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EATING DISTURBANCES IN PREADOLESCENT GIRLS: PROTECTIVE AND RISK FACTORS

by S. Jane Walsh

A Dissertation
Submitted to the Faculty of Graduate Studies and Research
Through the Department of Psychology in Partial
Fulfillment of the Requirements for the
Degree of Doctor of Philosophy at the
University of Windsor

Windsor, Ontario, Canada

2002

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ABSTRACT

Although numerous eating disorder risk factors have been identified, protective factors have been underresearched (Shisslak & Crago, 2001). Moreover, despite calls by prevention researchers, our understanding of disordered eating during preadolescence is limited (Smolak & Levine, 2001). The objective of the present study was to identify potential protective and risk factors for eating disturbances in preadolescent girls. The sample consisted of 381 preadolescent girls in grades 4-6. Participants completed a battery of questionnaires assessing such constructs as disordered eating attitudes and behaviours, self-esteem, emotional autonomy, attributional style, coping strategies, perceived social pressures for thinness, parental care/overcontrol, and peer support. Potential protective and risk factors were evaluated using person-focussed and variable-focussed designs. The person-focussed design strategy was borrowed from the child psychopathology resilience literature (Masten, 2001), and consisted of comparisons of groups of participants with different risk/outcome profiles. The variable-focussed component consisted of a series of hierarchical multiple regression analyses. The results of the person-focussed phase were of questionable validity due to problems with the classification system. However, multiple regression findings indicated that increased self-esteem and decreased pressure for thinness from media, peers, and parents were associated with decreased disordered eating. There was some preliminary support for the association between coping and disordered eating. These variables may be potential risk/protective factors for disordered eating in preadolescent girls, and future research should evaluate whether they are causally linked using longitudinal designs.

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CHAPTER I

Introduction

Overview

During the past several decades, eating disorder researchers have attempted to answer the following questions: Why now? Why women? Why some women and not others? (Striegel-Moore, Silberstein, & Rodin, 1986). Although they have made progress towards answering the first two questions, answering the third has been more difficult (Pike, 1995). Recently, similar questions have been raised regarding eating pathology among preadolescent and adolescent girls: What differentiates girls exhibiting healthy eating behaviours from those demonstrating eating disturbances (e.g., Smolak & Levine, 2001)? Might those who appear invulnerable to eating pathology possess certain protective qualities? Eating disorder prevention researchers have called for further exploration of potential protective processes (e.g., Shisslak & Crago, 2001). Developmental psychopathologists have a long history of studying the related phenomena of protection and resilience as they pertain to general childhood psychopathology (e.g., Sroufe & Rutter, 1984). Crago, Shisslak, and Ruble (2001) recommend that eating disorder researchers consult the childhood resilience literature when initiating projects aimed at identifying protective factors for eating disorders. Rodin, Striegel-Moore, & Silberstein (1992) note:

> ... it is striking that no research has investigated women who appear to be resilient in the face of risk factors for bulimia nervosa (BN). Garmezy's work on resistant children has illuminated our understanding of the development of schizophrenia

and other forms of psychopathology. Similarly, a focus on women who prove resistant to BN will shed light on the causes of eating disorders" (p.377).

Researchers underscore the critical importance of furthering our knowledge about disordered eating attitudes and behaviour among preadolescent children (Shisslak & Crago, 2001; Smolak & Levine, 2001). They note that research consistently demonstrates that such problems exist among a sizeable minority of children aged 11 and younger. Unfortunately, much of the existing literature regarding disordered eating during preadolescents simply describes the rates of such difficulties (Smolak & Levine, 2001). Few researchers have investigated correlates of disordered eating among preadolescents, and fewer have conducted longitudinal studies of risk/protective factors (Shisslak & Crago, 2001). Research is required to determine whether there are developmental differences in the causes of eating disturbances, and to identify processes shaping individual differences in susceptibility to eating disturbances (Smolak & Levine, 2001). Smolak and Levine (2001) note that such research could inform the development of age-appropriate prevention programs. They view preadolescence as an ideal time to implement prevention programs because evidence suggests the "thinness schema" is less consolidated than during adolescence.

The overall objective of the present study was to identify potential risk and protective factors for disordered eating among preadolescent girls. Following the recommendation of Shisslak et al. (2001), this process began with an integration of the childhood psychopathology resilience and eating disorder literatures. The following literature review is divided into four sections. In the first section, the theoretical perspective guiding the present study (i.e., developmental psychopathology) is described.

