered eating in adolescents including body dissatisfaction, maladaptive perfectionism, and anxiety.

EATING DISORDER DIAGNOSES

Anorexia Nervosa

AN is characterised by deliberate weight loss, body image distortion, and a fear of being fat (APA, 2000). Individuals with AN are substantially underweight weighing at approximately 15% less than their normal body weight (APA, 2000). In addition, postmenarcheal females with AN are amenorrheic (APA, 2000). There are two

subtypes of AN: binge/purge (AN-BP) which is characterized by episodes of binge eating/purging, and restricting (AN-R) which is characterized by the absence of binge eating/purging.

Prevalence rates of AN in females have been noted as 0.5%-1.0% (APA, 2000) and 0.1% for males (Garfinkel et al., 1996). AN predominantly occurs among females, accounting for more than 90% of cases (APA, 2000). In addition, AN is more common in Western countries where, especially for females, attractiveness is linked to thinness (Makino, Tsuboi, & Dennerstein, 2004). However, AN appears to be increasing in non-Western countries (Lee, 1996; Makino et al., 2004).

The onset to AN is often gradual, beginning in healthy individuals who are of normal to slightly heavy weight who diet to shed kilograms (Herzog, Jackson, & Franko, 2006). At some point, however, the diet becomes excessive as more and more restriction is placed on what is acceptable to eat (Herzog et al., 2006). AN typically develops during adolescence and rarely occurs prior to puberty and over the age of 40 (APA, 2000). Full recovery rates have been reported as 75.8%, while partial recovery rates have been reported as 10.5% (Pike, 1998). However, relapse is common and noted to occur in one third of AN cases (Herzog et al., 1999).

Furthermore, individuals with AN frequently present with comorbid mental disorders including mood, anxiety, personality disorders, and substance abuse (Halmi et al., 1991). Major Depression is the most commonly diagnosed comorbid mental disorder for AN (Herzog et al., 1999). Obsessive-Compulsive Disorder (OCD) and Social Phobia are also common and are thought to develop prior to the eating disorder (Kaye et al., 2004).

Bulimia Nervosa

In contrast to individuals with AN individuals with BN present as being of normal weight to slightly overweight (Fairburn & Cooper, 1982). However like AN, BN is characterised by a preoccupation with weight and body shape and rapid consumption of large quantities of food (binge eating) followed by a method/s of food elimination (i.e., purging; APA, 2000). Binge eating involves consuming an amount of food that is larger than what most individuals would eat during a similar circumstance and takes place during a limited period of time (i.e., one hour; APA, 2000). In addition, binge eating usually occurs in secrecy and involves sweet foods high in calories (APA, 2000).

There are two subtypes of BN: a) purging type, characterised by regular episodes of self-induced vomiting or the misuse of laxatives, diuretics, or enemas following a binge episode, and b) non-purging type, characterised by the use of other compensatory behaviours (i.e., fasting or excessive exercise) and the absence of purging methods characteristic of purging types (APA, 2000). Self-induced vomiting occurs in 80%-90% of individuals with BN (APA, 2000). However, laxatives, fasting, vigorous exercise, and diet pills are also commonly used methods (APA, 2000).

Prevalence rates for BN have been noted as 1.5% among women and 0.5% among men (Hudson, Hiripi, Pope, & Kessler, 2007). Like AN, BN is significantly more common among females, who account for at least 90% of cases (APA, 2000). BN has been noted to occur among industrialised countries at similar rates to AN however little research has examined BN in other countries (APA, 2000).

BN typically occurs during late adolescence to early adulthood (APA, 2000). Specifically, binge eating has been noted to develop during or after dieting (APA, 2000). The course of BN may be persistent or irregular, where periods of remission

alternate with periods of disordered eating (APA, 2000). The probability of recovery has been noted as 74% at 60 months, with relapse rates of 47% (Grilo et al., 2007).

Finally, individuals with BN also commonly present with comorbid mental disorders. Again, major depression is the most commonly diagnosed comorbid disorder (O'Brien & Vincent, 2003). Individuals with BN have also reported histories of drug abuse including amphetamines, marijuana, and non-prescribed tranquilisers (O'Brien & Vincent, 2003). Furthermore, borderline personality disorder is common among individuals with BN (O'Brien & Vincent, 2003).

Eating Disorder Not Otherwise Specified

EDNOS is typically diagnosed in patients who have an eating disorder of clinical severity, but do not meet the criteria for either AN or BN (APA, 2000). For example, if an individual meets the criteria for AN but still has a normal menstrual cycle. Similarly, an individual may engage in episodes of binge/purge behaviour but not frequently enough to warrant a diagnosis of BN.

Little research has examined the prevalence, onset, course, and comorbidity of EDNOS. A prevalence rate of 2.37% for EDNOS has been reported (Machado, Machado, Goncalves, & Hoek, 2007). In addition, EDNOS has been noted to have a remission rate of 83% and a relapse rate of 42% (Grilo et al., 2007). Research has revealed that individuals with EDNOS present with levels of psychopathology (i.e., depression, anxiety, substance abuse, and self-esteem issues) comparative to that found in individuals with AN or BN (e.g., Binford & le Grange, 2005).

In summary, although the eating disorders are differentiated according to eating behaviours, weight loss techniques, prevalence, and course, a common feature among

them is that the average onset is during adolescence (e.g., Anderluh, Tchanturia, Rabe-Hesketh, & Treasure, 2003; Sullivan, Bulik, Fear, & Pickering, 1998). Eating disorders have been noted as the third most common chronic illness among adolescents (Spear & Stellefson-Myers, 2001). It appears, therefore, that adolescence is a crucial time period for eating disorders and it is essential to examine eating pathology among this population.

EATING DISORDERS IN ADOLESCENTS

The prevalence rates of AN and BN among adolescents are similar to adult rates. In a review by Hoek and van Hoeken (2003) the average lifetime prevalence rate for AN was 0.3% for adolescent females (15-19 years), which is slightly less than a rate of 0.9% in adult females (Hudson et al., 2007). Prevalence rates for AN among adolescent males are difficult to attain, yet research has noted a rate of 0.2% (Kjelsas, Bjornstrom, & Gotestam, 2004) which is slightly less than the prevalence rate among adult males (0.3%; Hudson et al., 2007).

Prevalence rates for BN are less clear than AN, as adolescents who display the core features of BN may not have developed the requisite severity or duration of symptoms, given that studies employ strict diagnostic criteria (Golden, 2003). However, BN rates of 1.2% in adolescent girls and 0.4% in adolescent boys have been reported (Kjelsas et al., 2004). These rates are similar to the reported rates among adults (1.5% for women and 0.5% for men, respectively; Hudson et al., 2007).

The most frequently diagnosed eating disorder among adolescents is EDNOS (e.g., Eddy, Doyle, Hoste, Herzog, & le Grange, 2008). One study examining the frequency, type, and clinical severity of EDNOS in adolescents with eating disorders found that 59.1% were diagnosed with EDNOS, relative to 20.3% with AN and 20.6%

with BN (Eddy et al., 2008). Research suggests that the prevalence of EDNOS in adolescent females (14.6%) and males (5.0%; Kjelsas et al., 2004) is similar to that in adults (Turner & Bryant-Waugh, 2004).

Significant differences between adolescents and adults in the clinical presentation of eating disorders have been demonstrated (e.g., Fisher, Schneider, Burns, Symons, & Mandel, 2001). Fisher et al. (2001) found significant differences in diagnosis, severity, levels of denial, desire for help, and eating behaviours between adolescents and adults. Adolescents were more likely to present with EDNOS compared to adults, who more commonly presented with BN (Fisher et al., 2001). Fisher et al. also found that eating pathology was less severe among adolescents relative to adults. However, adolescents exhibited a higher level of denial and less desire for help compared to adults (Fisher et al., 2001). Finally, adults reported more binge eating, use of laxatives, and fasting compared to adolescents (Fisher et al., 2001).

Studies examining subclinical levels of eating pathology in adolescents have also revealed some disturbing findings. Research suggests subclinical eating pathology is present in as many as 10% of adolescent females (APA, 2000; Thompson & Smolak, 2001). One study examining subclinical eating pathology in a population of 1739 adolescent females revealed the following statistics: 23 % were dieting to lose weight, 15% engaged in binge eating associated with a loss of control, 8.2% engaged in self-induced vomiting, and 2.4% used diet pills (Jones, Bennett, Olmsted, Lawson, & Rodin, 2001). McNutt et al. (1997) found that 81% of a population of 10 year olds acknowledged they were afraid of becoming fat. Finally, compensatory behaviours to control weight such as using laxatives, restricting food intake, or vomiting, have been found in over one-half of a sample of adolescent females and almost one-third of a sample of adolescent males (Neumark-Sztainer, Story, Hannan, Perry, & Irving, 2002).

Finally, although disordered eating has been noted to occur predominantly among adolescents from white, middle-class backgrounds (e.g., Barry & Grilo, 2002; Rodgers, Resnick, Mitchell, & Blum, 1997), recent research suggests that disordered eating is common in adolescents from cultural minorities (e.gs., Croll, Neumark-Sztainer, Story, & Ireland, 2002; Robinson, et al., 1996) and low socio-economic backgrounds (e.g., Robinson, et al., 1996). Croll et al. (2002) examined disordered eating among a predominantly White (87% of the sample) population of adolescents, and found that Hispanic (1.5% of the sample), and American Indian individuals (5.5% of the sample) reported the highest levels of disordered eating. However like adult populations, disordered eating among adolescents occurs predominantly among females (e.gs., Croll, et al., 2002).

In summary, research has demonstrated that eating disorders occur among adolescents at similar rates to adults (e.g., Hoek & van Hoeken, 2003; Kjelsas et al., 2004; Turner & Bryant-Waugh, 2004). In addition, nonclinical populations of adolescents exhibit high levels of subclinical eating pathology (Thompson & Smolak, 2001). Given that adolescence is a crucial time period for the development of eating disorders, it is important to examine factors that may increase the risk for this illness. Research has identified a number of risk factors for the development of eating disorders among adolescents including sociocultural, development, and psychological variables.

RISK FACTORS FOR EATING DISORDERS IN ADOLESCENTS

A number of risk factors for adolescent eating disorders have been identified. First, eating pathology among adolescents may be explained by the specific changes that occur during adolescence. Adolescence is a vulnerable time that involves a desire for peer acceptance and pubertal changes that may lead to weight and shape

conscientiousness (Gowers & Shore, 2001). Early sexual experiences and menarche may increase the risk for eating pathology by elevating the degree to which individuals concern themselves with their body image and desirability to others (Kaltiala-Heino, Rimpel, Rissanen, & Rantanen, 2001). Indeed, research has demonstrated that sexual maturity in female adolescents is associated with an increased risk for eating pathology (Killen et al., 1992). However, the literature on adolescent eating disorders implies that developmental factors specific to adolescence do not particularly predict eating pathology, but may contribute to eating disturbances when they co-occur with other life stressors (for a review see Stice, 2002).

A second popular approach to explaining the development of eating disorders involves the exposure to the thin-ideal media. Specifically, images of thin individuals in magazines, newspapers and on television that are portrayed to have the 'ideal' body image may pressure adolescents to loose weight in order to increase their self-worth (Harrison, 2000). Social influence from peers and media are thought to reinforce the internalisation of the thin-ideal in adolescents (Stice, 1998). Indeed, research has demonstrated that social reinforcement of the thin-ideal from peers and family is associated with eating pathology among adolescents (Stice, 1998). Young and middle adolescents may be particularly vulnerable to the thin-ideal media given that research has shown that older adolescents have a better understanding of the difference between media fantasy and reality (Dorr, Kovaric, & Doubleday, 1990).

Research has demonstrated strong gender differences in the impact of the thin-ideal. Specifically, the relationship between the thin-ideal presented in the media and eating pathology in adolescents is stronger for females compared to males (Harrison, 2000). This is expected given that the 'ideal' body image for males is associated with an increase in muscle mass rather than a decrease in body fat (Harrison, 2000).

However, findings from research suggest that exposure to thin-ideal media alone does not predict adolescent eating pathology. For instance, Harrison (2000) found that after controlling for a number of variables (i.e., drive for thinness and body dissatisfaction) exposure to thin-ideal media was not associated with eating pathology in adolescents. On the other hand, exposure to fat-character television (i.e., television portraying images of individuals considered to be 'fat') was a small predictor of bulimic symptomatology (Harrison, 2000).

In addition to developmental and sociocultural factors, researchers have identified a number of important psychological variables that have been found to be significantly associated with eating pathology in adolescents. Specifically, body dissatisfaction has received significant empirical support as an important precipitating factor to adolescent eating disorders.

BODY DISSATISFACTION IN ADOLESCENTS: DEFINTITION, THEORY, ASSESSMENT, AND RESEARCH FINDINGS

Body dissatisfaction has been defined as a negative, subjective evaluation of an individual's own physical body (Stice & Shaw, 2002), and can vary from generalised displeasure of the whole body to irritation over a specific part of the body (Phelps, Johnston, & Augustyniak, 1999). The Sociocultural model is the most prominent model used to explain the theoretical underpinnings to the role of body dissatisfaction in adolescent eating pathology. According to this model, discrepancies between an individuals' current body image and their ideal body image results in body dissatisfaction and leads to eating pathology (Stice, 1994). However, for body dissatisfaction to develop an individual must first believe that being thin is important (Stice, 1994). Given that media portrayals of the thin-ideal image are typically

associated with concepts of beauty, wealth, and fame, it is not surprising that a significant number of adolescents report being dissatisfied with their body.

