Body Dissatisfaction in Adolescence: Risk Indicators and Protective Factors

by

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B.A., Nipissing University, 1998

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of

MASTER OF ARTS

in the Department of Psychology

We accept this thesis as conforming to the required standard

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ABSTRACT

The present study examines predictors of body dissatisfaction among girls and boys in early adolescence. Both risk factors for and protective factors against body dissatisfaction are explored. Body dissatisfaction is the affective component of body image (Gleaves, Williamson, Eberenz, Sebastian, & Barker, 1995) and has been found to be the strongest single predictor of eating disorder symptomology among adolescent girls (Leon, Fulkerson, Perry, & Cudeck, 1993). Longitudinal studies have shown that body dissatisfaction in early adolescence is predictive of eating problems over time (Graber, Brooks-Gunn, Paikoff, & Warren, 1994).

First, it was hypothesized that physical risks, including early pubertal maturation for girls and later pubertal maturation for boys, higher body mass index for girls, and high or low body mass index for boys, and greater effort to control one's figure for both boys and girls, would be predictive of body dissatisfaction. Second, contextual risks, including being teased about weight or shape, and greater involvement in popular culture which transmits unrealistic body ideals, were hypothesized to be predictive of body dissatisfaction for both girls and boys. Thirdly, it was hypothesized that protective factors, including involvement in sports activities, feeling accepted by mothers, and attending church or other religious activities, would negatively predict body dissatisfaction. Finally, it was hypothesized that protective factors would moderate the relations between significant risks and body dissatisfaction, lessening the impact of risks.

Participants were 170 adolescents (91 girls and 79 boys) from a medium-sized Canadian city. Data were collected from 83 7th graders (mean age 12 years and 9 months) and 87 10th graders (mean age 15 years and 10 months) who participated in the second wave of a three-year longitudinal study of adolescents' psychosocial maturity and problem behaviour (the Victoria Adolescence Project).

Separate hierarchical regressions were conducted for girls and boys. Physical risks were entered in the first step, followed by contextual risks, and finally protective factors in the third step. Significant risks for girls included higher body mass index, more figure control behaviour, and being teased about their bodies more often. Mother acceptance was the only significant protective factor for girls. For boys, the only significant risk factor was being teased. No protective factors were significant for boys. Overall, 39% of the variance in girls' body dissatisfaction scores was accounted for, while 33% of the variance in boys' scores was explained. No moderating effects of protective factors on the relation between significant risks and body dissatisfaction were found for girls or boys.

The discussion highlights the importance of the findings in relation to previous research, especially the information gained on boys' experiences of body dissatisfaction. As well, the lack of identified significant protective factors is discussed and explanations proposed. Finally, implications for the prevention of eating disorders and the importance of this type of research for understanding the development of serious eating problems is considered.

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Acknowledgements

I would like to acknowledge the contributions of those who aided me in the preparation of this thesis. To my supervisor Dr. Nancy Galambos, I would like to express my appreciation for her ongoing support and guidance throughout this project. I would also like to acknowledge Dr. Bonnie Leadbeater, whose comments on various versions of this thesis have contributed greatly to its overall quality. My gratitude is also extended to Dr. Anne Marshall for her valuable insights and thoughtful comments.

I would like to extend my thanks to Dr. Lauree Tilton-Weaver as well, for being a mentor and friend during my first years as a graduate student and for patiently answering my many, many questions. Thanks also to Sara Weinstein who entered and managed the data for this thesis.

To the good friends I've made in Victoria and to those made before, thanks for the frequent encouragement and continued support. A special thanks to the Barker family, Christine, Judi, Kelly, Meredith, Shannon, and Tilly. Thanks especially to Matt, whose encouragement has been a constant source of comfort and strength. Finally, I would like to acknowledge my wonderfully supportive family. Many thanks to my parents, Ed and Carol Vitunski, and to my siblings Eddy, Kirstie, Andy, Penny, and Alyson, for their faith and love.

CHAPTER I

Introduction

Contemporary assumptions of life-span developmental psychology assert that human development involves change processes occurring from birth until death. Interacting with the psychological development of an individual are biological, social, cultural, and historical forces (Lerner & Kauffman, 1985). The transactions among these levels are the bases for commonalities and differences among individuals and the myriad of pathways along which development occurs (Staudlinger, Marsiske, & Baltes, 1995). This perspective extends into a model of how psychopathology develops when the individual and context are considered inseparable influences on the development of pathology (Sroufe, 1997). Both individual and environmental factors comprise the protective and risk factors that influence behaviour directly or indirectly (Egeland, Carlson, & Sroufe, 1993). The life-span perspective also extends research on protective and risk factors from a focus on the immediate effects of stress to an appreciation of the temporal connections among stressors, protective factors, and outcomes (Gore & Eckenrode, 1996).

The development of eating problems and associated disturbances such as body image disturbances can be effectively viewed from this life-span perspective. Eating pathology may be the result of interactions and transactional processes involving several levels of risk: the individual level, the level of family and peer influences, the community level, and sociocultural levels. Sex is the most salient moderator of the development of eating and body image problems. About 90% of all anorectics and bulimics are female, and the majority of individuals with less severe eating problems are also women (Murnen & Smolak, 1997). By middle school, and perhaps even earlier in elementary school, these

sex differences are evidenced in reports of body dissatisfaction and dieting behaviour, with girls dieting more and feeling less satisfied with their bodies than boys (Murnen & Smolak, 1997). In a 1998 survey of Canadian students, the proportion of adolescents who reported being satisfied with their body size was greatest among 6th graders, showing gradual decline among 7th and 8th graders and leveling off among 9th and 10th graders. Girls were less satisfied than boys (King, Boyce, & King, 1999). Body dissatisfaction is defined as the affective component of the multidimensional construct of body image. Other components of body image include preference for thinness, fear of fatness, actual body size, ideal body size, and body-size distortion (Gleaves, Williamson, Eberenz, Sebastian, & Barker, 1995). Some research suggests that early body dissatisfaction may be a necessary although not sufficient predictor of later eating pathology, and body dissatisfaction has been found to be the strongest single predictor of eating disorder symptomology in adolescent girls (Leon, Fulkerson, Perry, & Cudeck, 1993). The American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders fourth edition (1994) criteria for both anorexia and bulimia nervosa include criteria related to body image disturbances.

Correlational studies reveal consistent associations between body dissatisfaction and eating disturbances for girls (e.g., Leon et al., 1993; Leung, Schwartzman, & Steiger, 1996; Thompson, Coovert, & Stormer, 1999). Longitudinal results indicate that girls' body dissatisfaction in early adolescence is predictive of later eating problems (Attie & Brooks-Gunn, 1989; Graber, Brooks-Gunn, Paikoff, & Warren, 1994). By high school, girls are three times as likely as boys to perceive themselves as overweight despite being

under- or average-weight (Pritchard, King, & Czajka-Narins, 1997). Differences in boys' and girls' body dissatisfaction have also been noted in early adolescence (Keel, Fulkerson, & Leon, 1997; Mendelson, White, & Mendelson, 1996; Richards, Boxer, Peterson, & Albrecht, 1990; Rosenblum & Lewis, 1999b). From ages 13 to 18 years, girls' body dissatisfaction increases significantly while boys' decreases (Rosenblum & Lewis, 1999b).

However, similarities in body dissatisfaction related specifically to weight have been found for boys and girls (e.g., King et al., 1999; Richards et al., 1990). For example, Rosenblum and Lewis (1999b) found that boys and girls were equally dissatisfied with their weight at ages 13, 15, and 18 despite showing differences in overall body dissatisfaction. For girls and boys ages 13 and 15 years, greater body mass index (BMI) was related to greater body dissatisfaction.

The purpose of this study is to better understand the development of body dissatisfaction for girls and boys in early adolescence, and how it might differ for girls and boys. Three issues are addressed to achieve this goal. First, risks associated with adolescents' experiences of their bodies (e.g., increased weight) and risks associated with adolescents' contextual experiences (e.g., being teased) are explored in relation to body dissatisfaction for girls and boys in adolescence. Second, factors are explored that might work to protect adolescents from experiencing body dissatisfaction. Third, differing patterns of risk and protective factors are explored for girls and boys in adolescence.

CHAPTER II

Literature Review

In the following review, theories of body dissatisfaction will be presented followed by a discussion of identified risk factors for body dissatisfaction. These risks include pubertal status and timing, being overweight, comorbidity with depressive symptoms, and the influences of peers, family, community, and the current sociocultural context. This will be followed by a discussion of potential protective factors related to body dissatisfaction. Next, longitudinal findings will be presented to illustrate possible mechanisms involved in the development of body dissatisfaction. Finally, a model integrating the findings on risk and protective factors will be proposed and hypotheses will be made based on this model.

Theories of Body Dissatisfaction

Several theories have been put forward to explain body dissatisfaction based on evidence linking specific risk factors to increased body image disturbances (including body dissatisfaction) in women and adolescent girls. In a review of these theories, Heinberg (1996) considers both developmental theories and sociocultural theories of body image disturbance. Developmental theories incorporate puberty and maturational timing and negative verbal commentary as risk factors. Pubertal development influences the biological, psychological, and sociological growth of individuals who actively work to integrate the changes associated with puberty into their self-definition. Among the various changes involved in puberty are changes in body composition and shape that require adjustments in body image. Negative verbal commentary or teasing is theorized to

influence the formation of body dissatisfaction through negative feedback about body characteristics such as weight or shape. Sociocultural theories address the roles of sociocultural ideals, gender-role socialization, and mass media as influential in the development of body dissatisfaction. Examining sociocultural ideals involves exploring the influence of ideal body standards prevalent in a society, for example the thin standard of beauty for women currently upheld in Western cultures. Gender-role socialization theories look for explanations of body dissatisfaction, particularly in women, in gendered socialization practices that promote the acceptance of stereotypical feminine roles. The acceptance of such roles may make females vulnerable to body dissatisfaction and eating problems (Heinberg, 1996). For example, many feminist analyses argue that the beauty of women's bodies are defined in terms of their heterosexual attractiveness, situated within western ideals. The role of the mass media has been widely studied as a powerful tool by which such social ideals are communicated (Brook, 1999; Heinberg, 1996).