The second section contains a review of the general childhood psychopathology resilience literature, followed by a discussion of its implications for the eating disorder field. The third section contains a summary of the eating disorder risk and protective factor literature. In the final section, key findings from the childhood psychopathology resilience and eating disorder fields are integrated.

Introduction to Developmental Psychopathology and Resilience

The Developmental Psychopathology Movement

Founded in the early 1970s, developmental psychopathology has become a thriving interdisciplinary science (Cicchetti, 1992; Kiesler, 1999). Smolak and Striegel-Moore (1996) define developmental psychopathology as the application of the methods of developmental psychology to the study of the etiology of pathology. Achenbach (1992) recommends that developmental psychopathology be used as a macroparadigm, that is, a common frame of reference for integrating a range of more specialized etiological theories (e.g., biomedical, behavioural, psychodynamic).

Developmental psychopathology emphasizes the relation between psychopathology and the major transitions that typically occur across the lifespan (Achenbach, 1992), as well as the interrelationships between normal and abnormal functioning (Cicchetti, 1984). It holds that both risk and protective factors have an important impact on developmental outcomes (Kiesler, 1999; Leung, Geller, & Katzman, 1996; Rosen, 1996; Sroufe & Rutter, 1984).

Kazdin, Kraemer, Kessler, Kupfer, and Offord (1997) define risk factors as "antecedent conditions associated with an increase in the likelihood of adverse, deleterious, or undesirable outcomes", whereas protective factors "are antecedent

conditions associated with a decrease in the likelihood of undesirable outcomes or an increase in the likelihood of positive outcomes (p.377). If it has not yet been demonstrated that the condition of interest precedes the onset of the disorder, Kazdin et al. (1997) recommend that it be referred to as a correlate, concomitant, or consequence of the disorder. Risk and protective factors may be either specific or general (Shisslak & Crago, 2001). Disorders are often caused by multiple pathways involving both general and specific risk/protective factors (Shisslak & Crago, 2001). Risk and protective factors may be of an enduring or a transient nature, and they may vary across settings (Smolak & Striegel-Moore, 1996).

Developmental psychopathologists are keenly interested in those factors that maintain normal development (Smolak & Striegel-Moore, 1996). High-risk studies have been the preferred paradigm for identifying such factors (Kiesler, 1999). The Rochester Longitudinal Study was a classic high-risk study undertaken by Sameroff and colleagues during the early 1980s (Sameroff, Seifer, & Bartko, 1997). They followed a sample of children of parents with schizophrenia, and discovered that "no single variable was determinant of outcome, only in families with multiple risk factors was the child's competence placed in jeopardy" (Sameroff, et al., 1997, p.512). This exemplifies Rutter's (1992) contention that many risk factors do not exert direct effects, but predict outcomes only when experienced concurrently with other events.

The Resilience Movement

There is considerable overlap between the goals and assumptions of the fields of resilience and developmental psychopathology, and both emerged during the 1970s (Masten, 2001). Prior to the resilience movement, the literature was dominated by deficit-

focused models (Cowen, Work, & Wyman, 1997; Jason & Frick, 1998; Jessor, Turbin, & Costa, 1998; Masten & Coatsworth, 1998; Sameroff et al., 1997). Garmezy's (1974) seminal paper provided a theoretical foundation for the empirical study of resilience. He reports being inspired to study resilience by his observation that more disadvantaged children were likely to have successful rather than unsuccessful developmental outcomes. Other researchers also became interested in the study of resilience due to a growing awareness that many American children were growing up in high-risk environments, and some were flourishing despite adversity (Masten & Coatsworth, 1998). Rutter (1992) notes that "it is apparent that the shift was not just from vulnerability to resilience, but also from risk variables to the process of negotiating risk situations" (p.182). It was in this context that researchers began to investigate protective mechanisms. There is widespread consensus that the study of resilience has important implications for etiological theories of psychopathology, as well as prevention and intervention efforts (Masten & Coatsworth, 1998).

According to Masten (2001), resilient children are those who demonstrate successful outcomes despite being at risk due to genetic or environmental circumstances. In an interview with Rolf (1999), Garmezy notes resilience researchers have shifted from conceptualizing adversity in terms of exposure to a single "great" stressor, to a focus on cumulative stressors. There is considerable controversy about how to conceptualize "successful outcomes" (Masten, 1999), however they are typically described as either the presence of good adjustment or the absence of pathology (Cowen et al., 1997).