Researchers examining body dissatisfaction and adolescent eating pathology typically employ the body dissatisfaction scale from the Eating Disorder Inventory (EDI). The body dissatisfaction subscale assesses beliefs that various parts of the body are too big or associated with being fat (Garner, 2004). The scale has been shown to be reliable and valid among adolescent populations (Shore & Porter, 1990; Steiger, Leung, Puentes-Neuman, & Gottheil, 1992). However, a number of other measures have been employed including the Self-Image Questionnaire for Young Adolescents (SIQYA; Petersen, Schulenberg, Abramowitz, Offer, & Jarcho, 1984), a measure of affective and social comparative aspects of body image, and the Figure Rating Scale (FRS; Stunkard, Sorenson, & Schlusinger, 1983), which assesses perceived ideal and actual body size/shape.

Research has found that body dissatisfaction (i.e., a desire to be thinner than their current figure) can develop prior to adolescence (Wood, Becker, & Thompson, 1996). The number of young children who report to being dissatisfied with their bodies has been estimated to range from 28% to 55% for girls (Ricciardelli, McCabe, Holt, & Finemore, 2003), and 17% to 30% for boys (Ricciardelli & McCabe, 2001). However, gender differences in body dissatisfaction (i.e., the reduction of fat for females compared to an increase in muscle mass for males) are not apparent until the age of ten or older (Ricciardelli & McCabe, 2001). This finding suggests that the beginning of adolescence is an important time for the impact of sociocultural influences on body image. Indeed, rates of body dissatisfaction are significantly higher for adolescents compared to children; in a New Zealand study, Fear and colleagues reported that 71% of adolescent females reported body dissatisfaction.

A number of studies have examined body dissatisfaction and eating pathology among adolescents (e.g., Harrison, 2000; Keery, van den Berg, & Thompson, 2004; Shaw, 1995). Furnham, Badmin, and Sneade (2002) demonstrated that compared to adolescent males, females tend to exhibit significantly higher rates of discrepancies between ideal and actual self, weight dissatisfaction, abnormal eating attitudes/behaviours, and exercise for weight loss. Interventions for body image among nonclinical populations of adolescents have been found to significantly lower drive for thinness and increase body satisfaction, even among adolescents considered to be high-risk for the development of eating pathology (O'Dea & Abraham, 2000).

Although body dissatisfaction has been widely examined among nonclinical populations of adolescents (for a review see Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004), few studies have examined body dissatisfaction in adolescents *with* eating disorders (e.g., Bunnell, Cooper, Hertz, & Shenker, 1992; Castro-Fornieles, et al., 2007). Castro-Fornieles et al. (2007) examined body dissatisfaction in female adolescents with AN and BN, psychiatric patients with anxiety, depression, and controls. Adolescents completed the Child and Adolescent Perfectionism scale, Eating Disorder Inventory-2, and the Eating Attitudes Test. Results demonstrated that adolescents with eating disorders had significantly higher levels of body dissatisfaction than adolescents with psychiatric disorders and controls, providing support for the notion that body dissatisfaction is particularly important in eating disorders among adolescents (Castro-Fornieles et al., 2007).

Research findings suggest that body dissatisfaction may be specifically linked to BN in adolescents. Bunnell et al. (1992) examined body shape concerns among female adolescents with AN, subclinical AN, BN, subclinical BN, and controls. All of the adolescents with eating disorders exhibited higher scores on the Body Shape

Questionnaire compared to controls. However, only adolescents with BN had statistically significantly higher body shape concerns compared to controls. This finding is not surprising given that individuals with BN typically have a higher BMI scores compared to individuals with AN, and BMI is positively associated with body dissatisfaction (Garner, 2004). The finding that body dissatisfaction is linked to bulimic behaviour is consistent with other research showing significant, positive associations between body dissatisfaction and BN (Cash & Deagle, 1997; Pearson & Gleaves, 2006).

Theoretical accounts propose that body dissatisfaction increases the risk for eating disorders through two central mechanisms. First, body dissatisfaction is hypothesised to cause an elevation in dieting (Lowe, 1993). Consequently, the positive reinforcement of weight loss from peers and family (i.e., comments about noticeable weight loss) may cause dieting to escalate into an eating disorder (Stice & Shaw, 2002). Second, body dissatisfaction may cause negative affect due to the importance of body image to the self-concept of individuals, especially females in Western cultures (Stice & Shaw, 2002). Negative affect may then lead to binge eating in an attempt to provide comfort from depressed mood or reduce anxiety about one's appearance (Stice & Shaw, 2002).

Although these theories have received significant empirical support (for a review see Stice and Shaw, 2002), they have not been specifically linked to adolescents. There are also several methodological limitations to body dissatisfaction research in adolescents including a lack of prospective studies, randomised experiments, and subjects from clinical settings (Stice & Shaw, 2002). In addition, the reliability and validity of some of the measures used within such studies is questionable. Thus, the literature on body dissatisfaction in adolescents highlights

some important gaps in this area of research and emphasises the need for more controlled experiments.

In summary, the literature on body image and eating pathology demonstrates that a large number of adolescents are dissatisfied with their bodies. However, not all adolescents who exhibit body dissatisfaction develop eating disorders. In addition, adolescents with eating disorders report significantly higher levels of body dissatisfaction compared to nonclinical populations of adolescents. Therefore, there must be additional factors characteristic of adolescent eating disorders that are not present in adolescents without eating disorders. Maladaptive perfectionism and anxiety are two psychological factors that have received significant empirical support as risk factors for disordered eating in adolescents.

MALADAPTIVE PERFECTIONISM AND ANXIETY IN ADOLESCENTS WITH EATING DISORDERS AND FROM NONCLINICAL POPULATIONS: DEFINTIION, THEORY, ASSESSMENT, AND RESEARCH FINDINGS

Maladaptive Perfectionism

Maladaptive perfectionism is commonly thought of as a personality trait characterised by the demand for excessively high standards of performance and tendencies to be overly self critical (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991b). Maladaptive perfectionism was first defined in early research by Hamachek (1978) who described “neurotic or high perfectionism” in individuals who despite their work efforts were never satisfied with the outcomes. Recently however, maladaptive perfectionism has been redefined as a multidimensional construct incorporating internal (e.g., excessively high personal standards) and external (e.g., excessive parental expectations/criticisms) dimensions of perfectionism.

Maladaptive perfectionism has been proposed to develop through early parent/child relationships (e.g., Enns, Cox, & Cara, 2002; Hamachek, 1978; McCranie & Bass, 1984; Sorotzkin, 1998). Hamachek (1978) theorised that maladaptive perfectionism develops in children whose parents have excessively high standards for them, but are perceived to never be satisfied with the child's achievements. Other authors have extended this, noting additional parenting styles that may increase the risk for maladaptive perfectionism (e.g., Enns et al., 2002; McCranie & Bass, 1984). For instance, McCranie and Bass (1984) proposed that a controlling, punitive, and intrusive parenting style would lead to the development of maladaptive perfectionism among children. Although authors have identified various types of parenting styles that may contribute to the development of maladaptive perfectionism, there appears to be a general consensus that early parent/child relationships are a significant risk factor.

The link between maladaptive perfectionism and adolescent eating disorders is not a new concept with academic transcripts describing the link dating back decades:

> The young woman afflicted with anorexia nervosa has certain distinguishing personality qualities….neatness, meticulosity, and a mulish stubbornness not amenable to reason make her a rank perfectionist. (DuBois, 1949, p. 109).

Only recently have scientific researchers begun to examine the link between maladaptive perfectionism and adolescent eating disorders (e.g., Pearson & Gleaves, 2006; Serpell, Hirani, Willoughby, Neiderman, & Lask, 2006), and research suggests that maladaptive perfectionism may be specifically linked to eating disorders rather than psychopathology in general (Cassidy, Allsopp, & Williams, 1999).

The first two measures developed to assess dimensions of maladaptive perfectionism are the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al.,

1990), and the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 2004). The FMPS includes six subscales that measure adaptive and maladaptive aspects of perfectionism: Concern over Mistakes (CM), Personal Standards (PS), Parental Expectations (PE), Parental Criticism (PC), Doubts about actions (D), and Organisation (O). In contrast, the MPS assesses three dimensions of maladaptive perfectionism: self-orientated perfectionism (SOP; i.e., requiring perfectionism of oneself), socially-prescribed perfectionism (SPP; i.e., the perception that others demand perfection of oneself), and other-oriented perfectionism (OOP; i.e., the expectation that others should achieve perfection). Research has revealed considerable support for the validity of the FMPS and MPS; each of the maladaptive dimensions from both scales (i.e., the MPS and the FMPS) have been shown to be reliable and valid (i.e., Cheng, Chong, & Wong, 1999; Frost et al., 1990; Stöber & Joormann, 2001), and linked to psychopathology (e.g., Cheng et al., 1999; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Hewitt & Flett, 1991a; Hewitt, Flett, Turnball-Donovan, and Mikail, 1991; Stöber & Joormann, 2001).

Both the FMPS and MPS were designed to assess individuals aged 18 and older. However, researchers have employed both the FMPS and MPS among populations of adolescents. Pearson and Gleaves (2006) explored the nature of perfectionism in a group of female adolescents. Adolescents completed measures of adaptive/maladaptive perfectionism, BN, self-esteem, and body dissatisfaction. SPP was found to be significantly associated with bulimic symptomatology. In the same year, Serpell et al. (2006) examined maladaptive perfectionism in adolescent females with AN; no significant associations between maladaptive perfectionism and eating pathology were found.

The inconsistencies of these findings highlight the importance of using developmentally-appropriate and validated measures for adolescent groups with eating disorders. As personality continues to develop throughout adolescence (Serpell et al., 2006) perfectionism measures developed for adult populations may not be reliable measures for adolescent populations. Other issues include the ability of adolescents (particularly the younger adolescents) to describe their thoughts and behaviours clearly and in a truthful manner, or understand terms used in perfectionism measures (Gowers & Bryant-Waugh, 2004). Furthermore, much of the eating disorder literature combines adult and adolescent populations, without separate analyses. Thus, care needs to be taken when assessing adolescent eating disorders.

Currently, there are four perfectionism measures that have been validated in children and adolescents. First, the Child and Adolescent Perfectionism Scale (CAPS; Flett, Hewitt, Boucher, Davidson, & Munro, 1997) - a self-report questionnaire of 22 items that examines self-orientated (i.e., requiring perfection of oneself), and socially-prescribed (i.e., the perception that others require perfection of oneself) perfectionism. Second, the Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al., 2003) - a self-report questionnaire of 27 items that measures an individual's need to appear perfect to others, and not show defects or difficulties. Third, the Adaptive/Maladaptive Perfectionism Scale (AMPS; Rice & Preusser, 2002) - a self-report questionnaire consisting of four factors (Sensitivity to Mistakes, Contingent Self-Esteem, Compulsiveness, and Need for Admiration) that assesses maladaptive and adaptive perfectionism. Fourth, the Almost Perfect Scale (APS; Slaney, Mobley, Trippi, Ashby, & Johnson, 1996) – a self-report questionnaire that assesses healthy-, unhealthy-, and non-perfectionism by measuring three factors: High Standards (i.e., high personal

standards and performance expectations), Order (i.e., order and organisation), and Discrepancy (i.e., one's perceived inadequacy in meeting personal standards).

Although all four perfectionism measures have been validated in adolescents, the AMPS and the APS have been used less frequently than the CAPS and the PSPS. One possible explanation for this is that findings from perfectionism research imply that specific dimensions of maladaptive perfectionism (i.e., SOP and SPP) differentially relate to specific eating disorders in adolescents (e.g., Castro-Fornieles et al., 2004; Hewitt, Flett, & Ediger, 1995). For instance AN has been shown to be specifically linked to SOP and BN with SPP, among adolescents (e.g., Brannan & Petrie, 2008; Castro-Fornieles, et al., 2004). Such differential effects are expected because AN has long been characterised as involving a high level of self-imposed standards of maladaptive perfectionism, whereas bulimia nervosa has been characterised by a need for others' approval (Vitousek & Manke, 1994). Measures that assess dimensions of maladaptive perfectionism are therefore likely to produce more detailed and reliable results. Indeed, some authors claim that assessing perfectionism as maladaptive versus adaptive is problematic; definitions and measures of maladaptive and adaptive perfectionism are diverse (Shafran, Cooper, & Fairburn, 2002).

Few researchers have examined maladaptive perfectionism in adolescents with eating disorders using adolescent-validated measures. However, the studies that have been conducted have produced findings that support the notions that a) maladaptive perfectionism is an important factor for eating pathology among adolescents, and b) different dimensions of maladaptive perfectionism are associated with different forms of eating pathology.

Castro-Fornieles et al. (2007) examined self-orientated perfectionism and socially prescribed perfectionism in adolescent groups with eating disorders,

psychiatric disorders (anxiety, depression, and adaptive disorders) and healthy controls using the CAPS. Adolescents with eating disorders displayed significantly higher levels of SOP than adolescents with psychiatric disorders and healthy controls (Castro-Fornieles, et al., 2007). However, adolescents with eating disorders did not display significantly higher levels of SPP than adolescents with psychiatric disorders and healthy controls (Castro-Fornieles, 2007). The eating disorder group recruited for Castro-Fornieles et al.'s (2007) study incorporated more than twice as many adolescents with AN rather than BN (i.e., $n = 75$ and $n = 33$, respectively), thus providing some evidence that SOP is linked to AN in adolescents. However, these results must be interpreted with caution as the authors did not attempt separate analyses for the different eating disorders.