Research investigating specific risk factors for the development of body dissatisfaction have generated support for these theories and others related to them as components of ecological systems of development. Bronfenbrenner's ecological model of human development (1977) proposes that interactions within and among nested levels of influence and the developing individual over time result in development across the life span. These levels are 1) the microsystem: the immediate environment (e.g., home, work, school) in which individuals engage in particular roles (e.g., daughter, student, employee, etc.); 2) the mesosystem: "the interrelations among major settings containing the developing person" (p. 515) (e.g., family, peer group, etc.); 3) the exosystem: social

structures that influence the developing individual through the mesosystem (e.g., neighbourhood, mass media, etc.); and 4) the macrosystem: "the overarching institutional patterns of the culture or subculture" (p. 515) (e.g., political, economic, and social systems etc.). In terms of the development of body dissatisfaction, risk factors have been identified at the individual level and at all ecological levels suggesting that a single perspective is not sufficient in explaining body dissatisfaction. Rather, as proposed by the ecological perspective on human development, all areas of risk interact across time creating trajectories along which risks may be encountered.

Risk Factors

Puberty and Weight

Research on puberty and maturational status has focused mainly on girls' development. At puberty girls experience a significant increase in the ratio of body fat to lean body mass with fatty deposits accumulating in the thighs, buttocks, hips, and breasts (Dubas & Peterson, 1993). Rosenblum and Lewis (1999b) found that across adolescence (from ages 13 to 18 years) girls became more dissatisfied with their waists, thighs, and hips. In a national sample of Canadian sixth through 10th graders (King et al., 1999), the percentage of girls who felt that their body was about the right size gradually decreased from 46% among 6th graders to 35% among 10th graders. The early timing hypothesis of the effects of pubertal development on psychosocial change predicts that girls who are particularly vulnerable to adjustment difficulties are those who mature earlier than their peers. Early maturing girls experience changes in body composition and shape earlier than their peers and as a result must make psychological adjustments to deal with these changes

earlier as well (Dubas & Peterson, 1993).

A number of researchers have found associations between gains in weight associated with puberty for girls and body dissatisfaction, with increased weight being associated with increased body dissatisfaction (Attie & Brooks-Gunn, 1989; Graber, et al., 1994). In a representative and large sample of seventh to 12th grade girls in British Columbia, the McCreary Centre Society (1999) reported that 41% felt that they were overweight. Richards and colleagues (1990) report that in a sample of sixth through eighth grade girls and boys, girls who were more developed showed significant gains in actual weight, were less satisfied with their weight, and had more negative perceptions of their weight than boys. For boys, the only significant relation was between pubertal development and actual weight. Boys who were more developed also weighed more, but did not have as negative a reaction to their gain in weight as more mature girls, and girls in general. In a qualitative analysis of gender and age patterns of body image Polce-Lynch, Myers, Kilmartin, Forssmann-Falck, and Kliewer (1998) found that 8th grade girls, compared to same grade boys as well as 5th and 12th grade girls and boys, most often reported that body image had a negative effect on their feelings about themselves. More of the 8th grade girls would have recently experienced many of the changes associated with puberty compared to 5th and 12th grade girls. In a sample of pre- and early adolescent girls and boys, Keel and colleagues (1997) looked at the effect of puberty on problem eating (e.g., binge eating) cross-sectionally and longitudinally over a two year period. Year-1 cross-sectional results revealed that puberty as well as BMI, body image, and depression were significant predictors of problem eating for girls in sixth and seventh grade. At year

2, only body image and BMI were significant cross-sectional predictors. Year-1 puberty and BMI significantly predicted year-2 problem eating for girls, but were not significant when year-1 problem eating was controlled, suggesting that problem eating was established early. For boys, only body image at year 2 was predictive of eating problems cross-sectionally. Year-1 body image was predictive of year-2 problem eating and it remained significant after year-1 problem eating was controlled. Significantly more girls than boys were at more mature stages of pubertal development (66% of girls and 26% of boys at midpuberty or beyond) and there was no significant difference in BMI between girls and boys. These results indicate that pubertal status may be an important risk factor for eating problems in girls. However, as girls get older, problem eating may be better predicted by other variables like body image and BMI, whereas for boys pubertal timing seems less important for the development of eating problems. Other researchers have reported interactions between pubertal status and variables such as commencement of dating (Cauffman & Steinberg, 1996; Levine, Smolak, Moodey, Shuman & Hessen, 1994b) and poor parental relations (Swarr & Richards, 1996) in the development of body dissatisfaction at puberty.

Although little research has explored the effects of puberty on boys' body dissatisfaction, similarities in body dissatisfaction for girls and boys specifically related to weight have been found (Rosenblum & Lewis, 1994b). In a national sample of Canadian youth (King et al., 1999) 63% of girls and 54% of boys in grades 6 though 10 reported feeling that their body was not the right size. International results from the same survey revealed that the percentage of 13 year old boys who felt that their body was about the

right size ranged from a high of 55% in Denmark to a low of 38% in the United States. In Canada, the percentage of boys who felt that their body was about the right size dropped from 52% among 6th graders to 41% among 10th graders. These results show that a large number of boys in adolescence are not satisfied with their weight. In the Canadian sample, boys in higher grades were as likely to feel too fat as too thin, whereas girls were more likely to feel too fat (King et al., 1999). In a sample of older adolescent males, Furnham and Calnan (1998) found that 69% were dissatisfied with their weight. Thirty-one percent perceived themselves as underweight compared to their ideal weight and 38% perceived themselves as overweight compared to their ideal. The McCreary Centre Society (1999) reported similar results from its 1998 survey of adolescents in the province of British Columbia. More boys than girls perceived themselves as underweight and more boys were trying to gain weight. Abell and Richards (1996) found that college-age males indicated larger current vs. ideal weight discrepancies than women. These discrepancies were in the negative direction, however, indicating that these men wanted to weigh more than they currently did. The difference between current and ideal ratings of shape were not significant. These men wanted to weigh more, but they did not want to look overweight. The authors speculated that they wanted to be more muscular. In relation to eating pathology, Furnham and Calnan (1998) found that late adolescent males who indicated that they were exercising to tone their bodies (i.e., to increase muscle definition as opposed to exercising to lose weight or for enjoyment) had higher eating problem scores.

Comorbidity with Depressive Symptoms

Links between eating pathology, body dissatisfaction, and depressive symptoms have also been explored to investigate risk pathways for the expression of eating problems (Leon et al., 1993; Leung et al., 1996). Leon and colleagues (1993) found that girls in grades 7 through 10 who evidenced low introceptive awareness (inability to label emotional arousal), negative emotionality (high stress reactivity), and high depressive symptoms were at high risk for eating disorders. Leung and colleagues (1996) report significant relationships among self-deficits (low levels of self-esteem and increased fears of negative evaluations), higher ratings of eating disturbances, and higher levels of body dissatisfaction in adolescent girls. Body dissatisfaction was directly related to both self-deficits and eating disturbance. Rierdan and Koff (1997) found an association between increased weight concerns and weight dissatisfaction with increased depressive symptoms in sixth grade girls. In a sample of pre- and early adolescents, Keel and colleagues (1997) found that depressive symptoms were highly correlated with body image, self-esteem, and problem eating for both boys and girls in grades 6 and 7. At year 1, depression was a significant predictor of problem eating for girls and a near significant predictor for boys. Across adolescence, Rosenblum and Lewis (1999a) have found that boys and girls who report higher levels of global psychopathology (i.e., poorer psychological and emotional functioning) also report high levels of body dissatisfaction. Girls' reports of psychopathology steadily increased from ages 13 to 18 with a prevalence at age 18 double that at age 13. For boys, self-reported psychopathology declined from ages 13 to 15 then increased from ages 15 to 18 years, evidencing a 10% increase from age 13 to 18 years.

A model of internalizing problems proposed by Leadbeater, Blatt, and Quinlan

(1995) specifies that self-critical depressive individuals who are overly concerned with self-definition issues, are particularly sensitive to negative evaluations and "experience excessive feelings of guilt, hopelessness, worthlessness, and inadequacy" (p. 17). Peers and adults are perceived as critical. Negative feelings are emphasized when stressful life events threaten perceptions of self-worth or disrupt self-esteem. While this research did not directly address body dissatisfaction, the authors showed that depressive self criticism was related to the development of internalizing problems that included somatic problems, depressive symptoms, anxiety, and social withdrawal. Girls who are prone to self-critical depressive styles may perceive and interpret the changes in their weight and shape associated with puberty negatively and as a threat to their self-definition. High negative emotionality, reactivity to comments from other people, and an inability to label emotional arousal may lead to subsequent body dissatisfaction and general low self-esteem. For boys who are prone to a self-critical depressive style, late adolescence may be a risk period for body dissatisfaction if expected body ideals are not achieved and if they perceive themselves as over- or underweight.

Peer Influences

Some research has focused on the effects of negative verbal commentary or teasing on the development of body image problems. Stormer and Thompson (1996) found that female college students' retrospective reports of having been teased in childhood about weight or shape significantly predicted overall body image anxiety, appearance evaluation, and internalization of societal values. Similarly, Alexander and Sputa-Somers (1999) found that college students' retrospective reports of teasing in childhood predicted body

image later in life. Specifically, they found that for females more frequent teasing about general appearance in childhood was predictive of poor body image in college while frequent teasing about weight for males was significantly predictive of poor body image in college. Levine, Smolak, and Hayden (1994a) found similar results in their sample of middle school girls. Teasing from peers was the most important predictor of body dissatisfaction and a significant predictor of investment in thinness and weight management behaviours. Smolak, Levine, and Schermer (1998) reported boys holding more negative attitudes about overweight people than girls and that boys' negative beliefs were less affected by intervention than were the same beliefs for girls. Boys also had higher rates of teasing others about weight and shape than girls. They did not report who was being teased, but it seems reasonable to speculate that if boys hold more negative attitudes and tease more, girls who are entering puberty and boys who are overweight may become targets for teasing. The targets then may respond self-critically and interpret their gain in weight negatively.

Another area that has been explored to better understand the relation between teasing and body image is social comparison (i.e., how an individual compares their appearance to that of others). Thompson and colleagues (1999) used covariance structural modeling to examine the mediating effect of social comparison on body dissatisfaction and eating pathology. Teasing (about weight, specific body parts, and general appearance) was directly and positively related to body dissatisfaction and indirectly related to body dissatisfaction mediated by social comparison. College aged females who were teased more about their appearance compared themselves more often to

others and evidenced higher levels of body dissatisfaction. In a recent study on friendship clique and peer influences on body image concerns and related eating problems, Paxton, Schutz, Wertheim, and Muir (1999) found that 10th grade girls' "friendship cliques could be characterized by their level of body image concern, frequency of use of extreme weight-loss behaviours, and to a lesser extent, dietary restraint" (p. 259). In relation to body image, a number of "friend" variables were significantly correlated with body dissatisfaction: friends as a source of influence, friends' concern with thinness and dieting, talking to friends about weight loss and dieting, peer teasing about weight and shape, and pressure from peers to be thin. After controlling for BMI, anxiety, and perceived pressure from parents and the media to be thin all of the above mentioned friend variables, as well as body comparison and "better friends if thinner", were significant predictors of body image concern. Friendship cliques also showed within-group similarities relating to BMI, depression, and self-esteem. The authors suggest two interpretations of these findings. First, that girls with higher levels of body dissatisfaction associate with peer groups that place more importance on weight and appearance. Second, considering that all measures were self-report, girls with high body dissatisfaction may perceive their friends as being equally concerned with these issues. This interpretation relates back to the idea that girls with increased body dissatisfaction and who show a self-critically depressive style may be interpreting friends' behaviour more negatively, viewing it as threat to self-definition. These girls may also form negative peer associations reinforcing poor body image and depressive symptoms.