Conceptualizing Risk and Protective Factors

The Relationship between the Concepts of Risk and Protection

Some writers suggest that the interest in protection represents a semantic change intended to inject hope, and that protective factors are nothing more than the "antonyms" of their corresponding risk factors (e.g., Stouthamer-Loeber et al., 1993 cited in Sameroff et al., 1997). The question is whether it is worthwhile to retain two concepts "... if in reality they are no more than opposite poles of the same concept" (Rutter, 1992, p.186). The position that protective factors represent the positive poles of risk factors has garnered some empirical support, particularly from studies employing broadly conceptualized protective dimensions (Rutter, 1992). Sameroff et al. (1997) discovered that the pattern of relationships between the protective variables and outcome variables was the inverse of the risk variables, and neither risk or protection appeared more predictive of outcome than the other.

Jessor et al. (1998) argue that risk and protection represent separate dimensions rather than opposite poles of the same dimensions. They cite empirical findings suggesting that although risk and protective factors are usually negatively correlated, they typically share limited common variance and relate differently to other variables. Rutter (1992) recommends that protection should be retained in situations where the focus is on factors that counter risk, when the process appears to shift the developmental trajectory in an adaptive direction, and when the mechanisms of protection appear to differ from those of risk.

Mechanisms of Influence

Risk and protective factors can influence outcomes in direct, indirect, or interactive ways (Masten, 2001). Masten (2001) describes three types of direct effects depending on the predictor variable: (1) "pure" protective variable – outcomes improve with high level of variable, (2) "pure" risk variable – outcomes deteriorate with high level of variable, and (3) "bipolar" variables – outcomes improve with high level and deteriorate with low level. Indirect effects are represented by mediation models in which the influence of adversity on outcome is mediated through a third risk/protective variable. For example, the effects of poverty and divorce on child development appear be at least partially mediated through parenting (Masten, 2001). Interactive effects are captured by models depicting situations where a given risk or protective variable appears to be more important at high levels of adversity. According to Masten (2001), significant interaction effects are relatively rare in the resilience literature. However, some findings have suggested that high IQ may be a risk-activated protective factor moderating the relationship between adversity and the development of rule-governed behaviour in children (Masten et al., 1999). The extent to which the interaction between adversity and risk/protective processes is emphasized varies across researchers, with earlier developmental psychopathologists advocating most strongly for its conceptual importance (Kiesler, 1999).

Masten et al. (1988) present several models to explain how the interplay between risk and protective factors affects adjustment over the lifespan. The additive model proposes that both risk factors and protective factors contribute to the outcome in an additive fashion, without interaction. In this model, high levels of protection are believed

to compensate for high levels of risk. The interactive model holds that positive outcomes are likely despite high stress exposure in children with high levels of a given attribute (protective factor), whereas children with much less of the attribute (risk factor) show maladjustment at high stress levels (Masten et al., 1988). Researchers such as Jackson and Frick (1998) have recommended future investigations employ large enough samples to enable detection of interaction effects.

Several writers have speculated about the specific mechanisms of influence of protective factors. Rutter (1992) states that protective processes may exert their effect either directly or indirectly via the following mediating mechanisms: "reduction of risk impact, reduction of negative chain reactions, establishment and maintenance of self-esteem and self-efficacy, and an opening up of opportunities" (p.202). He suggests that protective processes may also reduce the impact of adverse events by altering the meaning of the experience for the individual. Rutter (1992) notes that the literature strongly suggests a protective role for self-esteem and related concepts, but urges researchers not to stop there. He argues that it is necessary to identify the conditions that foster the development of positive self-concepts and strengthen self-worth in high-risk individuals.