A further study by McVey, Pepler, Davis, Flett, and Abdolell (2002) conducted an examination of risk and protective factors for disordered eating in adolescents utilising the CAPS. SOP but not SPP was shown to be a significant risk factor for disordered eating. However as the mean age for participants in McVey et al.'s (2002) study was quite young (12.9 years), it is likely that eating attitudes and behaviours revealed within the population of adolescents recruited for this study were more characteristic of AN rather than BN. AN tends to develop at a much earlier age than BN (Herzog et al., 2006), and in some instances BN may develop from AN (Råstam, Gillberg, & Gillberg, 1995).

Finally, Castro et al. (2004) examined SOP and SPP using the CAPS in female adolescents with AN and controls. Adolescents ranged in age from 11 to 19 years. Adolescents with AN reported significantly higher SOP scores relative to adolescents from the general population. However, there were no differences for SPP between the two groups.

Exactly why different dimensions of maladaptive perfectionism are associated with different eating disorders is unclear. Examining theories of motivation may hold some clues as to why this is. For instance, motivation theories have long suggested that internal motivation is a stronger form of motivation than external motivation (Weller, 2005). Internal motivation is longer-lasting and more self-directive compared to external motivation, which requires continuous reinforcement (Weller, 2005). Although external motivators such as peer acceptance are strong motivators, particularly for adolescents who have body image concerns, external motivation can also lead to competition and conformity which may be viewed as negative (Weller, 2005).

SOP has been found to be associated with greater persistence and intrinsic motivation (Flett, Hewitt, Blankstein, & O'Brien, 1991). In contrast, SPP is viewed as an a-motivational state because it is associated with controlling the feedback from others (Flett et al., 1991). Thus, it makes sense that SOP has been linked to anorexic behaviour characterised by the restraint and rigidity of food consumption, which may be thought of as more strict eating behaviour relative to behaviour that is characteristic of BN (i.e., the consumption of food followed by purging). Adolescents with AN typically present as substantially underweight whereas adolescents with BN typically present as of normal weight or slightly overweight (Herzog et al., 2006). Further research into the theoretical underpinnings of this issue is required.

Finally, another form of maladaptive perfectionism that is receiving increasing attention from researchers in the eating disorder field is Perfectionistic Self-Presentation (PSP). PSP is argued to be a maladaptive personality style that involves three distinct, stable, interpersonal dimensions: perfectionistic self-promotion (i.e., proactively promoting a 'perfect' image), nondisplay of imperfection (i.e., concern over

behavioural displays of imperfection), and nondisclosure of imperfection (i.e., concern over verbal disclosures of imperfection; Hewitt et al., 2003). PSP reflects the expression of perfectionistic tendencies by promoting perfection and concealing imperfection (Hewitt et al., 2003).

Research has revealed significant support for the validity of the PSPS amongst female adolescents (Castro-Fornieles et al., 2004). Although few studies have examined PSP and eating pathology, an increasing number of researchers in the field of eating disorders are utilising the PSPS. However, to the best of my knowledge only one study has examined PSP in adolescents with eating disorders. Castro-Fornieles et al. (2004) examined PSP in their study on maladaptive perfectionism in adolescents with AN. AN patients scored significantly higher on the PSPS compared to controls (mean score of 131.20 versus 94.60, respectively). In addition, there were significantly more anorexic patients with a high score on the PSPS relative to controls (42.2% versus 3.5%, respectively; Castro-Fornieles et al., 2004).

These results are consistent with findings from research examining PSP in adult and mixed age populations (e.g., Cockell et al., 2002; Hewitt et al., 1995; McGee, Hewitt, Sherry, Parkin, & Flett, 2005). For instance, Hewitt et al. (1995) examined PSP among a mixed-age population of females at university. PSP was found to be associated with eating disorder symptoms and body image avoidance. The authors suggested that a significant desire to avoid revealing imperfection may reflect an effort to avoid being reminded about not achieving personal standards of perfection (Hewitt et al., 1995).

In summary, there is considerable evidence for the notion that maladaptive perfectionism is an important characteristic of adolescents with eating disorders. However, there is a general lack of empirical studies in this area of research. In

addition, the measures employed in adolescent studies lack reliability and validity, and subject groups tend to include individuals from different developmental phases.

Anxiety

Anxiety is one of the most prominent emotions among humans and occurs in the anticipation of a threatening event (Rachman, 2004). Anxiety has been defined as "a state of being anxious" where the term 'anxious' refers to being "worried and tense" (Anderson & Grandison, 2003). Anxiety is considered to be a normal reaction to stress and has physical (e.g., chest pain, fatigue, nausea), emotional (e.g., feeling apprehensive, irritable, restlessness), cognitive (e.g., fear of dying), and behavioural characteristics (e.g., withdrawal from situations; Rachman, 2004). From an evolutionary perspective, increased anxiety serves to increase awareness of potential threats to safety. However, excessive or chronic anxiety can result in significant distress and impairment in normal day-to-day functioning (Rosen & Schulkin, 1998).

It is important to distinguish the term 'anxiety' from 'fear'; although anxiety and fear have some common features, fear is a more intense, episodic reaction that has an identifiable focus (Rachman, 2004). In addition, it is also necessary to differentiate *state* anxiety from *trait* anxiety. Anxiety states are transitory, occurring in the presence of threatening stimuli and enduring only for a few minutes after the threatening stimuli disappears. In contrast, trait anxiety refers to persistent or chronic anxiety (Rachman, 2004). The higher the trait anxiety, the more likely individuals will experience anxiety in a variety of situations (Rachman, 2004).

Trait anxiety has been proposed to develop from early experiences of control (Chorpita & Barlow, 1998; Rapee, 1997). Specifically, excessive control and protection by parents may imply to children that the world is a dangerous place and

prevent them from learning otherwise (Rapee, 1997). In addition, anxious behaviour modelled by parents may increase a child's wariness and influence their perceptions of themselves and the world in a negative way (Wood et al., 2003). However, empirical support for this theory is mixed and further examination is required (see Wood et al., 2003).

A number of valid self-report measures to assess anxiety among clinical and nonclinical populations of adolescents have been developed. Self-report measures of anxiety are important given that trait anxiety involves emotions and cognitions that cannot be observed by others (Spence, Barrett, & Turner, 2003). Commonly utilised measures include the Spence Children's Anxiety Scale (SCAS; Spence, 1998); the Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997), and the Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1993). The DASS, in particular, is commonly utilised in eating disorder research and assesses a variety of anxiety symptoms.

Anxiety symptoms have been noted as a fundamental feature of adolescent eating disorders. Substantial anxiety surrounding being or becoming fat is central to anorexic and bulimic behaviours (Heatherton & Baumeister, 1991), and is one of the possible symptoms of an eating disorder listed in the DSM-IV-TR required for a clinical diagnosis. In particular, the rejection or exclusion from social groups has been cited as a prominent cause of anxiety experienced by individuals with eating disorders (e.g., Baumeister & Tice, 1990). In contrast, nonclinical populations of adolescents have been shown to exhibit minimal anxiety symptoms (e.g., Tully, Zajac, & Venning, 2009). Tully et al. (2009) examined anxiety among a nonclinical population of Australian adolescents. Results demonstrated low levels of anxiety; adolescents reported a mean trait anxiety score of 3.5 which is within the 'normal anxiety' range for

the DASS (Lovibond & Lovibond, 1993). As previously discussed, low levels of anxiety are considered to be a natural part of human life (Rachman, 2004).

Research suggests that trait anxiety is important in the development of adolescent eating disorders. The majority of anxiety symptomatology among individuals with adolescent-onset eating disorders is suggested to develop prior to the development of eating disorders, often during childhood (Kaye et al., 2004). In addition, researching examining adult females has also shown that a large proportion of anxiety disorders precede the onset of eating pathology (Bulik, Sullivan, Fear, & Joyce, 1997). Research has demonstrated a link between anorexia nervosa and separation anxiety during childhood (Shoebridge & Gowers, 2000), suggesting anxiety disorders may develop as early as during infancy. Anorectic patients were found to have experienced more sleep difficulties during infancy, to be more severely distressed during the first separation from parents, and to be of an older age during the first sleep away from home (Shoebridge & Gowers, 2000).

Anxiety may also contribute to the maintenance of adolescent eating disorders and increase the risk for relapse, as anxiety symptoms have been shown to persist long after recovery from an eating disorder (e.g., Holtkamp, Muller, Heussen, Remschmidt, & Herpertz-Dahlmann, 2005; Kaye et al., 2004). One study conducted follow-up assessments of 39 recovered adolescents with eating disorders (Holtkamp et al., 2005). Follow-up assessments were conducted at 3, 7, and 10 years following discharge. Ten years following discharge the recovered adolescents had significantly higher levels of trait anxiety, phobic anxiety, and obsessive-compulsive traits compared to controls.

In addition to anxiety symptomatology, specific anxiety disorders have been a central focus within adolescent eating disorder research. 'Anxiety disorder' is a term that covers several forms of pathological fear and anxiety (APA, 2000). The DSM-IV-

TR (APA, 2000) defines a number of anxiety disorders including Generalised Anxiety Disorder, Panic Disorder, Obsessive-Compulsive Disorder, Post-Traumatic Stress Disorder, Separation Anxiety, and Phobia. When left untreated, anxiety disorders are associated with a reduced quality of life, including impairments in social functioning, educational achievement, and mental health (Mendlowicz & Stein, 2000).

Few studies have examined anxiety disorders among adolescents with eating disorders. However, one study that examined a predominately adolescent sample found high rates of comorbid anxiety disorders: specifically, 83% of individuals with AN and 71% of individuals with BN had at least one lifetime diagnosis of an anxiety disorder (Godart, Flament, Lecrubier, & Jeammet, 2000). The most common type of anxiety disorder was Social Phobia (Godart et al., 2000).

In contrast, anxiety disorders are relatively rare among general populations of adolescents. Costello and colleagues (2003) found a prevalence rate of 2.4% for any anxiety disorder among a population of 6674 male and female adolescents. Anxiety disorders were more common among female adolescents (2.9%) than males (2.0%; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). In addition, social phobia increased significantly in females from childhood to adolescence (Costello et al., 2003). This is not surprising given that adolescence is characterised by a marked increase in the importance of appearance and peer acceptance, especially for females (Gowers & Shore, 2001). These results further suggest that anxiety plays a particularly important role in the development of adolescent eating disorders.

Although research has demonstrated high levels of trait anxiety among adolescents with eating disorders, few studies have examined the cognitive and behavioural links between them (e.g., Hinrichsen, Wright, Waller, & Meyer, 2003). Hinrichsen et al. suggested that binge/purge behaviours characteristic of BN and

restrictive behaviours characteristic of AN, are part of coping strategies for social anxiety. Hinrichsen et al. elaborated on this, hypothesising that disordered eating behaviours serve to reduce the awareness of social anxiety by a process of dissociation. This theory is supported by empirical research examining mixed age populations (Hinrichsen et al., 2003; Wonderlich-Tierney & Wal, 2010), but not adolescent populations. In addition, it is unknown how these theories relate to other types of anxiety.

In summary, research has reported high rates of anxiety disorders and trait anxiety among adolescents with eating disorders (e.g., Godart et al., 2000; Heatherton and Baumeister, 1991). In contrast, adolescents without eating disorders exhibit minimal levels of trait anxiety (Tully et al., 2009), and eating disorders are relatively rare (Mustillo et al., 2003). Thus, there is significant empirical support for the notion that anxiety is a significant risk factor for adolescent eating disorders.

ASSOCIATIONS OF MALADAPTIVE PERFECTIONISM AND ANXIETY WITH BODY DISSATISFACTION IN ADOLESCENTS WITH EATING DISORDERS AND FROM NONCLINICAL POPULATIONS: RESEARCH FINDINGS

Maladaptive Perfectionism and Body Dissatisfaction

To the best of my knowledge, no studies have examined an association between maladaptive perfectionism and body dissatisfaction in adolescents with eating disorders. In addition, only four studies have examined this relationship in nonclinical populations of adolescents. Two studies have failed to demonstrate significant associations between body dissatisfaction and maladaptive perfectionism (e.g., Keery et al., 2004; Shaw, Stice, & Springer, 2004); however, two studies have found significant associations between these factors (e.g., Ruggiero, Levi, Ciuna, & Sassaroli, 2003;

Wojtowicz & von Ranson, in press). For example, Wojtowicz and von Ranson (in press) examined risk factors for increases in body dissatisfaction over a period of one year. Higher levels of maladaptive perfectionism were found to be associated with greater levels of body dissatisfaction at baseline and one year later. However, maladaptive perfectionism did not predict an increase in body dissatisfaction over time.

Although the mechanisms behind the relationship between maladaptive perfectionism and body dissatisfaction in nonclinical populations of adolescents are yet to be investigated, Bardone, Vohs, Abramson, Heatherton, and Joiner (2000) proposed that high levels of maladaptive perfectionism cause discrepancies between actual and ideal body image, which in turn leads to body dissatisfaction. This theory has not been linked to adolescent populations but has received empirical support from studies examining mixed-age populations (see Bardone et al., 2000, for a review).