These findings suggest that being teased by peers, comparing oneself to peers, and

associating with a peer group that fosters body concern are connected influences that place adolescent girls at risk for increased body dissatisfaction and eating problems. More research is necessary to determine what, if any, role social comparison and peer group characteristics play in the development of body dissatisfaction for boys.

Family Influences

Family factors have also been found to influence body dissatisfaction and eating problems (e.g., Archibald, Graber, & Brooks-Gunn, 1999; Schwartz, Phares, Tantleff-Dunn, & Thompson, 1999; Swarr & Richards, 1996). For example, Leung and colleagues (1996) found that family attitudes towards weight and appearance were directly and indirectly related to eating problems in girls ages 12 to 17 years. Girls who reported that their families were more concerned with weight and appearance were more dissatisfied with their bodies and had higher levels of eating problems. Girls from poorer functioning families (i.e., less cohesive and adaptive families) also had more self-deficits, including low self-esteem and increased fears of negative evaluation. Leon, Fulkerson, Perry, and Dube (1994) found similar results. Mothers of girls in grades 7 through 10 at moderate risk for eating pathology rated their families lower on cohesion. Moderate and high risk girls had lower communication with both parents and reported less overall family satisfaction. None of the parents rated their children as obese, but 64% and 42% of mothers of high and moderate risk girls respectively perceived their daughter as overweight at some point compared to 18% of mothers of low-risk girls. There were no significant differences for fathers or for boys in this sample. Levine and colleagues (1994a) found that being teased by family members significantly predicted investment in thinness, eating disturbance,

weight management behaviours, and body dissatisfaction for middle school girls.

The connection between body dissatisfaction and eating problems and family functioning has also been investigated in short-term longitudinal studies. Swarr and Richards (1996) found that for girls in fifth through ninth grades relationships with parents predicted problem eating over a two year period. Girls in grades 7, 8, and 9 who reported spending more time with their mothers reported lower levels of problem eating two years later. For girls in these grades closeness with father acted as protective factor for girls who perceived their pubertal development as early. Those who reported feeling closer to their fathers evidenced lower problem eating scores than girls who were not close to their fathers (but who also perceived their development as early). Perceived friendliness of father at time 1 was also predictive of eating scores at time 2, but the relation depended on the girls' breast development. Specifically, girls who perceived their fathers as less friendly showed the healthiest eating scores when they had moderate breast development. For fifth and sixth graders, girls who reported spending more time with both parents and who perceived their pubertal growth as on-time evidenced the healthiest eating scores. Investigating the link between parental relations and body image and dieting, Archibald and colleagues (1999) found that self-reported relations with parents by girls ages 10 through 14 were related at a trend level to body dissatisfaction and significantly to dieting one year later. Girls who reported more conflictual relations with parents were dieting more and were less satisfied with their bodies than girls with positive parental relations.

These findings converge to implicate family attitudes, perceived lack of cohesion, and parent-adolescent relationships as important influences on the development of body

dissatisfaction and eating problems in adolescent girls. The majority of these studies only investigated the influence of family variables on eating problems and body image for girls. More research is needed to determine what effect the family context has in influencing adolescent boys' body image.

Community Influence

Beyond the family, community influences have also been implicated in the development of body image and eating problems. Richards and colleagues (1990) examined community differences in body dissatisfaction comparing samples of girls and boys from two suburban communities that were matched on social class, proximity to, and interaction with the same urban center. The predominant differences between the two communities were that one was twice the size of the other and that they differed in the predominant religion of the people in the area (Protestant vs. Jewish). They called one community Northshore (Jewish) and the other Westside (Protestant). Girls were generally less satisfied with their bodies and perceived themselves as heavier than boys and the Northshore girls were the least satisfied and perceived themselves as the heaviest. After controlling for height and weight Northshore girls remained significantly more dissatisfied and perceived themselves as heavier than Westside girls and boys in general. Northshore girls were most satisfied with their weight when they characterized themselves as underweight. Westside girls were equally satisfied when they perceived themselves as under- or average weight. All boys were most satisfied when they characterized themselves as average weight. All adolescents were least satisfied when they perceived themselves to be overweight. The authors concluded that girls do not uniformly share

negative perceptions of their bodies, but that body image is moderated by the community. The Northshore girls participated in fewer school activities, had lower levels of perceived athletic strength, and perceived their schools as more cliquish and less friendly.

Sociocultural Influences

Sociocultural theories of body image dissatisfaction or disturbance examine the influence of common or culture-wide social ideals, expectations, and experiences on the etiology and maintenance of body image disturbance (Heinberg, 1996). Sociocultural ideals are highly influential in determining body image in Western societies. The mass media has received particular attention in the study of body image problems because it plays a powerful role in communicating a standard of thinness to women and girls. Scheibe, Roper, and Leuhamann (1998) found that females in sixth grade through college observed more high risk media, defined as popular television shows and magazines that featured unrealistically muscular men or thin females (e.g., Baywatch, Friends, MTV, Men's Health, Seventeen, Vogue), than males of the same ages. Females judged thinner bodies as more desirable than males, and reported an increase in negative body image after grade 6, peaking in grade 12. Levine and colleagues (1994a) wanted to know whether popular teen magazines like *Seventeen* and *Sassy* actually serve as a source of information about ideal body weight for adolescent girls. They found that 61% of their sample of middle school girls read at least one magazine regularly, and 29% read them irregularly. Seventy percent of frequent readers and 55% of irregular readers reported that the magazines were an important source of information for them. In multiple regression analysis the variable "magazine information" was the best predictor of investment in

thinness, weight management behaviours, and scores on the Children's Eating Attitudes Test (an index of eating attitude problems). It was the second predictor to enter the equation for body dissatisfaction after peer teasing. It is important to note that BMI ratings for all girls were within the normal range. These girls reported looking for weight related information when none could be considered overweight by objective standards. The authors concluded that the magazines can and often do serve as a source of information about body ideals and appropriate weight related behaviour for middle school girls. Results of a qualitative study (Wertheim, Paxton, Schutz, & Muir, 1997) examining perceptions of influence to diet and to be thin correspond with these findings. The interview results showed that over half of the 15 year old girls in the study felt that media influences, including the portrayal of thin models in magazines and on television, exerted at least a moderate amount of pressure on them to be thin. Examples of responses included, "Everybody feels like they are not good enough, not pretty enough, not skinny enough...every time you open a magazine you always see beautiful people...it is always blasted over TV about how...you have to look good to be a good person" and "I see all these pretty models, I really wish that I could look like one of them" (p. 350). Feeling this pressure from the media to be thin was significantly and positively correlated with dieting behaviour. Cusumano and Thompson (1997) found that both awareness of and internalization of sociocultural ideals portrayed in popular teen and women's magazines (e.g., *YM, Teen, Seventeen, Cosmopolitan, People, Woman's Day*) significantly predicted body dissatisfaction, appearance evaluation, restrictive eating, and self-esteem. They found no relation between mere exposure to body ideals and measures of body image,

eating disturbance, actual body weight, or self-esteem. Rather, the internalization of these ideals, that is applying these ideals to oneself, accounted for significant variance in each measure even after controlling for awareness of ideals. These studies indicate that popular media do serve to transmit sociocultural ideals about weight and shape. Adolescent girls who seek out popular media are aware of the sociocultural ideals being transmitted through these images, and especially those who internalize these standards may be at risk for body dissatisfaction and related eating problems.

Gender-role adoption has been studied in relation to body image and problem eating as a means of transmitting sociocultural ideals to girls through the socialization of feminine roles. In a recent meta-analytic review, Murnen and Smolak (1997) examined the links between gender roles and eating problems. Sixteen published studies and seven unpublished dissertations were included in the review. Eating disordered groups had mean femininity scores significantly higher than the mean for control groups. The eating disordered groups also had lower masculinity scores. In another study by Thornton, Leo, and Alberg (1991) the authors investigated the relations among gender roles, the "superwoman ideal", and body dissatisfaction. They defined the "superwoman ideal" as the complex and sometimes conflicting roles for women in today's culture combined with an extreme emphasis on appearance and thinness. They found that women who adhered to this ideal, in that they endorsed more activities as extremely important to their sense of self, and who displayed a single traditional gender role (masculine or feminine) were at highest risk for eating problems. Undifferentiated and androgynous "superwomen" and non-superwomen were least at risk. Thus there was an interaction between adhering to

the ideal and gender-role adoption.

Teen magazines may be one medium through which girls are socialized into stereotypical gender roles. In a study on representations of adolescents in two teen magazines, *Seventeen and YM,* Durham (1998) found that a gendered sexuality was presented to adolescent girls. Hetero-erotic ideals of beauty - making oneself beautiful for the sole purpose of attracting the attention of boys - was presented in the advertising and featured articles in these magazines. The author speculated that these ideals socialize girls into traditional gender roles as objects of male desire.

Thus far, a number of risks at different levels of influence have been discussed. Individual level risks include puberty, body fatness, and comorbidity with depression. Relationship risks include being teased by peers and poor family relationships. Larger contextual risks include community and sociocultural influences. Together these findings demonstrate that the development of body dissatisfaction and eating disorders in adolescence results from interactions among many risk factors.

Potential Protective Factors

Protective processes can be conceptualized as mechanisms that account for individual variation in responses to risk (Rutter, 1987; Winfield, 1995). By interacting with risk factors, protective processes (i.e., successful coping) protect against adverse outcomes and result in adaptive change (Masten & Coatsworth, 1998; Rutter, 1987). Resilience is evidenced through the combination of environmental and individual protective process (Bogenschneider, 1996), that lead to adaptive responses and result in positive developmental trajectory shifts (Smokowski, 1998).