Implications of Developmental Psychopathology for Eating Disorder Research

Theoretical

Theoretical assumptions. There are numerous reasons why developmental psychopathology's theoretical assumptions are particularly relevant to the study of eating disorders (Smolak & Striegel-Moore, 1996). First, there is the widely accepted continuum model that posits that clinical eating disorders and normative dieting fall at different

points along the same spectrum. This idea is congruent with developmental psychopathology's emphasis on the overlap between normal and abnormal development (Rosen, 1996). Developmental psychopathologists prioritize investigation of "normal" eating attitudes and behaviour, as well as the influences determining movement in either direction along the disordered eating continuum (Rosen, 1996). Second, eating disorders demonstrate distinct developmental trends in terms of age of onset, and there appear to be developmental differences in the expression of eating disorder symptoms (Rosen, 1996; Stice & Agras, 1998). Moreover, the fact that eating disorders are more prevalent among women than men suggests that unique female developmental experiences (e.g., feminine gender role identity) are closely tied to eating pathology (Rosen, 1996). These findings are consistent with the developmental psychopathology assumption regarding the important relationship between psychopathology and major life transitions (Achenbach, 1992). Third, there is widespread acceptance of the biopsychosocial etiological model of eating disorders (Connors, 1996; Shisslak et al., 1998; Taylor et al., 1998). Developmental psychopathologists view development as holistic and consider it critical to interpret behaviour in context (Rosen, 1996). However, eating disorder research has not kept pace with increasingly complex holistic theories and future research needs to focus on testing risk models rather than risk variables (Phelps, Johnston, & Augustyniak, 1999; Striegel-Moore & Cachelin, 1999).

Conceptualizing risk and protection. Researchers recommend that the developmental psychopathology and resilience literatures be consulted regarding possible eating disorder protective factors (Crago, Shisslak, & Ruble, 2001; Smolak & Striegel-Moore, 1996). Although some of these general protective factors have already been

identified as protective against the development of eating disturbances (e.g., self-esteem), much more research is required to identify additional general and specific protective factors (Crago et al., 2001).

Masten (2001) states that risk and protective factors are often "bipolar" in that they represent opposite ends of the same dimension. However, "pure" risk and protective factors also appear to exist and these are often discrete events, such as being the victim of car accident (pure risk factor) or membership in a self-esteem enhancing activity (pure protective factor) (Masten, 2001). Therefore, it is appropriate to operationalize eating disorder protective factors as the flip-side of risk variables, and to use Rutter's (1992) guidelines for labelling them "protective" (e.g., when they appear to shift development in an adaptive direction, such as self-efficacy). "Pure" eating disorder risk and protective factors may also exist, such as weight-related teasing (risk) and membership body image enhancing subculture (protective). Eating disorder risk and protective factors are also likely to influence outcomes as described in the developmental psychopathology literature. Mechanisms of influence are likely to be direct or indirect, and risk/protective factors may interact according to additive or interactive models (Masten, 2001).

Conceptualizing resilience. Simply stated, resilience has been defined as the demonstration of a good outcome despite serious threats to adaptation or development (Masten, 2001). Efforts to operationalize this concept have produced considerable controversy among resilience researchers in general childhood psychopathology, and could prove particularly challenging for those studying eating disorders. Definitions of "threat/risk" and "good outcomes" have varied across researchers (Masten, 2001). However, threat/risk has typically been operationalized by resilience researchers in terms

of variables statistically related to "bad" outcome (poverty, stressful life events, low birth weight, neglect/abuse). Identifying a "clean" group of children at-risk for eating disorders may be difficult, because many of the strongest predictors of disordered eating are both precursors and symptoms (Leung et al., 1996). For example, risk factors such as body dissatisfaction and dieting are confounded with the disease process.

"Good outcomes" have typically been operationalized by child psychopathology resilience researchers as the presence of competence, or the absence of psychopathology, or both (Masten, 2001). Unfortunately, the eating disorder field is currently limited to definitions of competence based on the absence of psychopathology because of the paucity of information about healthy eating attitudes and behaviour. Resilience researchers have debated how and what to assess with regard to outcome domains (Masten, 2001). They have questioned whether or not there is a "cost of resilience", and have recommended that researchers include measures of psychological distress in their outcome battery in order to rule out this possibility (Luthar, 1991). They have also considered whether competent outcomes should be excellent rather than average in order to be classified as resilient (Masten, 2001). Until resilience researchers reach a consensus regarding these issues, they have encouraged other researchers to specify the domains of competence assessed, and not to assume that resilience cuts across all competence domains (Masten, 2001). Based on this literature, it appears as if evaluations of eating disorder resilience should assess multiple outcome domains, including those specific to eating/weight and those related to general psychological functioning.