Anxiety and Body Dissatisfaction

To the best of my knowledge, research is yet to examine whether anxiety predicts body dissatisfaction in adolescents with eating disorders. However, elevated levels of body dissatisfaction have been shown to be significantly and positively correlated with high levels of anxiety symptoms (Kostanski & Gullone, 1998; Schutz & Paxton, 2007), and negative affect (i.e., negative emotional experiences including anxiety; Presnell, Bearman, & Stice, 2004) among nonclinical populations of adolescents. For instance, Schutz and Paxton (2007) demonstrated a significant association between body dissatisfaction and social anxiety in adolescent females. Similarly, Kostanski and Gullone (1998) found that higher levels chronic anxiety was associated with increased perceived body image dissatisfaction in adolescent boys and girls.

Furthermore, elevated levels of negative affect have been shown to predict increases in body dissatisfaction in adolescents without eating disorders (Presnell et al., 2004; Ricciardelli & McCabe, 2001). Research examining gender differences in the relationship between negative affect and body dissatisfaction has demonstrated mixed results. Ricciardelli and McCabe (2001) found that negative affect measured by the DASS was a significant predictor of body dissatisfaction in female but not male adolescents. In contrast, Presnell et al. (2004) found that initial negative affect measured by the Negative Temperament scale from the General Temperament Survey (Watson & Clark, 1993) predicted an increase in body dissatisfaction for adolescent boys but not for girls. One reason for the inconsistency of these results may be the different measures that were used to assess negative affect; the Negative Temperament scale assesses proneness to negative emotional experiences including irritation, anger, and anxiety whereas the DASS measures depression, anxiety, and stress symptoms. It is apparent that a clearly defined and universal measure of negative affect is necessary to ensure research findings can be compared.

RATIONALE FOR THE PRESENT STUDY

Research has demonstrated that body dissatisfaction, maladaptive perfectionism, and anxiety are important factors for eating disorders among adolescents (e.gs., Baumeister and Tice, 1990; Bunnell et al., 1992; Castro-Fornieles, et al., 2007; Godart et al., 2000; Heatherton and Baumeister, 1991; Pearson & Gleaves, 2006; Serpell et al., 2006). However, few studies have examined how these factors interrelate. Studies have found that maladaptive perfectionism and anxiety are significantly linked to body dissatisfaction in nonclinical populations of adolescents (Kostanski & Gullone, 1998; Presnell et al., 2004; Wojtowicz & von Ranson, in press) yet no research has examined

these relationships in adolescents with eating disorders. Thus, the purpose of the present study was to examine body dissatisfaction, maladaptive perfectionism, and anxiety among adolescents with and without eating disorders, using reliable and validated measures. The hypotheses for the present study are as follow:

1) Adolescents with eating disorders will exhibit higher scores for maladaptive perfectionism, anxiety, and body dissatisfaction, compared to controls.

2) Body dissatisfaction will be positively correlated with maladaptive perfectionism and anxiety in the whole sample; however, the correlations will be significantly stronger in adolescents with eating disorders compared to controls.

3) Maladaptive perfectionism and anxiety will contribute to body dissatisfaction in both groups; however, these factors will interact to predict the increased level of body dissatisfaction in adolescents with eating disorders.

METHOD

Participants

Participants in the present study were twenty female adolescents with AN (n = 13) or EDNOS (n = 7), and 20 female adolescent controls matched for age (M = 15.75 years, SD =1.52 years). The present study defined adolescents according to the current World Health Organisation (WHO) definition of adolescence: individuals aged between 10 and 19 years of age (WHO, 2009). Eating disorder participants were recruited from three locations: the South Island Eating Disorder Service and the Child and Family Inpatient Unit, both located at the Princess Margaret Hospital in Christchurch, New Zealand, and the Youth Specialty Service located in Dunedin, New Zealand. Eating disorder participants were diagnosed by an experienced clinician and tested within the first three weeks of therapy.

Control adolescents were recruited from Menzies College in Wyndham, New Zealand, by randomised selection from the enrolment list. The control participants were included in the study according to the following criteria: a) participants could speak, read, and write good English, and b) participants displayed minimal to no clinically significant eating disorder symptomatology. These criterions were included in the information sheet participants received prior to participating in the study.

Cut-off scores for the Drive for Thinness and Bulimia scales (measures of eating disorder symptoms) were used to determine whether control adolescents met the criteria. That is, individuals had to score below the cut-off to be defined as having no clinically significant eating disorder symptoms. Cut-off scores varied according to BMI given that this is highly correlated with Drive for Thinness and Bulimia (Garner, 2004). The following cut-off scores were used to confirm control participants met the criteria:

Table 1
Cut-off Scores for the Drive for Thinness and Bulimia Scales on the EDI-3

≤ Age 17 Years			**≥ Age 18 Years**		
	Cut-off Scores			**Cut-off Scores**	
BMI referral threshold	*DT total raw score*	*B total raw score*	**BMI referral threshold**	*DT total raw score*	*B total raw score*
≤ 15.5	9	4	≤ 18.0	15	5
>15.5 & ≤ 22.0	9	4	>18.0 ≤ 22.0	22	8
>22.0 & ≤ 25.0	18	8	>22.0 ≤ 25.0	24	10
>25.0	22	10	>25.0	25	12

Note. BMI = Body Mass Index; DT = Drive for Thinness scale; B = Bulimia scale.

These cut-off scores are defined in the EDI-3 manual (Garner, 2004). Control participants were reimbursed for their time and given a grocery voucher to the sum of five dollars.

Procedure

Ethical approval was required before the study could proceed and was obtained by submitting a research proposal to the Upper South A Ethics Committee, located in Christchurch, New Zealand (reference number URA/10/08/060, see Appendix A for letter of approval). Prior to participating in the study, participants were provided with an information sheet with details of the study (see Appendix B for the information sheet for Controls; see Appendix C for the information sheet for adolescents with eating disorders). Participants were given the opportunity to use a friend or family member to help understand the study and ask questions. After written consent was obtained, participants were asked to complete some self-report questionnaires (see Appendices D, E, F, and G for each version of the consent forms). Adolescents with eating disorders completed the questionnaires in isolation, and control participants completed questionnaires in groups (see Appendix H for a summary of the EDI-3 questionnaire,

Appendix I for the Depression Anxiety Stress Scale-21, Appendix I for the PSPS and Appendix J for the CAPS). All participants were under the supervision of the lead researcher while completing the questionnaires. Specific eating disorder diagnoses and demographic information (i.e., weight and height) for the adolescents with eating disorders was obtained from the relevant service in the event that an individual could not provide these details. Control participants were provided with appropriate resources to measure their weight and height, which were placed in a secluded part of the room and each student was ensured complete privacy. Control participants removed their shoes and jackets before measuring their height and weight. Finally, all participants completed the following measures, and were then fully debriefed.

Measures

Eating Disorder Symptomatology. The Eating Disorder Inventory-3 (EDI-3; Garner, 2004) is a self-report measure consisting of 91 items organised into 12 primary scales: three eating-disorder-specific scales and nine general psychological scales that are highly relevant to, but not specific to eating disorders. It yields six composites: Eating Disorder Risk, Ineffectiveness, Interpersonal Problems, Affective Problems, Over Control, and General Psychological Maladjustment. Participants were asked to answer questions by circling the letter that corresponds to their question rating: A = *always,* U = *usually,* O = *often,* S = *sometimes,* and R = *rarely.* The present study measured eating disorder symptoms by summing the total scores on two of the subscales from the eating disorder risk composite: the Drive for Thinness and Bulimia subscales. This formed what I termed the 'Drive for Thinness/Bulimia composite'. The rationale for only including these two scales is related to the fact that they were found to be superior in distinguishing between clinical and nonclinical populations used

during the development of the EDI-3 (Garner, 2004). The EDI-3 was developed for females with eating disorders aged 13 to 53 years. Although the EDI-3 is typically administered within adolescent clinical populations, the original EDI has adequate validity when administered in non-clinical adolescent populations (Klemchuk Hutchinson, & Frank, 1990).

Body Dissatisfaction. The body dissatisfaction subscale of the EDI-3 consists of 10 items that assess disapproval with the overall shape of one's body and the size of specific regions of the body that are of specific concern to individuals with eating disorders (i.e., stomach, hips, buttocks, and thighs). Research has shown that the body dissatisfaction subscale is an effective measure of body dissatisfaction (see Cash & Deagle, 2007) and has been utilised in various studies examining body image among adolescents (e.g., Cattarin & Thompson, 1994; Kostanski & Gullone, 1998).

Maladaptive Perfectionism. The CAPS (Flett et al., 1997) is a self-report questionnaire for children and adolescents designed to measure two maladaptive dimensions of perfectionism. The CAPS incorporates two perfectionism scales: (1) self-orientated perfectionism (i.e., striving for perfection of oneself) with 12 items, and (2) socially prescribed perfectionism (i.e., the perception that others expect perfection of oneself) with 10 items, using a 5-item response format: 1 = *false-not at all true of me*, 2 = *mostly false*, 3 = *neither true nor false*, 4 = *mostly true*, and 5 = *very true of me*. This measure has been shown to have high internal consistency amongst clinical (.91) and non-clinical (.85) adolescent populations (Castro et al., 2004).

The PSPS (Hewitt & Flett, 1993) is a 27-item self-report questionnaire that measures three dimensions of PSP: a) the desire to appear perfect to others with 10 items, b) the avoidance of appearing imperfect to others with 10 items, and C) the need to avoid public admissions of imperfections with seven items. Participants are asked to

rate their level of agreement with each item using a 7-point scale, with higher scores indicating higher levels of perfectionistic self-presentation. This scale has been shown to have high internal consistency and test-retest reliability amongst clinical and non-clinical adolescent populations (Castro-Fornieles et al., 2004).

Anxiety Symptomatology. The DASS-21 (Lovibond & Lovibond, 1995) is a shortened version of the 42-item self-report instrument that measures negative emotional states of depression, anxiety and stress. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest or involvement, anhedonia, and inertia. The anxiety scale assesses autonomic arousal, skeletal musculature effects, situational anxiety, and subjective experience of anxious affect. The stress scale assesses difficulty relaxing, nervous arousal, and being easily upset or agitated, irritability or over reactivity, and impatience. Each of the three DASS-21 scales contains 7 items. Subjects are asked to use a 4-point severity/frequency scale to rate the extent to which they have experienced each state over the past week: 0 = *did not apply to me at all,* 2 = *applied to me to some degree, or some of the time,* 3 = *applied to me to a considerable degree, or a good part of the time,* 4 = *applied to me very much, or most the time*. Scores are calculated by adding the scores for the relevant items. The DASS-21 has been shown to have high internal consistency and concurrent validity (Antony, Bieling, Cox, Enns, & Swinson, 1998).

DATA ANALYSIS

Data analyses were performed using the Statistical Package for Social Sciences (SPSS; version 17.0). First, independent samples t-tests were calculated to determine the composition of the sample (i.e., age, weight, height, and ethnicity). A Chi square test was performed to determine whether the percentages of reported ethnicities differed

significantly between groups (eating disorder versus matched controls). Chi square test was also conducted to determine whether scores on the Drive for Thinness/Bulimia composite differed between adolescents with eating disorders who had atypical versus typical scores on the validity scales. Second, descriptive statistics for between-group mean scores on each of the scales were examined using an independent samples t-test. Third, Pearson product-moment correlation was used to examine the relationships between variables hypothesised to be associated. The Fisher r to z transformation was used to test for whether correlations were significantly different between-groups. Fourth, hierarchical regression analysis was used to test for main and interaction effects of maladaptive perfectionism, anxiety, and group type (i.e., adolescents with eating disorders versus controls) on body dissatisfaction. To avoid multicollinearity problems, all variables were centred before being entered into the regression analysis. All significance tests used in this study were two-tailed and had a significance level of $p <$ .05.

RESULTS

Comparisons between Adolescents with Eating Disorders and Controls

An independent samples t-test revealed no significant differences for age and height between adolescents with eating disorders and controls. Adolescents with eating disorders weighed significantly less than controls, $df = 38$, $t = -4.82$, $p < .001$.

Table 2
Demographic Data: Adolescents with Eating Disorders and Controls

Variable	*Group*	*Mean*	*SD*	*SE*	*p-value*
Age	ED	15.75	1.52	.34	1.00
	Control	15.75	1.52	.34	
Height (cms)	ED	165.85	7.07	1.58	.56
	Control	164.50	7.58	1.70	
Weight (kgs)	ED	50.64	6.69	1.50	**.00**
	Control	69.55	16.20	3.62	

Note: All significance tests were two-tailed.

A Chi square analysis revealed that ethnicity did not differ significantly between adolescents with eating disorders and controls ($\chi^2 = .347$, *ns*, see Table 2). New Zealand/ European was the most commonly reported ethnicity for both groups, with 80% of adolescents with eating disorders and 90% of controls identifying as NZ European. Other reported ethnicities include Māori (20%) and Other (10%; included Australian and British ethnicities).

Table 3
Reported Ethnicities: Adolescents with Eating Disorders and Controls

	Ethnicity		
Group	NZ/European	Māori	Other
ED	80%	10%	10%
Control	90%	10%	0%

Validity of the EDI-3 Scores

Descriptive statistics for the Inconsistency, Infrequency, and Negative Impression scales for adolescents with eating disorders and controls are presented in Table 4. Means for each group are within the typical range for each scale (i.e., typical range for the IN scale = 0-15, IF scale 0-2, and NI scale 0-44; Garner, 2004), indicating that questions of similar content were answered consistently and answers were not endorsed in the extreme symptomatic direction. Four adolescents with eating disorders had atypical scores on one or more of the validity scales. However, a Chi square analysis revealed that scores on the Drive for Thinness/Bulimia composite (total) did not differ between adolescents with eating disorders who had atypical scores and adolescents with eating disorders who had typical scores, $\chi^2 = 16.88$, *ns*. Thus, data from these adolescents with eating disorders was included in this study. All of the control adolescents scored within the typical range for each validity scale.