Striegel-Moore and Cachelin (1999) note that there has been little discussion in the eating pathology literature regarding protective processes or factors. Drawing from research on general childhood resilience, they propose that a number of factors that protect against general childhood psychopathology may also protect adolescents against developing eating problems. Among these factors are family context variables (e.g., good parenting), personal characteristics (e.g., positive self-regard and self-efficacy) and the larger social context (e.g, social support and opportunity for change). An example of looking to other areas of adolescent research for potential protective processes is to consider how protective factors in adolescent health behaviour may apply to eating pathology and body dissatisfaction. Jessor, Turbin, and Costa (1998) found that both distal protective factors (those factors that are not directly related to health) and proximal health-related protective factors were important for adolescent health behaviour. Distal factors included frequent church attendance, positive orientation to school, associating with friends who modeled conventional behaviour such as attending youth groups and volunteering in the community, participation in prosocial activities, and having positive relationships with parents and other adults. Proximal factors included personal value placed on health, parental models of healthy behaviours, and beliefs about harmful effects of unhealthy behaviours (e.g., skipping breakfast). Distal and proximal protective factors accounted for more unique variance in health-enhancing behaviour than did risk factors and also modestly moderated the relations between risk and health-enhancing behaviour. Similarly, McCreary Centre Society (1999) results showed that adolescents who reported feeling highly connected to their families and schools were more satisfied with their

appearance, were more likely to think that their body was the right size, and were less likely to diet and binge eat than those adolescents who reported feeling less connected.

The mechanisms through which these general health promoting factors may protect against eating pathology and body dissatisfaction are speculative. Considering the risk factors that have been identified, distal factors such as positive relationships with parents and participating in prosocial activities (e.g., volunteering, participating in sports, etc.) may lead to positive reinforcement for and feelings of competence in domains unrelated to weight or shape, minimizing the risks associated with puberty or teasing. In terms of the proximal factors discussed, valuing health, having parents who model healthy behaviours, and holding beliefs that certain behaviours compromise good health may make *feeling* good about yourself a priority over *looking* good for others or society. Subsequently an acceptance of one's body type and self as healthy person may develop. Being dissatisfied with weight and shape, restricting diet, and/or binge eating may not be compatible with such values.

Striegel-Moore and Cachelin (1999) also propose using the knowledge gained from research on risk factors associated with eating pathology to specify protective factors. They suggest that promoting environments that enhance girls' sense of themselves, participation in cultures that do not emphasize the thin ideal of beauty, family contexts that do not transmit or amplify these cultural standards, and secure attachments with parents may be potentially protective. In a study examining risk influences among body shape dissatisfaction, gender, and socioeconomic status, Abell and Richards (1996) identified a potential protective factor against negative body image for females: religiosity.

In a sample of first year university students, female participants who described themselves as more religious also rated their real and ideal weight as heavier than those who were less religious. Another example of extending research on risks to research on protective factors can be seen in the study by Richards and colleagues (1990) on community differences in girls' body image. As noted earlier, they found that girls in one suburban community were more satisfied with their bodies than girls in a similar suburban community. Girls who were more satisfied participated in more activities, especially athletic, and felt more accepted by peers. Risk factors for one community of girls (less activity involvement and less perceived acceptance from peers) were potentially protecting the other community of girls (i.e., more activity involvement and more acceptance from peers). In a recent study of over 9,000 youth ages 15 to 20 years, Ferron, Narring, Cauderay, and Michaud (1999) found that adolescents who reported the highest frequency of sports activity exhibited superior general psychological well-being. This included more positive body image and less desire to change their weight.

As noted by Striegel-Moore and Cachelin (1999) these ideas are presented as a theoretical foundation from which to base further investigation and gather empirical evidence on protective factors against eating pathology. They can also be used to reexamine previous risk research focusing on protective factors. By studying protective processes in addition to risk we can learn how body dissatisfaction and subsequent eating pathology are avoided and how to better prevent their development.

Thus far risk and potential protective factors related to body image dissatisfaction and eating pathology at the individual level, at the level of peer and family influences, at

the level of community influences, and at the level of sociocultural ideals have been presented. In the next section longitudinal findings will be presented to examine possible mechanisms that may provide links among the results from these mainly cross-sectional studies.

Risk Trajectories: Longitudinal Findings

Despite the wealth of information on risk factors associated with the development of body image and subsequent eating problems, and recent interest in protective factors, few longitudinal studies have been conducted that illuminate mechanisms and trajectories involved in their development (Graber et al., 1994). Rutter (1996) emphasizes the need to move from identifying risk indicators that are broadly based as the basic "cause" of problems to "gaining an understanding of the mechanisms *over time* that may be involved" in the development of pathology (p.359). This involves understanding the linked processes that interact to produce different trajectories (Rutter, 1996).

In a two-year longitudinal study of girls in grades 7 through 10 and their mothers, Attie and Brooks-Gunn (1989) identified predictors of eating problems. First, their findings suggest that changes associated with puberty, specifically gains in body fat, result in the emergence of eating problems in the middle-school years when pubertal development is coming to completion for most girls. At time 1, girls who felt more negatively about their bodies also had higher levels of eating problems. Family influences on problem eating behaviour were marginal, but global ratings of psychopathology explained a significant proportion of unique variance. In a cross-sectional analysis controlling for time 1, body dissatisfaction and depressive symptomology each predicted a

significant amount of unique variance in problem eating scores at time 2. Pubertal status and grade were not significant predictors at time 2. Longitudinal analysis revealed that only body image problems predicted increases in the emergence of eating problems. The girls who felt more negatively about their bodies in early adolescence were more likely to develop eating problems by time 2 when physical maturation, psychopathology, and family relationships were held constant. These findings implicate early body dissatisfaction as an important factor in the development of later eating problems

In an 8-year longitudinal study, Graber and colleagues (1994) identified four trajectories of risk for eating problems. In young adolescence (mean age 14 years) correlates of the low-risk trajectory included low psychopathology (e.g., depressive symptoms), positive body image, and positive family relations. The chronic trajectory was related to having a higher percentage of body fat, higher psychopathology, more negative body image, and poorer family relations. The early-transient risk group of girls showed a similar pattern to the chronic group of girls. In mid-adolescence (mean age 16 years) the low-risk group maintained the same pattern and the chronic group maintained its poor pattern. The early-transient risk group however, experienced a drop in levels of disturbed eating, but maintained intermediate levels of psychopathology. The fourth group, late-transient, emerged at this time (i.e., at age 16) showing high levels of eating disturbance, but lower levels of psychopathology than the early-transient group. At the third time of measurement in young adulthood (mean age 22 years), the four trajectories were still distinguishable. Girls in the chronic group continued to show the highest levels of depressive symptoms, had the highest levels of body fat, and they reported earlier

menarche than the girls in the other groups, indicating that they had matured earlier. As suggested by the results of these longitudinal studies, various trajectories exist along which body image and eating problems may or may not develop. Together, these studies illustrate the need for further research to enhance understanding of the mechanisms involved in the development of body image and eating problems.

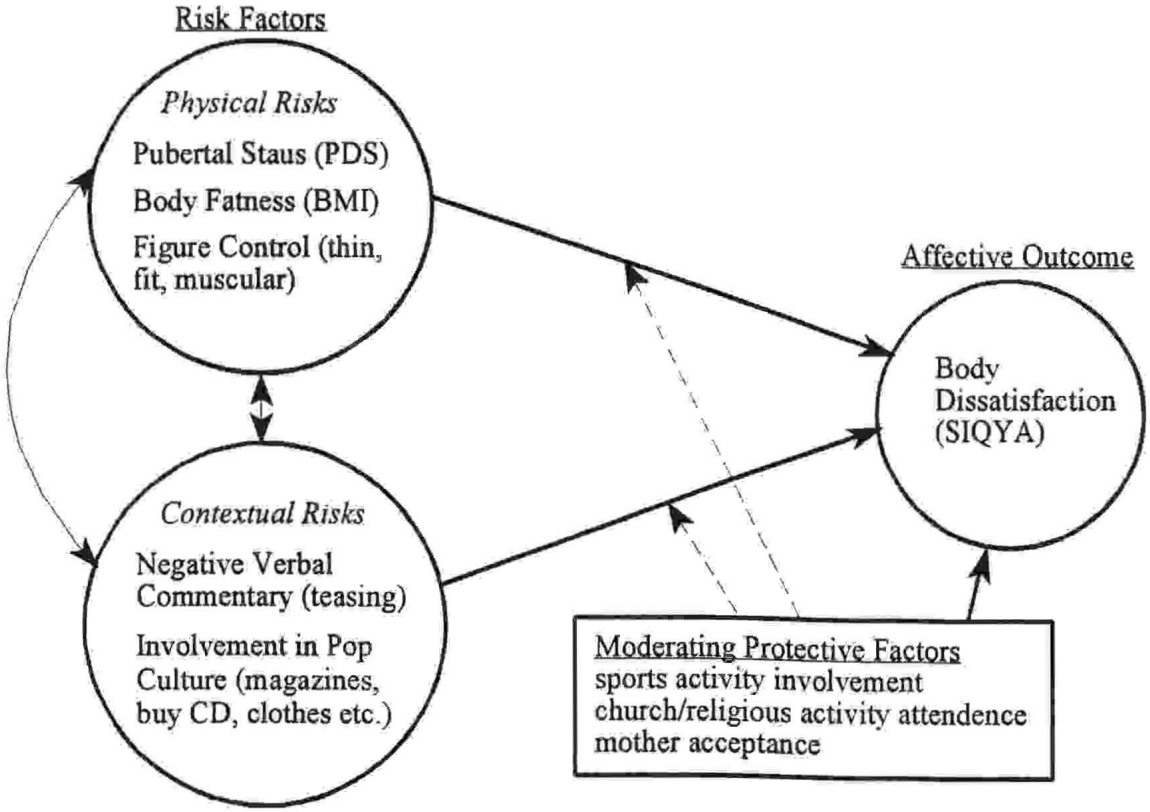
Proposed Model and Hypotheses

A conceptual model of the proposed study, that incorporates a number of the risks and protective factors discussed in the review, is presented in Figure 1. The model proposes two sets of independent risk factors for body dissatisfaction in early adolescence. Distal protective factors are also proposed to be negatively related to body dissatisfaction as well as moderators of risks.