Table 4
Descriptive Statistics for the Inconsistency, Infrequency, and Negative Impression Scales from the EDI-3

Scale	*Group*	*Mean*	*SD*	*Range*
IN	ED	7.95	2.84	2 – 12
	Control	6.5	4.12	2 – 15
IF	ED	1.1	1.77	0 – 6
	Control	.15	.49	0 – 2
NI	ED	19.75	17.59	2 – 58
	Control	2.95	3.18	2 – 11

Note. IN = Inconsistency Scale; IF = Infrequency Scale; NI = Negative Impression Scale.

Hypothesis One

Adolescents with eating disorders were hypothesised to exhibit higher scores for maladaptive perfectionism, anxiety, and body dissatisfaction, compared to controls. An Independent Samples t-test revealed that adolescents with eating disorders exhibited

higher scores on all of the maladaptive perfectionism measures relative to controls (see to Table 5). Six out of seven of the group differences reached statistical significance with each mean higher for adolescents with eating disorders relative to controls; the Child and Adolescent Perfectionism scale (total), $df = 38$, $t = 4.30$, $p<.001$); Self-Orientated Perfectionism, $df = 38$, $t = 6.0$, $p<.001$; Perfectionistic Self-Presentation scale (total), $df = 38$, $t = 5.41$, $p<.001$; Perfectionistic Self-Promotion, $df = 38$, $t = 5.24$, $p<.001$; Nondisplay of Imperfection, $df = 38$, $t = 4.91$, $p<.001$; and Nondisclosure of Imperfection, $df = 38$, $t = 3.43$, $p<.001$. There was no statistically significant difference between the eating disorder group and the control group for Socially-Prescribed Perfectionism $df = 38$, $t = 1.24$, *ns.* Independent samples t-tests found that adolescents with eating disorders also scored significantly higher than controls on anxiety ($df = 38$, $t = 5.85$, $p<.001$) and body dissatisfaction ($df = 38$, $t = 4.21$, $p<.001$; see Table 4). According to the DASS-21 severity ratings (Lovibond & Lovibond, 1993), the mean anxiety score for adolescents with eating disorders was in the range for extremely severe. The mean anxiety score for controls was in the range for normal.

Table 5
A Comparison of Maladaptive Perfectionism, Anxiety, and Body Dissatisfaction between Adolescents with Eating Disorders and Controls

Scale	*Group*	*M*	*SD*	*SE*	*p*
Child/Adolescent Perfectionism scale	ED	73.95	14.82	3.31	**.000**
	Control	55.25	12.62	2.82	
Self-Orientated Perfectionism	ED	45.65	9.09	2.03	**.000**
	Control	28.70	8.92	2.00	
Socially-Prescribed Perfectionism	ED	28.30	9.00	2.01	.222
	Control	25.00	7.77	1.74	
Perfectionistic Self-Presentation scale-T	ED	139.20	25.91	5.80	**.000**
	Control	92.75	28.32	6.33	
Perfectionistic Self-Promotion	ED	52.95	9.59	2.14	**.000**
	Control	34.95	12.01	2.70	
Non-display of Perfectionism	ED	53.40	9.62	2.15	**.000**
	Control	36.65	11.86	2.65	
Non-disclosure of Perfectionism	ED	32.85	9.80	2.19	**.001**
	Control	22.35	9.59	2.14	
Anxiety	ED	23.50	11.62	2.60	**.000**
	Control	6.50	5.84	1.30	
Body Dissatisfaction	ED	27.85	12.40	2.80	**.000**
	Control	12.70	10.29	2.30	

Note. T = total. $p < .05$. All significance tests were two-tailed.

Hypothesis Two

Hypothesis two predicted that body dissatisfaction would be positively correlated with maladaptive perfectionism and anxiety in the whole sample; however, the correlations would be significantly stronger in adolescents with eating disorders compared to controls. Results from within-group bivariate Pearson correlation analyses for body dissatisfaction and maladaptive perfectionism are presented in Table 6. Consistent with hypothesis two, analyses revealed significant positive associations between body dissatisfaction and six out of seven of the maladaptive perfectionism facets for both groups (i.e. adolescents with eating disorders and controls). Namely, the Child and Adolescent Perfectionism scale (total), Self-Orientated Perfectionism subscale, Perfectionistic Self-Presentation scale (total), Perfectionistic Self-Promotion subscale,

Nondisplay of Imperfection subscale, and the Nondisclosure of Imperfection subscale were all significantly correlated with the Body Dissatisfaction subscale for both groups.

Table 6
Association of Body Dissatisfaction to Maladaptive Perfectionism

Scale	*Pearson*	*p-value*
Body Dissatisfaction x Child/Adolescent Perfectionism-T	.39	**.014**
Body Dissatisfaction x Self-Orientated Perfectionism	.55	**.000**
Body Dissatisfaction x Socially-Prescribed Perfectionism	-.02	.922
Body Dissatisfaction x Perfectionistic Self-Presentation-T	.67	**.000**
Body Dissatisfaction x Perfectionistic Self-Promotion	.61	**.000**
Body Dissatisfaction x Nondisplay of Perfectionism	.67	**.000**
Body Dissatisfaction x Nondisclosure of Perfectionism	.50	**.001**

Note: T = total. p < .05. All significance tests were two-tailed.

Results from between-group analyses for body dissatisfaction and maladaptive perfectionism are presented in Table 7. Analysis revealed no significant differences between adolescents with eating disorders and controls: z = -1.91, *ns*; z = -.02, *ns;* z = -.02, *ns*; z = .12, *ns;* z = -.18, *ns*; z = -.29, *ns.*

Table 7
Association of Body Dissatisfaction to Maladaptive Perfectionism in Adolescents with Eating Disorders and Controls

	Group			
	ED		*Controls*	
Scale	*Pearson*	*p-value*	*Pearson*	*p-value*
BD x Child/Adolescent Perfectionism-T	-.04	.885	.28	.229
BD x Self-Orientated Perfectionism	.27	.251	.28	.239
BD x Perfectionistic Self-Presentation-T	.45	**.045**	.51	**.023**
BD x Perfectionistic Self-Promotion	.41	.073	.38	.103
BD x Nondisplay of Imperfection	.53	**.016**	.49	**.029**
BD x Nondisclosure of Imperfection	.28	.239	.37	.114

Note. BD = Body Dissatisfaction; T = total. p < .05. All significance tests are two-tailed.

Results from within-group bivariate Pearson correlation analyses for body dissatisfaction and anxiety are presented in Table 8. Body dissatisfaction was

significantly associated to anxiety for both groups (i.e. adolescents with eating disorders and controls).

Table 8
Association of Body Dissatisfaction to Anxiety

Scale	*Pearson*	*p-value*
Body Dissatisfaction x Anxiety	.67	**.000**

Note. $p < .05$. All significant tests were two-tailed.

Results from between-group analyses for body dissatisfaction and anxiety are presented in Table 9. Analysis revealed no significant difference between adolescents with eating disorders and controls: $z = .79$, *ns.*

Table 9
Association of Body Dissatisfaction to Anxiety in Adolescents with Eating Disorders and Controls

	Group			
	ED		*Controls*	
Scale	*Pearson*	*p-value*	*Pearson*	*p-value*
Body Dissatisfaction x Anxiety	.54	**.014**	.32	.169

Note. $p < .05$. All significant tests were two-tailed.

Hypothesis Three

Hypothesis three predicted that maladaptive perfectionism and anxiety would contribute to body dissatisfaction in both groups however; these factors would interact to predict higher levels of body dissatisfaction in adolescents with eating disorders. Table 10 displays the main effects, two-way, and three-way interactions for child adolescent perfectionism, anxiety, and group type (i.e., adolescents with eating disorders versus controls) as predictors of body dissatisfaction. Results from hierarchical regression analyses revealed that child adolescent perfectionism (total), self-orientated perfectionism, anxiety, and group type significantly predicted body

dissatisfaction in adolescents. No significant interaction effects for maladaptive perfectionism, anxiety, and group type on body dissatisfaction were found.

Table 10
Interactions between Child Adolescent Perfectionism, Anxiety, and Group Type as Predictors of Body Dissatisfaction

Model	*Predictors*	*df*	*s.e*	R^2	ΔR^2	β
	Analysis 1					
1	Child Adolescent Perfectionism - T	3,36	9.39	.29	.29*	.36*
	Anx					.33
	Group					.03
2	Child Adolescent Perfectionism-T*Anx	3,33	9.51	.33	.04	
	Child Adolescent Perfectionism-T*Group					
	Anx*Group					
3	Child Adolescent Perfectionism-T*Anx*Group	1,32	9.35	.38	.04	
	Analysis 2					
1	Self-Orientated Perfectionism	3,36	9.10	.33	.33*	.95*
	Anx					.28
	Group					.14
2	Self-Orientated Perfectionism*Anx	3,33	9.27	.37	.03	
	Self-Orientated Perfectionism*Group					
	Anx*Group					
3	Self-Orientated Perfectionism*Anx*Group	1,32	9.41	.37	.00	
	Analysis 3					
1	Socially-Prescribed Perfectionism	3,36	9.89	.21	.21*	.08
	Anx					.32
	Group					-.17
2	Socially-Prescribed Perfectionism*Anx	3,33	9.57	.32	.11	
	Socially-Prescribed Perfectionism*Group					
	Anx*Group					
3	Socially-Prescribed Perfectionism*Anx*Group	1,32	9.60	.34	.02	

Note. * = $p < .05$; All significance tests were two-tailed; T = total; Group = adolescents with eating disorders versus controls; Anx = Anxiety.

Table 11 displays the main effects, two-way, and three-way interactions for perfectionistic self-promotion, anxiety, and group type (i.e., adolescents with eating disorders versus controls) as predictors of body dissatisfaction. Perfectionistic self-presentation (total), perfectionistic self-promotion, anxiety, and group type all significantly predicted body dissatisfaction in adolescents. No interaction effects for maladaptive perfectionism, anxiety, and group type on body dissatisfaction were observed.

Table 11
Interactions between Perfectionistic Self-Presentation, Anxiety, and Group Type as Predictors of Body Dissatisfaction

Model	*Predictors*	*df*	*s.e*	R^2	ΔR^2	*β*
	Analysis 1					
1	Perfectionistic Self-Presentation	3,36	8.49	.42	.42*	.64**
	Anx					.13
	Group					.11
2	Perfectionistic Self-Presentation*Anx	3,33	8.51	.47	.05	
	Perfectionistic Self-Presentation*Group					
	Anx*Group					
3	Perfectionistic Self-Presentation*Anx*Group	1,32	8.50	.48	.02	
	Analysis 2					
1	Perfectionistic Self-Promotion	3,36	8.62	.40	.40*	.58**
	Anx					.23
	Group					.14
2	Perfectionistic Self-Promotion*Anx	3,33	8.46	.47	.07	
	Perfectionistic Self-Promotion*Group					
	Anx*Group					
3	Perfectionistic Self-Promotion*Anx*Group	1,32	8.34	.50	.03	
	Analysis 3					
1	Nondisplay of Imperfection	3,36	8.36	.44	.44*	.64**
	Anx					.09
	Group					.06
2	Nondisplay of Imperfection*Anx	3,33	8.45	.47	.04	
	Nondisplay of Imperfection*Group					
	Anx*Group					
3	Nondisplay of Imperfection*Anx*Group	1,32	8.50	.48	.01	
	Analysis 3					
1	Nondisclosure of Imperfection	3,36	9.60	.26	.26*	.27**
	Anx					.22
	Group					-.12
2	Nondisclosure of Imperfection*Anx	3,33	9.88	.28	.02	
	Nondisclosure of Imperfection*Group					
	Anx*Group					
3	Nondisclosure of Imperfection*Anx*Group	1,32	9.95	.29	.01	

Note. * = $p < .05$, ** = $p < .01$; All significance tests were two-tailed; T = total; Group = adolescents with eating disorders versus controls; Anx = Anxiety.

DISCUSSION

Body dissatisfaction has been identified as a prominent risk factor for adolescent eating disorders (e.g., Castro-Fornieles et al., 2007). However, few studies have examined psychological factors that contribute to elevated body dissatisfaction among adolescents with eating disorders. This study examined maladaptive perfectionism and anxiety as possible contributors to body dissatisfaction in adolescents with eating disorders and without eating disorders (controls). Female adolescents with eating disorders and controls completed measures of maladaptive perfectionism, anxiety, and body dissatisfaction. It was hypothesised that maladaptive perfectionism and anxiety would be significantly associated to body dissatisfaction in both groups (i.e., adolescents with eating disorders and controls). However, it was predicted that these correlations would be more significant for adolescents with eating disorders compared to controls. Furthermore, maladaptive perfectionism and anxiety were expected to interact to predict elevated levels of body dissatisfaction among adolescents with eating disorders.