The first set of risks, physical risks, include pubertal status, body fatness, and figure control behaviour. Figure control behaviour is a construct developed by the author that reflects adolescents' efforts to change or control the appearance of their bodies. Although not discussed as such, similar, although not identical, constructs including weight management behaviours and drive for thinness, were indirectly discussed in the review as being related to body dissatisfaction and eating disorders (e.g., Furnham & Calnan, 1998; Levine et al., 1994a; Murnan & Smolak, 1997; Paxton et al., 1999). In the survey of Canadian adolescents (King et al., 1999), 16% of girls in grade 10 indicated that they were dieting to lose weight, while an additional 28% indicated that they needed to lose weight. Similarly, in the British Columbia survey (McCreary Centre Society, 1999) 52% of secondary school girls reported trying to lose weight, while 14% were trying to

Figure 1

A Conceptual Model of Physical and Contextual Risk Factors Predicting Body Dissatisfaction Moderated by Protective Factors



maintain their current weight. Twenty-seven percent of boys were trying to gain weight, 19% were trying to lose weight, and 11% were trying to stay the same weight. These results indicate that adolescents are taking action to control the appearance of their bodies. Thus, the construct of figure control behaviour is included in the model as a potential predictor of body dissatisfaction for both boys and girls.

The second set of risks, contextual risks, includes being teased about one's body and greater involvement in popular culture activities that may promote negative body ideals. The final set of predictors in the model are proposed as potential protective factors against body dissatisfaction. They include, accepting relationships with mothers, involvement in sports activities, and more frequent church or other religious activity attendance. These factors are proposed to be negatively related to body dissatisfaction as well as moderators of the effects of risks on body dissatisfaction, lessening their negative influences.

By exploring these issues this study will address the need for research on the development of body dissatisfaction in boys. As well, the dearth of research on protective factors against body dissatisfaction and eating problems will be addressed. It is hypothesized that 1) early maturation, having a greater percentage of body fat, more figure control behaviour, being teased about weight or shape, and greater involvement in popular culture will be predictive of increased body dissatisfaction for girls; 2) late maturation, being either under- or overweight, more figure control behaviour, being teased about body, and greater involvement in popular culture will be predictive of increased body dissatisfaction for boys; and 3) protective factors will be negatively related to body

dissatisfaction and will moderate relations between significant risk factors and body dissatisfaction for both girls and boys.

CHAPTER III

Method

Sample

The participants were 170 adolescents (91 girls and 79 boys) from a medium-sized Canadian city. Data were collected from 83 7th graders (mean age 12 years and 9 months) and 87 10th graders (mean age 15 years and 10 months) who participated in the second wave of a three year longitudinal study of adolescents' psychosocial maturity and problem behaviour (the Victoria Adolescence Project; data from the first wave did not include all of the constructs under investigation in the current study and third wave data had yet to be collected). Eighty-five percent of the participants were White, 8% were Asian, and the remaining 7% were members of other ethnic groups (e.g., First Nations). Seventy-eight percent of the adolescents lived with two parents, either both biological parents (68%) or one biological parent and one step-parent (10%). The majority of mothers (71%) and fathers (67%) had at least some postsecondary education. Employed mothers' mean SES score on the Blishen and McRoberts (1976) SES index was 45.65 according to adolescent reports of parents' occupation. Employed fathers' mean SES score was 48.47. Examples of occupations and the corresponding SES score are general office clerk = 37.93, firefighter = 51.17, and livestock farmer = 29.95. The SES scores indicated that the participants were from a range of working- to middle-class families.

Procedure

Data were first collected in the spring of 1998 in 11 public schools (8 elementary and 3 secondary) from 452 adolescents, using passive parent consent procedures.

Second-wave questionnaires (which constituted the source of the data for the current study) were mailed to participants' homes in the spring of 1999. The second-wave participation rate was 40% of those who completed questionnaires at the first wave (a second mailing was made to those adolescents who failed to respond to the initial second-wave mailing). Signed consent was received from both the adolescent and a parent in the second wave. Adolescents were paid $15.00 for their participation.

Measures

Predicted Outcome Variable

Body dissatisfaction was measured by the Self Image Questionnaire for Young Adolescents Body Image Subscale (Peterson, Schulenberg, Abramowitz, Offer, & Jarcho, 1984). This scale consists of 11 items assessing feelings towards the body (e.g., I am proud of my body, I am not satisfied with my weight) (see Appendix A for the complete scale). Items are rated on a six-point scale ranging from describes me very well (1) to doesn't describe me at all (6). The internal consistency of this scale has been shown to be good, with alphas ranging from .77 for girls to .81 for boys. Test-retest reliability has also been shown to be good (.60 over one year and .44 over two years) (Petersen et al., 1984). Internal consistency for this sample was also adequate (α=.82 for girls and α=.79 for boys).

Risk Factors

Pubertal status was measured by the Pubertal Development Scale (PDS; Petersen, Crockett, Richards, & Boxer, 1988). This scale assesses body hair and skin changes in girls and boys, breast development and menarche in girls, and voice changes and facial hair

growth in boys (see Appendix B for the complete scale for girls and Appendix C for the complete scale for boys). Separate scores are calculated for each sex, with higher scores indicating more advanced maturation. The internal consistency of this scale has been shown to be good with alphas ranging from .74 for girls to .83 for boys (Peterson et al., 1988). Reliability of the scale for boys in this sample was similar to previous samples (α = .84). However, the internal consistency of the scale for girls in this sample was lower than in previous samples (α = .44). When explored further, it was discovered that all girls in the 10th grade had experienced menarche; most girls at this age would be in late to post puberty. This reduced variability in the PDS scores for the entire sample of girls, with the net effect of lowering alpha. The same scale was reliable for this sample at wave 1 one year earlier (α = .71) and wave 1 puberty scores were significantly correlated with wave 2 puberty scores for this sample (r = .74, $p < 0.05$). Based on these findings, the scale was used as proposed in the current study.

Body mass index or Quetlet's Index (weight in kilograms divided by height in meters squared), was used to estimate body fatness from limited anthropometric data. BMI calculated using this formula has been found to be highly correlated with other measures of total body fat and percentage of body fat (e.g., skin folds) for both boys and girls ages six to 18 years (Hammer, Kraemer, Wilson, Ritter, & Dornbusch, 1991; Roche, Siervogel, Chumlea, & Webb, 1981). Height and weight data were reported by the adolescents.

Figure control was measured using three items, created by the author, assessing how hard adolescents try to achieve particular goals. Adolescents were asked to rate how

hard they try "to be thin," "to be muscular," and "to be physically fit" on a five-point scale (1 = I don't try at all, 3 = Sometimes I try, 5 = I try very hard). Mean scores were computed. Higher scores indicate that the adolescents report expending greater effort in achieving the stated goal (α=.73 for girls, α=.77 for boys).

Teasing was measured by three items created by the author: How often are you teased about 1) your weight, 2) your shape, 3) how strong/weak you are? All three items were scored on a five-point scale (1 = Never, 3 = Sometimes, 5 = All the time). Prior to averaging the three items, responses were dichotomized into "never/rarely" (a response of 1 or 2) or "at least sometimes" (a response of 3 or greater). This procedure was used because preliminary analysis revealed low internal consistency when the full response scale was used. Reliability for the dichotomized scale was calculated using the Kuder-Richardson 20 formula, which estimates alpha when test items are scored dichotomously (Friedenberg, 1995). Reliability was good (α=.83).

Involvement in popular culture was measured using 11 items pertaining to adolescents' involvement in a variety of activities. This scale was an expanded version of a scale used in the first wave of this study (Galambos, Vitunski, & Tilton-Weaver, 2000). Adolescents were asked to rate how often in the last month they had participated in a variety of activities including "read a teen magazine," "bought new clothes," and "bought a CD" (see Appendix D for the full scale). Responses were rated on a five-point scale, ranging from never (1) to almost every day (5). Mean scores for ratings of items on this subscale were calculated, with higher scores indicating greater involvement in popular culture. Reliability of the 11-item scale was good for both girls and boys (α = .82 for girls,

$\alpha = .73$ for boys).

Protective Factors

Sports activity involvement was measured using two items. Adolescents were asked to rate how often in the last month they had 1) "Participated in a team sport outside of school" and 2) "Had an athletic lesson outside of school". Responses were rated on a five-point scale ranging from never (1) to almost every day (5). These items were significantly correlated at .55 ($p < 0.05$). Scores were averaged, with higher scores indicating greater involvement in sports.

Religious activity attendance was measured by asking adolescents to report how often in the last month they had gone to church, temple or other religious activities. Responses were rated on a five-point scale: never (1), once or twice (2), 3 or 4 times (3), pretty often (4), almost every day (5).

Mother's acceptance of the adolescent was measured using the acceptance subscale of the Child's Report of Parental Behavior Inventory (CRPBI: Burger & Armentrout, 1971; Schaefer, 1965). The 24-item subscale assessed perceptions of warmth directed toward the adolescent by mothers (e.g., She comforts me when I'm sad; She is always thinking of things that will please me) (see Appendix E for the full scale). Responses are rated using the following five-point scale: very much like her (1), unlike her (2), somewhat like her (3), like her (4), and very much like her (5). Mean scores for ratings of mother acceptance were calculated, with higher scores indicating higher acceptance (α=.98).

CHAPTER IV

Results

Preliminary analyses were conducted to investigate potential interactions of grade with risk and protective factors in predicting body dissatisfaction. Hierarchical regressions were run separately for girls and boys; grade was dummy coded 0 for 7th graders and 1 for 10th graders. Grade was entered first, followed by the addition of physical risks, then the addition of contextual risks in subsequent steps. The final two steps tested the interactions between grade and risks. In the fourth step grade X physical risk interactions were entered, and in the fifth step grade X contextual risk interactions were entered. Neither step including interaction terms was significant for either girls or boys ($p>0.05$ for both steps). A similar hierarchical regression was run to test interactions between grade and protective factors. Again, the step including interactions with grade was not significant for either girls or boys ($p>0.05$). Thus, in all further analyses, reports from 7th graders and 10th graders were combined for each sex.

Descriptive Statistics

Table 1 presents means and standard deviations for body dissatisfaction, physical and contextual risks, and protective factors in girls and boys. Also presented are the results of *t*-tests examining sex differences in scores on these variables.