The Association of Maladaptive Perfectionism and Anxiety with Body Dissatisfaction in Adolescents with Eating Disorders and Controls

Maladaptive Perfectionism and Body Dissatisfaction: Adolescents with Eating Disorders

In the present study, SOP was found to be significantly and positively associated with body dissatisfaction in female adolescents with AN and EDNOS. This is a novel finding as to the best of my knowledge this is the first study to examine the relationship between SOP and body dissatisfaction in adolescents with eating disorders. Previous

work has noted that a critical part of SOP is the impact of not meeting high standards upon evaluation by the self (Riley, Lee, Cooper, Fairburn, & Shafran, 2007). Attempts to promote perfection may be particularly important for body dissatisfaction among female adolescents with eating disorders as adolescence is an important time period for the development of self-identity (Waterman, 1982) and body image may be central to their self-concept (Rosen & Ross, 1968).

The present study also revealed a significant and positive association between PSP and body dissatisfaction in adolescents with AN and EDNOS. Perfectionistic self-presentational concerns have not previously been examined in adolescents with EDNOS, so this is the first study to demonstrate high levels of PSP in this population. Different dimensions of PSP may not be all as equally important in adolescents with eating disorders. Although all three PSP dimensions were significantly associated to body dissatisfaction, perfectionistic self-promotion and nondisplay of imperfection were more strongly related compared to nondisclosure of imperfection. Perfectionistic self-promotion and nondisplay of imperfection relate to promoting perfection through behaviours. Concerns about *verbal* disclosures of imperfection (i.e., nondisclosure of imperfection) may play less of a role in body dissatisfaction in adolescents with eating disorders. This idea is supported by research demonstrating that an individual's behaviour is more effective than words in influencing beliefs (e.g., Reader & Fulks, 1980).

The present results failed to demonstrate a significant association between SPP and body dissatisfaction in adolescents with AN and EDNOS. This is not surprising given that adolescents with AN and EDNOS in the present study did not score significantly higher on SPP compared to controls. However, previous research has demonstrated specific links between SPP and BN (Pearson & Gleaves, 2006) and body

dissatisfaction and BN (Bunnell et al., 1992). These findings highlight the importance of examining how different dimensions of maladaptive perfectionism relate to body dissatisfaction in adolescents with different eating disorders.

Maladaptive Perfectionism and Body Dissatisfaction: Controls

SOP and PSP were demonstrated to be significantly and positively associated with body dissatisfaction in controls. Previous research examining maladaptive perfectionism in nonclinical populations of adolescents has found mixed results. Recall, two studies have found significant, positive correlations between concerns over mistakes/parental criticism and body dissatisfaction (Ruggiero et al., 2003), and between child/adolescent perfectionism (total) and body dissatisfaction (Wojtowicz & von Ranson, in press). In contrast, two studies have not found significant correlations between maladaptive perfectionism and body dissatisfaction (Keery et al., 2004; Shaw et al., 2004). However, Keery et al. did find that body image measured by the Self Image Questionnaire for Young Adolescents (SIQYA; Peterson, Schulenberg, Abramowitz, Offer, & Jarcho, 1984) was significantly and positively related to maladaptive perfectionism.

The inconsistencies in previous findings in nonclinical populations of adolescents may be explained by examining the maladaptive perfectionism measures that have been employed. Studies that have failed to demonstrate significant correlations between maladaptive perfectionism and body dissatisfaction in nonclinical populations of adolescents (e.g. Keery et al., 2004; Shaw et al., 2004) have employed the perfectionism subscale of the EDI. The scoring procedure for the EDI provides a total score for maladaptive perfectionism and does not enable separate analysis of the dimensions (i.e. SOP and SPP).

In contrast, research that has found significant correlations between maladaptive perfectionism and body dissatisfaction (e.g. Ruggiero et al., 2003; Wojtowicz & von Ranson, in press) have employed measures that enable researchers to score dimensions of perfectionism separately (i.e. the MPS and the CAPS). For instance, Ruggiero et al. (2003) found that body dissatisfaction was positively associated with increased concerns over mistakes and parental criticism, but not personal standards and parental expectation, in female adolescents. Furthermore, the present findings demonstrated a significant, positive association between SOP but not SPP, and body dissatisfaction in both groups of adolescents. Therefore, it seems that assessing maladaptive perfectionism as a multidimensional rather than one-dimensional construct is critical when examining the relationships between perfectionism and body dissatisfaction in nonclinical populations of adolescents.

Anxiety and Body Dissatisfaction: Adolescents with Eating Disorders

As expected, the present study revealed a significant and positive association between anxiety and body dissatisfaction in adolescents with AN and EDNOS. Anxiety symptomatology related to appearance (American Psychiatric Association, 2000; Heatherton & Baumeister, 1991) and peer acceptance (Baumeister & Tice, 1990) is characteristic of adolescents with eating disorders. In addition, several studies have reported high levels of body dissatisfaction among adolescents with eating disorders (e.g., Bunnell et al., 1992; Castro-Fornieles et al., 2007; Pearson & Gleaves, 2006). Thus, although it was expected that anxiety would be significantly associated with body dissatisfaction, this finding is novel given that this is the first study to examine this relationship in adolescents with eating disorders.

Although adolescents with eating disorders reported significantly higher levels of anxiety and body dissatisfaction compared to controls, the association between these two factors was not different between the two groups. This finding suggests that the relationship between anxiety and body dissatisfaction is the same in adolescents with and without eating disorders. Alternatively, anxiety may indeed be more significantly associated to body dissatisfaction among adolescents with eating disorders compared to controls; however, due to a small sample size the current study may not have had sufficient statistical power to detect a significant group difference. Independent replication of this study would increase confidence in the idea that the relationship between anxiety and body dissatisfaction does not differ between adolescents with eating disorders and controls.

Anxiety and Body Dissatisfaction: Controls

Control adolescents in the current study reported relatively minimal anxiety symptoms compared to adolescents with eating disorders. This finding is consistent with past research demonstrating relatively fewer anxiety symptoms (Tully et al., 2009) and anxiety disorders (Costello et al., 2003) in general populations of adolescents. From an evolutionary perspective, anxiety is a normal reaction to threatening or stressful stimuli that aims to increase an individual's awareness (Rachman, 2004). Adolescence is a developmental stage including many stressful challenges (i.e., puberty) that are likely to induce feelings of anxiety. Thus, it is not surprising that the control adolescents in this study displayed some anxiety.

Despite reporting fewer anxiety symptoms, as expected anxiety was found to be significantly, positively associated to body dissatisfaction in controls. An increasing body of research has demonstrated that higher levels of anxiety are significantly

associated to higher levels of body dissatisfaction in nonclinical populations of adolescents. For instance trait anxiety (e.g., Kostanski & Gullone, 1998), social anxiety (Schutz & Paxton, 2007), and negative affect (i.e., negative emotional experiences including anxiety, depression, and stress; Presnell et al., 2004; Ricciardelli & McCabe, 2001a; Ricciardelli & McCabe, 2001b) have all been shown to be significantly, positively associated with body dissatisfaction in female and male adolescents from a variety of socioeconomic backgrounds.

Maladaptive Perfectionism x Anxiety and Body Dissatisfaction in Adolescents with Eating Disorders

The present findings did not reveal that maladaptive perfectionism and anxiety interacted to predict elevated levels of body dissatisfaction in adolescents with eating disorders. This is the first study to examine risk factors for the elevated levels of body dissatisfaction in adolescents with eating disorders compared to nonclinical populations of adolescents. This finding suggests that maladaptive perfectionism and anxiety are independently related to body dissatisfaction in adolescents with eating disorders. However, it is also likely that a failure to detect any significant interaction effects is a consequence of reduced statistical power due a small sample size. McLelland and Judd (1993) noted that interaction effects are difficult to detect. Thus, future researchers investigating adolescent eating disorders need to ensure they recruit larger samples.

SOP, PSP and anxiety may be important factors for body dissatisfaction in adolescents with eating disorders and from nonclinical populations. However, the relationships of maladaptive perfectionism and anxiety with body dissatisfaction seem to be the same for adolescents with and without eating disorders. Therefore, it is likely

that there are other factors characteristic of adolescents with eating disorders that predict elevated levels of body dissatisfaction in this population.

Theoretical Implications for Adolescents with Eating Disorders and from Nonclinical Populations

Maladaptive Perfectionism and Body Dissatisfaction

Bardone et al. (2000) proposed that having unrealistically high standards provides more opportunities for discrepancies between realistic and impractical achievements. Thus, in the case of body image discrepancies between ideal and actual body image are likely to increase the risk for body dissatisfaction in individuals of all ages (Bardone et al., 2000). The present study provides support for this theory's relevance among adolescents with eating disorders and nonclinical populations of adolescents, as higher levels of SOP were shown to be significantly associated with higher levels of body dissatisfaction in adolescents with eating disorders and controls. Therefore, higher self-imposed standards for perfection in adolescents may lead to more prominent discrepancies between actual and ideal-self, which in turn may lead to higher levels of body dissatisfaction.

Concerns about appearing perfect to others may also lead to discrepancies between actual and ideal-self through not allowing adolescents to admit to imperfections. Recall, the present study demonstrated significant associations between perfectionistic self-presentational concerns and body dissatisfaction in adolescents with and without eating disorders. However, this idea requires further investigation.

Anxiety and Body Dissatisfaction

Explanations for the link between anxiety and body dissatisfaction among adolescents are difficult to attain. As previously discussed, adolescence is a developmental period characterised by an increase in the importance of physical appearance and peer-acceptance (Gowers & Shore, 2001), and social phobia (Costello et al., 2003). These findings particularly apply to females (Gowers & Shore, 2001) for whom there are significant pressure to achieve the thin-ideal (Harrison, 2000). Thus, anxious adolescents could be more likely than non-anxious adolescents to develop body dissatisfaction because they may be more concerned with appearance and peer-evaluation. The present study provides significant support for this idea by demonstrating that higher levels of anxiety were associated with higher levels of body dissatisfaction in adolescents with and without eating disorders.

Treatment Implications: Adolescents with Eating Disorders and from Nonclinical Populations

Current Body Image Treatments

The present study revealed that adolescents with eating disorders and controls reported being dissatisfied with their bodies. This finding suggests that body dissatisfaction needs to be addressed in adolescents with eating disorders and adolescents from nonclinical populations.

A number of studies have examined school-based interventions for body image in nonclinical populations of adolescents (e.g., O'Dea, 2002; O'Dea & Abraham, 2000; Jansen et al., 2008; McVey & Davis, 2002; McVey, Davis, Tweed, & Shaw, 2004; Paxton, 1993). These interventions take an educational approach and focus on teaching adolescents about genetic differences in weight and shape, physical changes

during puberty, the negative consequences of dieting, the importance of eating a healthy diet and exercise, media messages about body image, and protective factors such as self-acceptance (Kater, Rohwer, & Londre, 2002). Current school-based educational interventions do not appear effective in producing long-term improvements in body image. These findings suggest that education alone is not effective in treating body dissatisfaction in nonclinical populations of adolescents.

A review of studies examining body image treatments revealed that current interventions for adolescents and adults with eating disorders have limited effectiveness (Rosen, 1996). Rosen revealed that only two pharmacotherapy studies have demonstrated antidepressants to moderately improve body image in adolescents and adults with bulimia (Goldbloom & Olmsted, 1993; Walsh, Hadigan, Devlin, Gladis, & Roose, 1991). In addition, cognitive-behavioural therapy (CBT) for body image has been demonstrated to significantly reduce body dissatisfaction in adolescents and adults; however, the average change in body image was not statistically significant for the studies where scores could be compared to norms. Other psychotherapies including psychoeducational group therapy and psychodynamic therapy were not found to be effective treatments for body image (Rosen, 1996).

Suggested Improvements for Body Image Treatments

Current interventions for body image in adolescents with eating disorders and from nonclinical populations are not effective for the long-term reduction in body dissatisfaction. The current study demonstrated significant associations of maladaptive perfectionism and anxiety with body dissatisfaction in adolescents with eating disorders and controls. Thus, current body image treatments may be more effective if they include a focus on reducing maladaptive perfectionism or anxiety.

Maladaptive perfectionism. The most prominent treatment for maladaptive perfectionism is Cognitive-Behavioural Therapy (CBT). CBT for maladaptive perfectionism involves: a) identifying maladaptive perfectionism as a problem and the mechanisms that maintain it, b) conducting behavioural experiments to gain more of an understanding of the nature of maladaptive perfectionism, c) educating the client and restructuring cognitions involved in maladaptive perfectionism, and d) broadening one's scheme for self-evaluation (Fairburn, Cooper, & Shafran, 2003).

To date, no studies have examined treatments for maladaptive perfectionism in nonclinical populations of adolescents, let alone whether such treatments are effective in reducing body dissatisfaction. However, research has demonstrated that CBT effectively reduces maladaptive perfectionism in adolescents and adults with eating disorders (e.g., Steele & Wade, 2008). Steele and Wade (2008) examined the efficacy of a brief CBT treatment for maladaptive perfectionism in individuals aged 17-39 with BN. The intervention was manual based and consisted of eight individual sessions with a psychologist over a six week period. Steele and Wade found that the CBT treatment significantly reduced maladaptive perfectionism for individuals in the treatment group compared to a placebo group however these treatment gains were not maintained at a 6-month follow-up.

A second promising treatment for maladaptive perfectionism in adolescents with eating disorders is Cognitive Remediation Therapy (CRT). Preliminary analyses of CRT have shown that this treatment significantly improves cognitive flexibility in adults with AN (Tchanturia, Davies, & Campbell, 2007), a feature of maladaptive perfectionism. CRT aims to improve working memory, planning skills, and cognitive flexibility through continuous practice of a variety of set-shifting tasks, which aim to

test an individual's ability to show flexibility through changing schedules of reinforcement.