Body Dissatisfaction and Physical Risks

On average, adolescents reported moderate to high levels of satisfaction with their bodies. Boys were, however, significantly more satisfied than girls. The average girl in this sample was well along in her pubertal development, whereas the average boy was

Table 1

Means and Standard Deviations for, and *t*-Tests Testing Sex Differences in Adolescents' Reports of Body Dissatisfaction, Physical Risks, Contextual Risks and Protective Factors

	Girls			Boys			
Measure	M	SD	n	M	SD	n	t
Body Dissatisfaction [a]	4.25	.84	89	4.52	.86	79	-2.07*
Physical Risks							
Pubertal Status [b]	3.19	.56	88	2.86	.75	78	
Body Mass Index [c]	20.01	2.57	73	21.01	3.19	69	-2.04*
Figure Control [d]	2.68	1.03	89	3.02	.99	77	-2.16*
Contextual Risks							
Teasing [e]	.18	.27	90	.17	.27	79	.32
Popular Culture [d]	3.12	.67	91	2.43	.53	79	7.40*
Protective Factors							
Sports Activities [d]	2.46	1.38	90	2.60	1.30	79	-.70
Mother Acceptance [d]	3.80	.86	89	3.71	.92	79	.65
Church Attendance [d]	1.54	1.06	91	1.42	.86	79	.81

Note. [a] possible range: 1 to 6. [b] possible range: 1 to 4. [c] actual range: 15.15 to 26.45. [d] possible range 1 to 5. [e] 0 to 1. *$p<.05$.

slightly less physically mature. Mean body mass scores (BMI) for girls and boys were comparable to adolescents of similar ages in other samples (Hammer et al. 1991; Lazarus, Bauer, Webb, & Blyth, 1996). The majority of adolescents in this sample had healthy BMI scores. Based on the recommendations by Cole, Bellizzi, Flegal, and Dietz (2000) 11% of girls and 17% of boys in this sample, for whom BMI could be calculated (73 girls and 69 boys), would be considered overweight. No girls and 3% of boys would be considered obese. These percentages correspond roughly with those cited by Hammer and colleagues (1991). BMI for boys was significantly higher than for girls. In terms of figure control, the average adolescent reported expending minimal effort on figure control, with boys trying significantly harder to control their figures than girls.

Contextual Risks

On average, adolescents reported being teased about their bodies infrequently. There was no sex difference in rates of teasing. Adolescents reported regular participation in pop culture activities, with girls reporting significantly more frequent participation in pop culture activities than boys.

Protective Factors

Adolescents reported regular participation in sports activities and infrequent church attendance, on average. There were no sex differences for either participation in sports activities or church attendance. Relationships with mothers were, on average, reported to be warm and accepting. Again, there was no difference between girls' and boys' reports of mother acceptance.

Correlations

Intercorrelations among risk and protective factors are presented in Table 2. Girls and boys who were more physically mature also had greater body mass index scores, as would be expected. As well, more mature boys participated in more pop culture activities. Girls who were trying harder to control their figures had higher BMI scores and participated in more sports activities. Boys who reported more effort at controlling their figures reported feeling more accepted by their mothers. Both girls and boys who were teased more about their bodies participated in fewer sports activities. Boys who were teased more attended church or other religious activities more often. Girls and boys who participated in more pop culture activities also participated in more sports activities. Based on the size of these intercorrelations, multicollinearity was not considered a problem for further analyses (Cohen & Cohen, 1983).

Correlations of risk and protective factors with body dissatisfaction are presented in Table 3. For girls, BMI, figure control behaviour, teasing, and mother acceptance were all significantly related to body dissatisfaction in expected directions. Girls were less satisfied with their bodies when they had more body fat, were trying harder to control their figures, were teased more about their bodies, and felt less accepted by their mothers. Church attendance, for girls, was significantly related to body dissatisfaction in the unexpected direction, however. That is, girls who reported attending church more frequently were less satisfied with their bodies. Boys who were less physically mature, who were teased more, and who participated in fewer sports activities were less satisfied with their bodies.

Table 2

Pearson Correlations Among Risk and Protective Factors, By Sex

Measure		1	2	3	4	5	6	7	8
Physical Risks									
1.	Pubertal Status	-----	.26*	.09	-.11	.31*	.13	-.05	.11
2.	Body Mass Index	.39*	-----	.14	.15	.20	-.15	-.01	.09
3.	Figure Control	.04	.23*	-----	-.14	.13	.15	.25*	.05
Contextual Risks									
4.	Teasing	-.02	.06	.05	-----	-.09	-.24*	-.03	.20*
5.	Pop Culture	.10	-.01	.12	.03	-----	.29*	-.01	-.02
Protective Factors									
6.	Sports Activities	.06	.02	.20*	-.21*	.23*	-----	-.02	.08
7.	Mother Acceptance	-.08	-.15	-.10	-.07	.15	.12	-----	.12
8.	Church Attendance	-.16	.05	.01	.12	-.07	.02	.02	-----

Note. n=68-79 boys above the diagonal. n=71-91 girls below the diagonal. *p<.05.

Table 3

Pearson Correlations of Risks and Protective Factors with Body Dissatisfaction

	Girls		Boys	
Measure	r	n	r	n
Physical Risks				
Pubertal Status	-.08	86	.24*	78
Body Mass Index	- .30*	71	.05	69
Figure Control	-.40*	87	.10	77
Contextual Risks				
Teasing	-.39*	89	-.50*	79
Pop Culture	-.01	89	.12	79
Protective Factors				
Sports Activities	.13	88	.30*	79
Mother Acceptance	.30*	87	.13	79
Church Attendance	-.18*	89	-.04	79

*$p<.05$.

Regressions

Preliminary Analyses

Residual plots for all variables predicting body dissatisfaction were examined to identify potential outliers (defined as standardized residuals greater than about plus or minus 3.3, Tabachnick & Fidell, 1996). None were found. All regression analyses were conducted separately for girls and boys due to the measurement difference in assessing pubertal status. Centered scores were used for all predictors (Aiken & West, 1991).

Preliminary analysis revealed that a large number of missing values for BMI, relative to missing values for other predictors, would lower the statistical power due to reduced *n*. Twenty percent of girls and 13% of boys did not report their height, weight, or both their height and weight, precluding the calculation of BMI for these participants. Dropping BMI from the analysis was considered a poor option as potentially valuable information would be lost, as indicated by the significant correlation between BMI and body dissatisfaction for girls. Following the recommendations made by Cohen and Cohen (1983) and Tabachnick and Fidell (1996) for handling missing data, a missing-data dichotomy was created to test for differences in body dissatisfaction between those adolescents for whom BMI could be calculated and those who were missing a BMI score. BMI was dummy coded 0 for those with a BMI score and 1 for those without a BMI score. There was no significant difference in body dissatisfaction scores between those adolescents who had a BMI score and those who were missing a BMI score [girls: t (87) = .93, $p > 0.05$; boys: t (77) = -1.66, $p > 0.05$]. Subsequently, mean replacement was used in further analyses for BMI. Preliminary analyses tested the quadratic function of

BMI for boys to address the hypothesis that being either under- or overweight would be predictive of body dissatisfaction. The quadratic term was not significant and was therefore not included in final regression analyses [$t(75) = -1.92$, $p>0.05$].

Risk and Protective Factors as Predictors of Body Dissatisfaction

Final results of hierarchical regressions predicting body dissatisfaction from risk and protective factors by sex are presented in Table 4. Physical risks were entered in the first step, followed by contextual risks, and finally protective factors in the third step. This sequence was determined by the presumed causal priority of the predictor sets. That is, it was presumed that contextual risks were not causing physical risks (this may debatable for figure control behaviour) and thus follow in the second step. Likewise, protective factors were presumably not causing physical or contextual risks and were thus entered in the final step.

Regressions testing main effects of risks and protective factors for girls (hypothesis number one) are presented in Table 4. It was hypothesized that risk factors would be predictive of body dissatisfaction (higher body dissatisfaction scores) while protective factors would be predictive of lower body dissatisfaction scores (i.e., more sastisfied). As a set, physical risks accounted for 21% of the variance in body dissatisfaction scores. However, only BMI and figure control were significant predictors. Girls who had higher BMI scores and who were trying harder to control their figures were less satisfied with their bodies. Contextual risks accounted for an additional nine percent of variance, after controlling for physical risks. Teasing was the only significant predictor at this step. Girls who were teased more about their bodies were less satisfied. Finally, protective factors

Table 4

Hierarchical Regressions Predicting Body Dissatisfaction from Risk Factors and Protective Factors, by Sex

		Girls			Boys		
Step	Measures Entered	*B*	▲ R^2	Total R^2	*B*	▲ R^2	Total R^2
1	Physical Risks		.21*	.21*		.06	.06
	Pubertal status	.04(.16)			.23(.14)		
	Body mass index	-.23(.04)*			-.04(.03)		
	Figure control	-.35(.08)*			.08(.10)		
2	Contextual Risks		.09*	.30*		.23*	.29*
	Teasing	-.31(.31)*			-.50(.33)*		
	Pop culture	.05(.12)			.03(.18)		
3	Protective Factors		.09*	.39*		.04	.33*
	Sports activity	.14(.09)			.20(.07)		
	Mother acceptance	.22(.09)*			.15(.10)		
	Church attendance	-.17(.08)			-.04(.12)		

Note. n=76-81 girls, n=70-75 boys. *p<.05.

as a set accounted for an additional nine percent of variance in body dissatisfaction scores for girls. The only significant predictor was mother acceptance. Girls who felt more accepted by their mothers were more satisfied with their bodies. Overall, 39% of the variance in body dissatisfaction scores was accounted for by risk and protective factors for girls.

For boys, a slightly different picture emerged. The second hypothesis was that later maturation, being either under- or overweight, more figure control behaviour, being teased about weight, and greater involvement in popular culture would be predictive of body dissatisfaction, with protective factors predicting body dissatisfaction. Regression results for boys are presented in Table 4. Physical risks as a set did not account for significant variation in body dissatisfaction scores. Contextual risks did however, account for an additional 23% of variation in body dissatisfaction scores. Teasing was the only significant predictor. Like girls, boys who were teased more about their bodies were less satisfied with their bodies. Protective factors did not account for significant variance beyond that accounted for by contextual risks. In total, 33% percent of the variation in body dissatisfaction scores for boys was accounted for by risk and protective factors.

Moderating Effects of Protective Factors

The third hypothesis was that protective factors would moderate the relation between significant risks and body dissatisfaction for girls and boys. Significant risk factors for girls were BMI, figure control behaviour, and teasing. For boys, teasing was the only significant risk factor. Protective factors were hypothesized to moderate the relation between these significant risks and body dissatisfaction. That is, protective factors

would interact with risk factors to decrease adolescents' body dissatisfaction, thus evidencing their protective effect. Results of hierarchical regressions for girls are presented in Table 5. The three steps testing the interactions between BMI, figure control, and teasing with protective factors for girls were not significant. Results for boys are presented in Table 6. Again, the step testing the interactions between teasing and protective factors was not significant. There was no evidence that the hypothesized protective factors moderated the effect of risks on body dissatisfaction.

Table 5

Hierarchical Regressions Predicting Body Dissatisfaction from Significant Risk Factors, Protective Factors, and Risk Factors Moderated by Protective Factors, Girls

Step	Measures	*B*	▲ R^2	Total R^2
1	Significant Risks		.29*	.29*
	Body Mass Index	-.19(.03)*		
	Figure Control	-.33(.08)*		
	Teasing	-.30(.30)*		
2	Protective Factors		.08*	.37*
	Sports Activity	.11(.06)		
	Mother Acceptance	.23(.09)*		
	Church Attendance	-.15(.08)		
3	Model 1:		.01	.38*
	Interactions with Body Mass Index			
	BMI X Sports Activity	.03(.03)		
	BMI X Mother Acceptance	.11(.05)		
	BMI X Church Attendance	-.02(.04)		
	Model 2:		.04	.42*
	Interactions with Figure Control			
	FC X Sports Activity	-.01(.05)		
	FC X Mother Acceptance	.03(.10)		
	FC X Church Attendance	-.18(.07)		
	Model 3:		.03	.45*
	Interactions with Teasing			
	TS X Sports Activity	.06(.23)		
	TS X Mother Acceptance	.09(.42)		
	TS X Church Attendance	-.20(.20)		

Note. n=76-81 girls. *p<.05.

Table 6

Hierarchical Regressions Predicting Body Dissatisfaction from Significant Risk Factors, Protective Factors, and Risk Factors Moderated by Protective Factors, Boys

Step	Measures	*B*	▲ R^2	Total R^2
1	Significant Risk		.25*	.25*
	Teasing	-.50(.31)*		
2	Protective Factors		.05	.30*
	Sports Activity	.18(.07)		
	Mother Acceptance	.12(.09)		
	Church Attendance	.02(.10)		
3	Interactions with Teasing		.00	.30*
	Teasing X Sports Activity	-.03(.36)		
	Teasing X Mother Acceptance	-.05(.36)		
	Teasing X Church Attendance	-.05(.31)		

Note. n=74-78 boys. *p<.05.

CHAPTER V

Discussion

The first purpose of this study was to identify risk factors for body dissatisfaction in early adolescence. Two groups of risk factors were hypothesized to be associated with increased body dissatisfaction for both girls and boys. Physical risks included pubertal status (more advanced for girls and less advanced for boys), body fatness (high BMI for girls and low or high BMI for boys), and more effort to control one's body shape/size (i.e., figure control). Contextual risks included being teased about one's body and more involvement in pop culture, which reflects and promotes unrealistic body ideals. Risk factors were demonstrable for both girls and boys, but they were different. As indicated by significant correlations, body dissatisfaction was associated with more body fat, greater effort to control one's figure, and being teased for girls, and with less physical maturity and being teased for boys.

With respect to girls, hypothesized physical risks as a set were predictive of body dissatisfaction scores. Individually, having more body fat and expending more effort to control one's figure predicted greater dissatisfaction. Above and beyond the effects of physical risks, contextual risks as a set were also predictive of body dissatisfaction. Individually, only being teased about one's body (and not pop culture involvement) predicted greater body dissatisfaction. These results are consistent with the literature. Girls who have a greater proportion of body fat, girls who place more emphasis on their bodies (e.g., increased drive for thinness and weight concerns), and girls who are teased about their bodies have been identified as at risk for body image and associated eating

problems (Koff & Rierdan, 1993; Levine et al., 1994a). Of future interest might be the causal sequence of these variables. Although a legitimate indication that an adolescent girl might be dissatisfied with her body, figure control behaviour might be a reaction to previously experienced risk factors, such as teasing or an increase in weight. Exploring the temporal sequencing of risk factors would lend valuable insight into understanding the processes by which body dissatisfaction develops in adolescent girls.

The finding that pubertal status was not predictive of body dissatisfaction for adolescent girls raises two issues. First, it lends support to the argument that physical maturation alone may not be a sufficient risk factor for developing body dissatisfaction. Rather, in conjunction with other factors, such as the commencement of dating or poor parental relations, pubertal maturation may become a risk factor for body dissatisfaction (Cauffman & Steinberg, 1996; Swarr & Richards, 1996). Second, our results suggest, as have others (Attie & Brooks-Gunn, (1989; Keel et al., 1997), that gains in weight and changes in body composition associated with puberty may be what is really driving feelings of body dissatisfaction (as opposed to the experience of puberty as marked by menarche for example). Likewise, Koff and Rierdan (1993) concluded that the psychological reaction (i.e., body dissatisfaction) to the changes in body composition during puberty for girls becomes a pathway through which the risk for developing eating disturbances is increased. This perspective is supported by the significant effect of body mass on body dissatisfaction found in this study. It should be noted, however, that the majority of girls in this sample were well along in their pubertal development. This reduced variability may have contributed to the lack of relationship between pubertal

status and body dissatisfaction. As such, future research should continue to explore pubertal status and timing as risk factors for body dissatisfaction among adolescent girls.

Although hypothesized to predict body dissatisfaction for girls, involvement in popular culture was not a significant predictor. Sociocultural theories of body dissatisfaction consider common or culture-wide social ideals, expectations, and experiences to be highly influential in determining body image (Heinberg, 1996). The lack of significant association between involvement in pop culture and body dissatisfaction in this sample may have been due in part to a measurement problem. The measure of pop culture sampled from general pop culture activities, in which most teens participate, rather than solely from activities in which body ideals are prominently displayed. In prior research specific types of activities such as reading fashion or teen magazines and watching sitcoms or soap operas have been found to be risk factors for body dissatisfaction for girls (Levine et al., 1994a; Scheibe et al., 1998). However, in a study by Littrell, Damhorst, and Littrell (1990) adolescent girls' clothing interests were not related to body dissatisfaction and eating problems. Our measure included items about magazine reading and television viewing, but also about buying clothes and changing hairstyle. It is possible that the measure of involvement in pop culture was not specific enough to be significantly associated with body dissatisfaction. Future research should continue to focus on those pop culture activities that transmit information about body ideals to girls as well as boys.

For boys, the only significant risk factor that emerged was teasing. Boys who were teased more about their bodies were also less satisfied with their bodies. This

supports the finding that male college students' body dissatisfaction could be predicted by their retrospective reports of being teased in childhood about their weight (Alexander & Sputa-Somers, 1999). It also draws attention to the fact that for boys, as well as girls, body dissatisfaction is influenced by those with whom they interact. This finding warrants further exploration to better understand the influence of relationships on adolescent boys' feelings about their bodies. Thus far, the majority of research in this area has focused on girls' relationships.

Overall, different patterns of risk for boys and girls were demonstrated. Girls were significantly more dissatisfied with their bodies than boys and more risk factors were evidenced for girls. More variance in body dissatisfaction scores was also accounted for in girls, suggesting that factors not explored in this study might be of more importance for boys' body dissatisfaction. Although speculation, these findings may indicate different processes by which body dissatisfaction develops in boys and girls. Girls and boys were teased about their bodies at about the same rate and those who were teased more were less satisfied with their bodies. However, girls who weighed more and who were trying to control their figures more were also less satisfied. This was not the case for boys, even though they had significantly higher BMI scores and were trying significantly harder to control their figures than girls. Longitudinal research is needed to better understand the implications of these sex differences for the development of body dissatisfaction and eating problems. In the meantime, these findings draw our attention to the fact that adolescents, girls and boys alike, who are teased about their bodies may need help in dealing with this victimization in order to develop a sense of satisfaction with their bodies as they mature.

Girls may need additional help dealing with weight gains and issues around controlling the shape and size of their bodies.

The second purpose of this study was to explore potential protective factors against body dissatisfaction, counteracting risks experienced by adolescent girls and boys. Protective factors were first explored in an additive model including risk factors and then in an interactive model as moderators of risk factors. It was hypothesized that more involvement in sports activities, having positive relationships with mothers, and attending church or other religious activities would be predictive of body dissatisfaction in the negative direction. It was also hypothesized that all three protective factors would moderate the effects of significant risk factors for body dissatisfaction, decreasing the association between significant risk factors and body dissatisfaction. For girls, protective factors as a set accounted for significant variation above that accounted for by risk factors. However, mother acceptance was the only significant predictor. Girls who felt more accepted by their mothers were more satisfied with their bodies. This finding is consistent with the literature. Mothers' attitudes about their daughters' weight have been found to influence daughters' body dissatisfaction (Leon et al., 1994). More generally, caring relationships with mothers have been identified as important determinants of girls' body image (Swarr & Richards, 1996). Our results support such previous findings - having a generally positive relationship with mothers is important for girls' body dissatisfaction. Fostering positive mother-daughter relationships by teaching mothers about the risks their daughters face, with regards to body dissatisfaction and eating disorders, and explaining their role in helping their daughters to develop a healthy body image might be one way to

protect adolescent girls from becoming dissatisfied with their bodies.

Unfortunately, the same association between mother acceptance and body dissatisfaction was not found for boys. One might speculate that feelings of acceptance from fathers might be more important for boys. To address this issue, regressions were conducted substituting father acceptance for mother acceptance for boys. The results remained non-significant. Together, these results are consistent with those of Leon and colleagues (1994), who found no differences in boys' body dissatisfaction based on relationships with mothers or fathers.

To determine the moderating effects of potential protective factors on risks for body dissatisfaction, interactions between significant risks and all protective factors were tested. That is, the question of whether or not a protective factor lessened the influence of risk for body dissatisfaction was addressed. No moderating relations were found for girls or boys, for any combination of significant risks and protective factors. Although there is evidence in the literature to support the inclusion of these constructs as protective, these constructs may not have been measured in such a way as to capture their protective effects in this study. First, the sports activity measure only included two items regarding participation in sports outside of school. Perhaps frequency of taking a sports lesson (e.g., swimming, karate, etc.) or participation in a sports activity is not what is actually protective about sports. Rather, it may be the type of sport (as indicated by a study comparing boys who were football players to boys who were runners, Parks & Reed, 1997) or the adolescents' personal investment in the sport that is important. Also missing was the inclusion of a question assessing participation in school sports, which for many

adolescents may be their only access to organized sports.

In terms of church attendance, one item assessing frequency of attending church was used. This is probably not the best indicator of religiosity, found previously to be related to body dissatisfaction (Abell & Richards, 1996). However, church attendance has been found to relate positively to other health-related behaviours (Galambos & Tilton-Weaver, 1998; Jessor et al. 1998) and therefore warrants further investigation.