Anxiety. Body image treatments that target anxiety symptoms may also effectively reduce body dissatisfaction in nonclinical populations of adolescents. Research has found that CBT, psychotherapy, and pharmacotherapy are all effective treatments for anxiety in this population (Bernstein, Borchardt, & Perwien, 1996; Labellarte, Golda, Walkup, & Riddle, 1999). In particular, school-based interventions for anxiety in adolescents have been shown to significantly reduce anxiety symptoms (Barrett & Turner, 2001; Masia, Klein, Storch, & Corda, 2001; Warner, Fisher, Shrout, Rathor, & Klien, 2007). For instance, the *Skills for Academic and Social Success (SASS)* program that focuses on education about anxiety, the development of social skills, exposure to socially anxious situations, and relapse prevention has received significant empirical support for its effectiveness in reducing social anxiety symptoms and social phobia among adolescents without eating disorders (Masia et al., 2001; Warner et al., 2007).

To date, no studies have examined the efficacy of anxiety treatments in adolescents with eating disorders. However, Kotler and Walsh (2000) noted that antidepressants used to treat disordered eating in adolescents with eating disorders also leads to improvement in anxiety. CBT for anxiety may be useful for adolescents with eating disorders, as Cognitive Therapy (CT) and CBT for eating disorders that target distorted cognitions involved in the fear of fatness (Garner & Bemis, 1982) have been shown to be effective in reducing eating pathology and anxiety among mixed age populations (e.g., Agras, Walsh, Fairburn, Wilson, & Kraemer, 2000; Kathleen, Walsh, Vitousek, Wilson, & Bauer, 2003; Serfaty, Turkington, Heap, Ledsham, & Jolley, 1999). Although the mechanisms for change in these studies are unknown, it is

possible that anxiety treatments reduce eating disorder symptoms by means of reducing body dissatisfaction.

In summary, current treatments for body image in individuals with eating disorders and from nonclinical populations have been shown to be ineffective in producing long-term reductions in body dissatisfaction. However, the inclusion of CBT for maladaptive perfectionism or anxiety into current body image programs may improve the efficacy of these interventions. Although similar principles can be used to treat adolescents with eating disorders and adolescents from nonclinical populations, the approach should differ between populations. Group-based programs that provide education about body image and provide a brief CBT for maladaptive perfectionism or anxiety implemented into schools may be an effective means of treating body dissatisfaction nonclinical populations of adolescents. However, as adolescents with eating disorders report significantly higher levels of body dissatisfaction, body image treatments for this population may need to be longer, one-on-one sessions with a clinician and include pharmacotherapy.

Future Directions for Research

The present findings highlight two important areas for future research. First, it is important that researchers continue to examine additional factors that may lead to elevated levels of body dissatisfaction in adolescents with eating disorders compared to controls. Body dissatisfaction has been identified as an important factor for disordered eating among adolescents (O'Dea & Abraham, 2000). Identifying other psychological factors that may increase the risk for body dissatisfaction can help practitioners develop effective treatments for body image among adolescents with eating disorders. In

addition, such information may be beneficial for school counsellors and/or teachers when working with adolescents who exhibit subclinical eating pathology or when endeavouring to implement prevention programmes into schools. Researchers should conduct prospective, longitudinal studies to assess causality among risk factors for body dissatisfaction in adolescents and need to ensure they focus on clearly define adolescent populations.

Second, research should examine the efficacy of maladaptive perfectionism and anxiety treatments to improve body image in adolescents with eating disorders and from the general population. Current body image treatments for adolescents with and without eating disorders do not appear effective for the long-term reduction of body dissatisfaction (e.g., O'Dea, 2002; O'Dea & Abraham, 2000; Jansen et al., 2008; McVey & Davis, 2002; McVey et al., 2004; Paxton, 1993; Rosen, 1996). Studies should investigate the efficacy of such treatments to a) reduce body dissatisfaction in adolescents with eating disorders, b) reduce subclinical eating pathology among nonclinical populations of adolescents, and c) prevent body dissatisfaction among young adolescents from the general population.

Summary

This study provides a foundation towards the development of a comprehensive model for body dissatisfaction in adolescents with eating disorders and nonclinical populations of adolescents. The present results demonstrated that higher levels of maladaptive perfectionism and anxiety were significantly associated with higher levels of body dissatisfaction in adolescents with and without eating disorders. However, maladaptive perfectionism and anxiety did not interact to predict elevated levels of body dissatisfaction in adolescents with eating disorders. These findings have

implications for practitioners working with adolescents with eating disorders and from the general population; that is, targeting maladaptive perfectionism and anxiety may help improve body image and consequently reduce eating disorder symptoms. However, future research into additional risk factors for body dissatisfaction, and body image treatments for adolescents with eating disorders and from nonclinical populations is encouraged.

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APPENDIX A

Ethics Letter of Approval

28 October 2010

Dr Janet Carter
Room 510, Department of Psychology
University of Canterbury
Private Bag 4800
Christchurch

Dear Dr Carter

Ethics ref:	**URA/10/08/060 (please quote in all correspondence)**
Study title:	**The relationship between perfectionism and anxiety in adolescents with eating disorders.**
Investigators:	**Dr Janet Carter, Ms Hannah Moss, Ms Rachel Lawson**

This study was given ethical approval by the Upper South A Regional Ethics Committee on 26 October 2010. A list of members of the Committee is attached.

Approved Documents

- Information sheet for adolescents with eating disorders, version 2 dated 24 August 2010
- Consent form for adolescents with eating disorders, version 1 dated 5 October 2010
- Consent form for parents of adolescents with eating disorders, version 2 dated 5 October 2010
- Information sheet for healthy adolescents, version 2 dated 24 August 2010
- Consent form for healthy adolescents, version 1 dated 5 October 2010
- Consent form for parents of healthy adolescents, version 2 dated 5 October 2010
- EDI-3 Questionnaire
- Poster

This approval is valid until 31 October 2011, provided that Reports are submitted (see below).

Amendments and Protocol Deviations

All significant amendments to this proposal must receive prior approval from the Committee. Significant amendments include (but are not limited to) changes to:

- the researcher responsible for the conduct of the study at a study site
- the addition of an extra study site
- the design or duration of the study
- the method of recruitment
- information sheets and informed consent procedures.

Significant deviations from the approved protocol must be reported to the Committee as soon as possible.

Annual Progress Reports and Final Reports

A Final Report is required at the conclusion of the study. The Final Report Form is available at www.ethicscommittees.health.govt.nz.

Requirements for the Reporting of Serious Adverse Events (SAEs)

For the purposes of the individual reporting of SAEs occurring in this study, the Committee is satisfied that the study's monitoring arrangements are appropriate.

SAEs occurring in this study must be individually reported to the Committee within 7-15 days only where they:

- are *unexpected* because they are not outlined in the investigator's brochure, and
- are not defined study end-points (e.g. death or hospitalisation), and
- occur in patients located in New Zealand, and
- if the study involves blinding, result in a decision to break the study code.

There is no requirement for the individual reporting to ethics committees of SAEs that do not meet all of these criteria. However, if your study is overseen by a data monitoring committee, copies of its letters of recommendation to the Principal Investigator should be forwarded to the Committee as soon as possible.

Please see www.ethicscommittees.health.govt.nz for more information on the reporting of SAEs, and to download the SAE Report Form.

We wish you all the best with your study.

Yours sincerely

Alieke Dierckx
Administrator
Upper South A Regional Ethics Committee
Email: alieke_dierckx@moh.govt.nz

APPENDIX B

Information Sheet: Healthy Adolescents

Perfection and Eating Disorders in Adolescents

You are invited to take part in this study. This project is investigating the relationship between perfectionism (i.e. trying to appear perfect) and anxiety in adolescents with and without an eating disorder. Please read the rest of this information sheet before deciding whether or not to participate in this study. Your participation is entirely voluntary and you may withdraw at any time, no questions asked.

What will I be asked to do?

Should you agree to take part in the study, you will be asked to complete a written consent form and then fill out some self-report questionnaires. This will take approximately 45-55 minutes.

Who are the participants taking part in the study?

Fifty adolescents will be recruited to take part in this study: - twenty-five adolescents with an eating disorder and twenty-five adolescents who display minimal or no symptoms of an eating disorder or an anxiety disorder. Every individual taking part in this study must be able to speak and write good English.

What data or information will be collected and what use will be made of it?

Information will be collected via self-report questionnaires. These analysed results will be published in scientific journals but no material that could personally identify you will be used in any reports on this study. Questionnaires will be labelled using numbers, not personal names. Data will be stored in a locked facility for a minimum of ten years, and only the researchers running this study will have access to the information you provide.

What are the benefits and risks of taking part in this study?

By taking part in this study you are participating in research that is aimed at helping adolescents with eating disorders. Some of the questions within the questionnaires may however bring up sensitive issues and cause some distress. Remember though that you are free to withdraw at any time during this study.

However, if you feel any distress during the completion of the questionnaires please let me know and you may be referred to a qualified clinical psychologist if needed.

What will happen at the end of the study?

At the end of the study all questionnaires and answer sheets will be collected. Adolescents will be provided with a meal reimbursement of five dollars given this study will take place during lunch hour. If you decide to take part in the study, you may request a summary of the results of the study by providing your contact details as indicated on the consent form. In addition, any students who are found to have clinically significant eating and/or anxiety symptoms will be contacted and offered options for assistance and referral as appropriate. If you have any questions about or any adverse reactions to the questions please contact me or my supervisor Janet Carter (details below).

What if I have any questions?

If you have any questions about this study, you may use a friend or family and/or whanau support to help understand the study and ask questions prior to taking part in this study. If you have any questions or concerns about your rights as a participant in this research study you can contact an independent health and disability advocate. This is a free service provided under the Health and Disability Commissioner Act.

Telephone: (NZ wide) 0800 555 050

Free Fax (NZ wide): 0800 2787 7678 (0800 2 SUPPORT)

Email (NZ wide): advocacy@hdc.org.nz

If you have questions about the study in the future, please feel free to contact either:-

Hannah Moss
Masters Student
Psychology Department
University of Canterbury
Email: hjm107@uclive.ac.nz

Janet Carter
Research Supervisor
Psychology Department
University of Canterbury
Email: janet.carter@canterbury.ac.nz
Telephone: 03 3667001

This study has been reviewed and approved by the Department of Psychology at Canterbury University.

This study has been given approval by the Upper South A Regional Ethics Committee.

APPENDIX C

Information Sheet: Adolescents with Eating Disorders

Perfection and Eating Disorders in Adolescents

You are invited to take part in this study. This project is investigating the relationship between perfectionism (i.e. trying to appear perfect) and anxiety in adolescents with and without an eating disorder. Please read the rest of this information sheet before deciding whether or not to participate in this study. Your participation is entirely voluntary and you may withdraw at any time, no questions asked.

What will I be asked to do?

Should you agree to take part in the study, you will be asked to complete a written consent form and then fill out some self-report questionnaires. This will take approximately 45-55 minutes.

Who are the participants taking part in the study?

Fifty adolescents will be recruited to take part in this study: - twenty-five adolescents with an eating disorder and twenty-five adolescents who display minimal or no symptoms of an eating disorder or an anxiety disorder. Every individual taking part in this study must be able to speak and write good English.

What data or information will be collected and what use will be made of it?

Information will be collected via self-report questionnaires and also from the clinical file for those participants attending the Eating Disorder Unit. These analysed results will be published in scientific journals but no material that could personally identify you will be used in any reports on this study. Questionnaires will be labelled using numbers, not personal names. Data will be stored in a locked facility for a minimum of ten years, and only the researchers running this study will have access to the information you provide.

What are the benefits and risks of taking part in this study?

By taking part in this study you are participating in research that is aimed at helping adolescents with eating disorders. Some of the questions within the questionnaires may however bring up sensitive issues and cause some distress. Remember though that you are free to withdraw at any time during this study.

However, if you feel any distress during the completion of the questionnaires please let me know and you may be referred to a qualified clinical psychologist if needed.

What will happen at the end of the study?

At the end of the study all questionnaires and answer sheets will be collected. If you decide to take part in the study, you may request a summary of the results of the study by providing your contact details as indicated on the consent form.

What if I have any questions?

If you have any questions about this study, you may use a friend or family and/or whanau support to help understand the study and ask questions prior to taking part in this study. If you have any questions or concerns about your rights as a participant in this research study you can contact an independent health and disability advocate. This is a free service provided under the Health and Disability Commissioner Act.

Telephone: (NZ wide) 0800 555 050
Free Fax (NZ wide): 0800 2787 7678 (0800 2 SUPPORT)
Email (NZ wide): advocacy@hdc.org.nz

If you have questions about the study in the future, please feel free to contact either:-

Hannah Moss
Masters Student
Psychology Department
University of Canterbury
Email: hjm107@uclive.ac.nz
Phone: 033598977

Janet Carter
Research Supervisor
Psychology Department
University of Canterbury
Email: janet.carter@canterbury.ac.nz

This study has been reviewed and approved by the Department of Psychology at Canterbury University.

This study has been given approval by the Upper South A Regional Ethics Committee.

APPENDIX D

Consent Form – Healthy Adolescents

Perfection and Eating Disorders in Adolescents

		Yes	No
1.	I have read and I understand the information sheet for taking part in the study designed to assess the relationship between perfectionism and anxiety in adolescents with eating disorders. I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.		
2.	I have had the opportunity to use family and/or whānau support or a friend to help me ask questions and understand the study.		
3.	I understand that taking part in this study is voluntary (my choice), and that I may withdraw from the study at any time.		
4.	I understand that my participation in this study is confidential and that no material that could identify me will be used in any reports on this study.		
5.	I understand that the study will be stopped if it should appear harmful to me.		
6.	I have had time to consider whether to take part in the study.		
7.	I know who to contact if I have any questions about this study.		
8.	I wish to receive a summary of the results.		

Body Dissatisfaction in Adolescents with Eating Disorders

I (*full name*) _____

hereby consent to take part in this study.

Date:	
Signatures:	
Full names of researchers:	
Contact phone number for researchers:	
Project explained by:	
Project role:	
Signature:	
Date:	

This study has been reviewed and approved by the Department of Psychology at Canterbury University.

This study has been given approval by the Upper South A Regional Ethics Committee.

APPENDIX E

Consent Form – Adolescents with Eating Disorders

Perfection and Eating Disorders in Adolescents

		Yes	No
1.	I have read and I understand the information sheet for taking part in the study designed to assess the relationship between perfectionism and anxiety in adolescents with eating disorders. I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.		
2.	I have had the opportunity to use family and/or whānau support or a friend to help me ask questions and understand the study.		
3.	I understand that taking part in this study is voluntary (my choice), and that I may withdraw from the study at any time.		
4.	I understand that my participation in this study is confidential and that no material that could identify me will be used in any reports on this study.		
5.	I understand that the study will be stopped if it should appear harmful to me.		
6.	I have had time to consider whether to take part in the study.		
7.	I know who to contact if I have any questions about this study.		
8.	I wish to receive a summary of the results.		

9. I consent to the researcher accessing details regarding my weight, height, ethnicity, and clinical diagnosis. | | |

I (*full name*) _____

hereby consent to take part in this study.

Date:	
Signatures:	
Full names of researchers:	
Contact phone number for researchers:	
Project explained by:	
Project role:	
Signature:	
Date:	

This study has been reviewed and approved by the Department of Psychology at Canterbury University.

This study has been given approval by the Upper South A Regional Ethics Committee.

APPENDIX F

Consent Form – Parents of Healthy Adolescents

Perfection and Eating Disorders in Adolescents

		Yes	No
1.	I have read and I understand the information sheet for my child taking part in the study designed to assess the relationship between perfectionism and anxiety in adolescents with eating disorders. I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.		
2.	I understand that my child taking part in this study is voluntary and that they may withdraw from the study at any time.		
3.	I understand that my child's participation in this study is confidential and that no material that could identify your child will be used in any reports on this study.		
4.	I understand that the study will be stopped if it should appear harmful to your child.		
5.	Your child has had time to consider whether to take part in the study.		
6.	I know who to contact if I have any questions about this study.		
7.	I wish for my child to receive a summary of the results.		

Body Dissatisfaction in Adolescents with Eating Disorders

I (*full name*) _____

hereby consent to my child taking part in this study.

Date:	
Signatures:	
Full names of researchers:	
Contact phone number for researchers:	
Project explained by:	
Project role:	
Signature:	
Date:	

This study has been reviewed and approved by the Department of Psychology at Canterbury University.

This study has been given approval by the Upper South A Regional Ethics Committee.

APPENDIX G

Consent Form – Parents of Adolescents with Eating Disorders

Perfection and Eating Disorders in Adolescents

		Yes	No
1.	I have read and I understand the information sheet for my child taking part in the study designed to assess the relationship between perfectionism and anxiety in adolescents with eating disorders. I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.		
2.	I understand that my child taking part in this study is voluntary and that they may withdraw from the study at any time.		
3.	I understand that my child's participation in this study is confidential and that no material that could identify your child will be used in any reports on this study.		
4.	I understand that the study will be stopped if it should appear harmful to your child.		
5.	Your child has had time to consider whether to take part in the study.		
6.	I know who to contact if I have any questions about this study.		
7.	I wish for my child to receive a summary of the results.		
8.	I consent to the researcher accessing details regarding my child's weight, height, ethnicity, and clinical diagnosis.		

I (*full name*) _____

hereby consent to my child taking part in this study.

Date:	
Signatures:	
Full names of researchers:	
Contact phone number for researchers:	
Project explained by:	
Project role:	
Signature:	
Date:	

This study has been reviewed and approved by the Department of Psychology at Canterbury University.

This study has been given approval by the Upper South A Regional Ethics Committee.

APPENDIX H

Summary of the Eating Disorder Inventory -3 Question Booklet

Instructions
For each item, decide if the item if true about you ALWAYS (A), USUALLY (U), OFTEN (O), SOMETIMES (S), RARELY (R), or NEVER (N). Circle the letter that corresponds to your rating on the Answer Sheet. For example, if your rating for an item is OFTEN, you would circle the "O" for that item on the Answer Sheet.

Scales
Drive for Thinness (DT) scale. Assesses a preoccupation with restrictive dieting, concern about dieting, and fears about weight gain.
Question examples:
"I eat sweets and carbohydrates without feeling nervous"
"I think about dieting"

Bulimia (B) scale. Assesses the tendency to think about and engage in, bouts of uncontrollable eating (i.e., binge eating).
Question examples:
"I eat when I am upset"
"I stuff myself with food"

Body Dissatisfaction (BD) scale. Assesses discontentment with overall shape and with the size of those regions of the body of extraordinary concern to those with eating disorders (i.e., stomach, hips, thighs, buttocks).
Question examples:
"I think my stomach is too big"
"I think that my thighs are too large"

Low Self Esteem (LSE) scale. Assesses negative self-evaluation with questions tapping feelings of insecurity, inadequacy, ineffectiveness, and lack of personal worth.
Questions examples:
"I feel ineffective as a person"
"I feel inadequate"

Personal Alienation (PA) scale. Measures a broader domain of feelings pertaining to a pervasive sense of emotional emptiness and alones and a poor sense of self-understanding.
Question examples:
"I feel generally in control of things in my life"
"I feel empty inside (emotionally)"

Interpersonal Insecurity (II) scale. Assess discomfort, apprehension, and reticence in social situations.
Question examples:
"I am open about my feelings"
"I can communicate with others easily"

Interpersonal Alienation (IA) scale. Assesses disappointment, distance, estrangement, and a lack of trust in relationships.
Question examples:
"I know that people love me"
"People understand my real problems"

Interoceptive Deficits (ID) scale. Assesses confusion related to accurately recognizing and responding to emotional states.
Question examples:
"I get frightened when my feelings are too strong"
"I get confused about what emotion I am feeling"

Emotional Dysregulation (ED) scale. Assesses a tendency toward mood instability, impulsivity, recklessness, anger and self-destructiveness.
Question examples:
"Other people would say that I am emotionally unstable"
"I feel like I must hurt myself or others"

Perfectionism (P) scale. Assess the extent to which a person places a premium on achieving high goals and the highest possible standards of personal achievement.
Question examples:
"Only outstanding performance is good enough in my family"
"As a child, I tried very hard to avoid disappointing my parents and teachers"

Asceticism (A) scale. Assesses the tendency to seek virtue through the pursuit of spiritual ideals such as self-discipline, self-denial, self-restraint, self-sacrifice, and control of bodily urges.
Question examples:
"I believe that relaxing is simply a waste of time"
"Self denial makes me feel stronger spiritually"

Maturity Fears (MF) scale. Assesses the desire to return to the security of childhood.
Question examples:
"I wish I could return to the security of childhood"
"I wish that I could be younger"

APPENDIX I

DASS 21 *Name:* *Date:*

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0 1 2 3
2	I was aware of dryness of my mouth	0 1 2 3
3	I couldn't seem to experience any positive feeling at all	0 1 2 3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0 1 2 3
5	I found it difficult to work up the initiative to do things	0 1 2 3
6	I tended to over-react to situations	0 1 2 3
7	I experienced trembling (eg, in the hands)	0 1 2 3
8	I felt that I was using a lot of nervous energy	0 1 2 3
9	I was worried about situations in which I might panic and make a fool of myself	0 1 2 3
10	I felt that I had nothing to look forward to	0 1 2 3
11	I found myself getting agitated	0 1 2 3
12	I found it difficult to relax	0 1 2 3
13	I felt down-hearted and blue	0 1 2 3
14	I was intolerant of anything that kept me from getting on with what I was doing	0 1 2 3
15	I felt I was close to panic	0 1 2 3
16	I was unable to become enthusiastic about anything	0 1 2 3
17	I felt I wasn't worth much as a person	0 1 2 3
18	I felt that I was rather touchy	0 1 2 3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0 1 2 3
20	I felt scared without any good reason	0 1 2 3
21	I felt that life was meaningless	0 1 2 3

APPENDIX J

PSPS

Listed below are a group of statements. Please rate your agreement with each of the statements using the following scale. If you strongly agree, circle 7; if you disagree, circle 1; if you feel somewhere in between, circle any one of the numbers between 1 and 7. If you feel neutral or undecided the midpoint is 4.

1 Disagree Strongly 2 3 4 Neutral 5 6 Agree Strongly 7

	Disagree Strongly				Neutral		Agree Strongly
1. It is okay to show others that I am not perfect.....	1	2	3	4	5	6	7
2. I judge myself based on the mistakes I make in fro nt of other people.....	1	2	3	4	5	6	7
3. I will do almost anything to cover up a mistake.....	1	2	3	4	5	6	7
4. Errors are much worse if they are made in public rather than in private.....	1	2	3	4	5	6	7
5. I try always to present a picture of perfection.....	1	2	3	4	5	6	7
6. It would be awful if I made a fool of myself in front of others.....	1	2	3	4	5	6	7
7. If I seem perfect, others will see me more positively.....	.1	2	3	4	5	6	7
8. I brood over mistakes that I have made in front of others.....	1	2	3	4	5	6	7
9. I never let others know how hard I work on things.....	1	2	3	4	5	6	7
10. I would like to appear more competent than I really am.....	1	2	3	4	5	6	7
11. It doesn't matter if there is a flaw in my looks.....	1	2	3	4	5	6	7
12. I do not want people to see me do something unless I am very good at it....	1	2	3	4	5	6	7
13. I should always keep my problems to myself.....	1	2	3	4	5	6	7
14. I should solve my own problems rather than admit them to others.....	1	2	3	4	5	6	7
15. I must appear to be in control of my actions at all times.....	1	2	3	4	5	6	7
16. It is okay to admit mistakes to others.....	1	2	3	4	5	6	7
17. It is important to act perfectly in social situations.....	1	2	3	4	5	6	7
18. I don't really care about being perfectly groomed.....	1	2	3	4	5	6	7
19. Admitting failure to others is the worst possible thing.....	1	2	3	4	5	6	7
20. I hate to make errors in public.....	1	2	3	4	5	6	7
21. I try to keep my faults to myself.....	1	2	3	4	5	6	7
22. I do not care about making mistakes in public.....	1	2	3	4	5	6	7

23. I need to be seen as perfectly capable in everything I do……	1	2	3	4	5	6	7
24. Failing at something is awful if other people know about it……	1	2	3	4	5	6	7
25. It is very important that I always appear to be "on top of things"……	1	2	3	4	5	6	7
26. I must always appear to be perfect……	1	2	3	4	5	6	7
27. I strive to look perfect to others……	1	2	3	4	5	6	7

APPENDIX K

CAPS

This is a chance to find out about yourself. It is not a test. There are no right answers and everyone will have different answers. Be sure that your answers show how you actually are. Please do not talk about your answers with anyone else. We will keep your answers private and not show them to anyone.

When you are ready to begin, please read each sentence below and pick your answer by circling a number from "1" to "5". The five possible answers for each sentence are listed below:

1 = False—Not at all true of me
2 = Mostly False
3 = Neither True Nor False
4 = Mostly True
5 = Very True of me

For example, if you were given the sentence "I like to read comic books," you would circle a "5" if this is very true of you. If you were given the sentence "I like to keep my room neat and tidy," you would circle a "1" if this was false and not at all true of you. You are now ready to begin.

Please be sure to answer all of the sentences.

		False				True
1.	I try to be perfect in everything I do.	1	2	3	4	5
2.	I want to be the best at everything I do.	1	2	3	4	5
3.	My parents don't always expect me to be perfect in everything I do.	1	2	3	4	5
4.	I feel that I have to do my best all the time.	1	2	3	4	5
5.	There are people in my life who expect me to be perfect.	1	2	3	4	5
6.	I always try for the top score on a test.	1	2	3	4	5
7.	It really bothers me if I don't do my best all the time.	1	2	3	4	5
8.	My family expects me to be perfect.	1	2	3	4	5
9.	I don't always try to be the best.	1	2	3	4	5
10.	People expect more from me than I am able to give.	1	2	3	4	5
11.	I get mad at myself when I make a mistake.	1	2	3	4	5
12.	Other people think that I have failed if I do not do my very best					

	all the time.....	1	2	3	4	5
13.	Other people always expect me to be perfect.....	1	2	3	4	5
14.	I get upset if there is even one mistake in my work.	1	2	3	4	5
15.	People around me expect me to be great at everything. .	1	2	3	4	5
16.	When I do something, it has to be perfect.	1	2	3	4	5
17.	My teachers expect my work to be perfect.	1	2	3	4	5
18.	I do not have to be the best at everything I do.....	1	2	3	4	5
19.	I am always expected to do better than others.	1	2	3	4	5
20.	Even when I pass, I feel that I have failed if I didn't get one of the highest marks in the class.....	1	2	3	4	5
21.	I feel that people ask too much of me.	1	2	3	4	5
22.	I can't stand to be less than perfect.	1	2	3	4	5