Together, these findings support the need for further research into both risk factors for and protective factors against body dissatisfaction in early adolescence. Despite a relatively small sample size, adolescents in this sample did evidence body dissatisfaction and strongly associated risk factors were identified. Future research should aim to better identify risk factors, through better measurement of theorized constructs, in larger samples of adolescents. As well, risk factors earlier in childhood should be studied. Body dissatisfaction was evidenced in this sample which included seventh graders, and children in grades 3 and 4 have also been found to evidence dissatisfaction (Folk, Pedersen, & Cullari, 1993; Thompson, Corwin, & Sargent, 1997). Of considerable concern is the possibility that some of the adolescents in this sample who were dissatisfied with their bodies may go on to develop serious eating disorders, or more likely, subclinical problems with eating. Despite the lack of findings with regards to protective factors in this study, it is imperative that continued efforts be made to identify protective factors against body dissatisfaction. One strategy to aid in this quest would be to use qualitative methods of data collection. Asking adolescents about their experiences may provide a better understanding of what actually makes the difference in terms of body dissatisfaction and

may provide a clearer direction for future research and intervention and prevention pursuits.

Findings on risk and protective factors from this study and future studies have important implications for prevention. Prevention science as a discipline aims to outline the connections between risk factors and maladjustment and to reduce their pervasive effects. Through the systematic study of precursors of dysfunction, protective and risk factors are identified and specified in advance in intervention models as processes through which change can be effected (Coie et al., 1993). A number of key issues have been identified as important for the development of successful prevention strategies. First, the goals and strategies used in any program should be informed by theory and research (Fisher & Lerner, 1994). Second, multiple systems must be incorporated into the program with consideration given to the person-environment transactions that occur among these systems or levels (Coie et al., 1993; Fisher & Lerner, 1994).

In terms of establishing prevention programs for eating problems, Shisslak, Crago, Neal, and Swain (1987) endorse programs that help girls master maturation by providing them with skills that will enable them to face transitions and challenges adaptively. As indicated by our results, bolstering positive mother-daughter relationships may be one way to do this. In designing any prevention program it is important to identify those at risk and address the risk factors early in the period of risk (Coie et al., 1993). Phelps, Johnston, and Augustyniak (1999) note that it is useful to use what is known about risk factors for the development of body dissatisfaction to guide the development of intervention programs for eating pathology since early body dissatisfaction is the strongest

single predictor of eating pathology. In terms of school-based programs for preventing eating disorders, Neumark-Sztainer (1996) proposes that programs should be based on an ecological model for health promotion. That is, programs must address the individual and environmental determinants of behaviour. The school setting allows many of the risks for body dissatisfaction and eating disorders to be addressed through a variety of school programs including individual counselling, classroom interventions, and opportunities for physical activity in physical education classes. Using what was found in this study about risk factors, providing adolescents with social skills training that addresses teasing, from the perspective of those being teased as well as those who are teasing, might be one avenue of intervention. Although previous work in this area has been less than successful (e.g., Smolak et al., 1998), the strong association between teasing and body dissatisfaction evidenced in this study for both girls and boys suggests that this may be an important area of intervention. As well, providing opportunities to learn about and experience healthy ways of eating and exercising may be beneficial in preventing problematic patterns of behaviour from developing.

In this study three significant risk factors for body dissatisfaction for adolescent girls have been identified: increased body fat, behaviour aimed at controlling their body shape or size, and being teased about their bodies. For boys, being teased was a risk factor. As indicated by one of the few longitudinal studies of body image and eating disorders (Graber et al., 1994), these problems do not typically have an acute onset. Rather, from early adolescence and perhaps earlier, feelings about ones' body are shaped by transactions among multiple levels of influence, some that pose risks and some that are

protective. In a recent review of population-based studies on the incidence of Anorexia Nervosa (Pawluck & Gorey, 1998) it was found that over the past 40 years there has been a 10% increase among adolescent girls. It was also found that adolescent girls were five times as likely to experience anorexia than women in their 20s or 30s. However, among the older cohorts of women, the authors reported a three-fold increase in the incidence of eating disorders over the past 40 years. It is essential that researchers continue to investigate risk and protective factors and the processes by which they work to produce body dissatisfaction. By doing so, successful interventions can be developed with the ultimate goals of preventing body dissatisfaction and its escalation into eating disorders that seriously threaten the health and well-being of adolescents and young adults.

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Appendix A

Self-Image Questionnaire for Young Adolescents Body Image Subscale

MY BODY

	Describes Me Very Well	Describes Me	Describes Me Fairly Well	Doesn't Quite Describe Me	Hardly Describes Me	Doesn't Describe Me At All
1. I am not satisfied with my weight.	1	2	3	4	5	6
2. Most of the time I am happy with the way I look.	1	2	3	4	5	6
3. In the past year, I have been worried about my health.	1	2	3	4	5	6
4. I wish that I were in better physical condition.	1	2	3	4	5	6
5. I am comfortable with the way my body is developing.	1	2	3	4	5	6
6. I am proud of my body.	1	2	3	4	5	6
7. I am satisfied with my height.	1	2	3	4	5	6
8. I frequently feel unattractive.	1	2	3	4	5	6
9. When others look at me, they must think that I am poorly developed.	1	2	3	4	5	6
10. My body is growing about as quickly as I would like it to.	1	2	3	4	5	6
11. I feel strong and healthy.	1	2	3	4	5	6

Appendix B

Pubertal Development Scale For Girls

MY BODY

1) Do you have body hair (underarm and pubic hair) yet?
(circle appropriate number)

1. **No**
2. **Yes, a little**
3. **Yes, some**
4. **Yes, a lot**
5. **I don't know**

2) Has your skin started to change yet (e.g., pimples)?
(circle appropriate number)

1. **No**
2. **Yes, a little**
3. **Yes, some**
4. **Yes, a lot**
5. **I don't know**

3) Have your breasts started to develop (grow) yet?
(circle appropriate number)

1. **No**
2. **Yes, a little**
3. **Yes, some**
4. **Yes, a lot**
5. **I don't know**

4) Have you begun to menstruate (have your period)?
(circle appropriate number)

1. **No**
2. **Yes**

5) **If yes**, how old were you when you first began to menstruate?_____**years**_____**months**

Appendix C

Pubertal Development Scale for Boys

MY BODY

1) Do you have body hair (underarm and pubic hair) yet?
(circle appropriate number)

1. **No**
2. **Yes, a little**
3. **Yes, some**
4. **Yes, a lot**
5. **I don't know**

2) Has your skin started to change yet (e.g., pimples)?
(circle appropriate number)

1. **No**
2. **Yes, a little**
3. **Yes, some**
4. **Yes, a lot**
5. **I don't know**

3) Has your voice started changing (getting deeper) yet?
(Circle appropriate number)

1. **No**
2. **Yes, a little**
3. **Yes, some**
4. **Yes, a lot**
5. **I don't know**

4) Do you have facial hair (on chin, above lip) yet?

1. **No**
2. **Yes, a little**
3. **Yes, some**
4. **Yes, a lot**
5. **I don't know**

Appendix D

Involvement in Popular Culture Scale

MY ACTIVITIES

IN THE PAST MONTH, I have:

	Once or Never	Twice	3 or 4 Times	Pretty Often	Almost Every Day
1) Watched "Much Music."	1	2	3	4	5
2) Talked on the phone to a girl.	1	2	3	4	5
3) Talked on the phone to a boy.	1	2	3	4	5
4) Listened to the radio.	1	2	3	4	5
5) Worn make-up (e.g., nail polish, lipstick).	1	2	3	4	5
6) Bought new clothing.	1	2	3	4	5
7) Read a magazine for teenagers.	1	2	3	4	5
8) Changed hairstyle or colour.	1	2	3	4	5
9) Bought a CD.	1	2	3	4	5
10) "Hung out" at the mall.	1	2	3	4	5
11) "Hung out" at the 7-11 (or similar place).	1	2	3	4	5

Appendix E

Child's Report of Parental Behavior Inventory Acceptance Subscale

MY MOM

Below you will find a series of statements which might be used to describe the female parent you answered questions about earlier (for instance, your mom or stepmom). How has she acted towards you?

	Very Much Unlike Her	**Unlike Her**	**Some-what Like Her**	**Like Her**	**Very Much Like Her**
1) She makes me feel better after talking over my worries with her.	**1**	**2**	**3**	**4**	**5**
2) She likes to talk to me and be with me much of the time.	**1**	**2**	**3**	**4**	**5**
3) She seems to see my good points rather than my faults.	**1**	**2**	**3**	**4**	**5**
4) She almost always speaks to me with a warm and friendly voice.	**1**	**2**	**3**	**4**	**5**
5) She is always thinking of things that will please me.	**1**	**2**	**3**	**4**	**5**
6) She understands my problems and my worries.	**1**	**2**	**3**	**4**	**5**
7) She enjoys talking things over with me.	**1**	**2**	**3**	**4**	**5**
8) She gives me a lot of care and attention.	**1**	**2**	**3**	**4**	**5**
9) She enjoys going on drives, trips or visits with me.	**1**	**2**	**3**	**4**	**5**

	Very Much Unlike Her	Unlike Her	Some-what Like Her	Like Her	Very Much Like Her
10) She smiles at me very often.	1	2	3	4	5
11) She often gives up something to get something for me.	1	2	3	4	5
12) She is able to make me feel better when I am upset.	1	2	3	4	5
13) She always enjoys doing things with me.	1	2	3	4	5
14) She makes me feel like I'm the most important person in her life.	1	2	3	4	5
15) She enjoys working with me in the house or yard.	1	2	3	4	5
16) She comforts me when I'm afraid.	1	2	3	4	5
17) She enjoys staying at home with me rather than going out with friends.	1	2	3	4	5
18) She cheers me up when I'm sad.	1	2	3	4	5
19) She often speaks of the good things I do.	1	2	3	4	5
20) She makes her whole life centre about her children.	1	2	3	4	5
21) She has a good time at home with me.	1	2	3	4	5
22) She seems proud of the things I do.	1	2	3	4	5

	Very Much Unlike Her	Unlike Her	Some-what Like Her	Like Her	Very Much Like Her
23) She spends almost all of her free time with her children.	**1**	**2**	**3**	**4**	**5**
24) She isn't interested in changing me, but likes me as I am.	**1**	**2**	**3**	**4**	**5**

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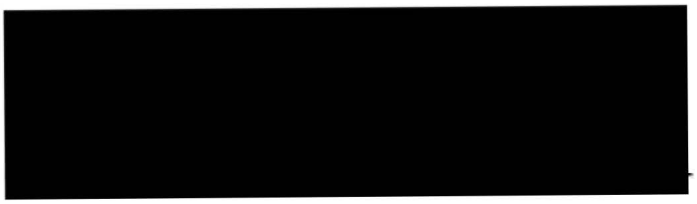
Author 

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January 17th, 2001