Methodological Issues

Complexities. Smolak (1996) identifies the methodological complexities that accompany the developmental psychopathology approach. Exploration of childhood origins of eating pathology is problematic because measures have yet to be developed to assess many childhood constructs. Assessing change over time, and untangling the direction of relationships between predictor, mediating, and outcome variables requires the use of longitudinal designs and sophisticated statistical techniques. Researchers must also employ designs capable of distinguishing between unidirectional and reciprocal causality (Smolak, 1996). "Despite such challenges, the promise of the developmental psychopathology model is great and may well be the only approach that will ultimately yield understanding of the multiple pathways to eating problems" (Smolak, 1996, p.52).

Recent trends. Developmental psychopathologists encourage movement beyond correlational designs to those enabling inferences regarding causation, such as prospective and experimental designs (Leung et al., 1996; Masten & Coatsworth, 1998). Phelps, et al. (1999) note that the evaluation of prevention programs provides an experimental test of the link between risk/protective factors and outcome. Moreover, Masten (2001) points out that there has been a trend from global to finer-grained approaches to the study of resilience. The focus has shifted from attempting to identify protective factors to understanding underlying protective processes and how they contribute to positive outcomes (Luthar, Cicchetti, & Becker, 2000). Both of these changes within the developmental psychopathology literature could significantly enhance eating disorder research.

Design strategies. Masten (2001) notes that childhood psychopathology resilience researchers have generally used "person-focussed" or "variable-focussed" design strategies. She defines person-focussed designs as "the comparison of people who have different profiles within or across time on sets of criteria to ascertain what differentiates resilient children from other groups of children". Variable-focussed strategies "use multivariate statistics to test for linkages among measures of the degree of risk or adversity, outcome, and potential qualities of the individual or environment that may function to compensate for or protect the individual from the negative consequences of risk or adversity" (p.229). Both strategies have advantages and limitations. Masten (2001) argues that the variable-focussed strategy is advantageous in that it maximizes power and is useful in identifying specific risk/protective factors. However, it can obscure a sense of the broader lived experience of real people. Person-focussed strategies are advantageous in that they keep variables in naturally occurring configurations, but provide less information about explanatory processes (Masten, 2001). Moreover, neither variable-focussed nor person-focussed strategies capture the bi-directional nature of the relationships between individual and environmental variables (Masten, 2001). Although the variable-focussed strategy is more widely used, some researchers use both strategies (e.g., Luthar, 1991; Masten et al., 1999).

Variable-focussed designs. Variable-focussed designs allow researchers to examine different types of relationships between risk/protection variables and outcomes. Masten (2001) notes that main effect models can test direct or indirect relationships between risk/protective factors and outcome. Interaction models have also been used to identify variables which appear to moderate the impact of risk/protective variables on

developmental outcomes. Variable-focussed models are often tested using regression and/or modeling statistical techniques.

Person-focussed designs. Masten (2001) describes the person-focussed design options for studying resilience. She notes that because single case studies are fraught with obvious limitations, researchers have preferred to compare groups of people meeting different risk/outcome criteria. Risk/outcome criteria are usually defined on multiple criteria simultaneously. The classic person-focussed approach compares high-risk children with adaptive and maladaptive developmental outcomes. However, as Masten (2001) notes, researchers soon wanted to learn more about how high-risk children differed from low-risk children, and "full classification" models increased in popularity. Full classification models separate participants into four groups: resilient, maladapted, competent, and vulnerable. The resilient group consists of high-risk children with good outcomes, the maladapted group consists of high-risk children with poor outcomes, and the competent group has low-risk children with good outcomes. Researchers describe the fourth group as "vulnerable" because they have been exposed to low levels of adversity but still exhibit poor outcomes. As Masten (2001) notes, this group is poorly understood, and in several studies there have been too few vulnerable participants to permit analysis.

Researchers have focussed on differences between the resilient and maladapted groups who share similar risks but diverge in outcome (Masten et al., 1999). Few have examined differences between the resilient and competent groups, but such comparisons:

> ... have the potential to reveal whether unusually high levels of resources are required to achieve competence despite adversity, and also, as some have suggested, whether resilience is achieved at the cost of internal well-being.

(Masten et al., 1999, p.145).

The results of a study by Masten et al. (1999) revealed many differences between the resilient and maladaptive groups on a range of psychological and social variables, and few differences between the resilient and competent groups.

There is a lack of consensus among researchers about how to operationalize group membership. Methods of defining level of risk and quality of outcome appear particularly variable. For example, Masten et al. (1999) defined "good outcome" as scores greater than 1 standard deviation below the sample mean on all three competence domains, whereas Cowen et al. (1997) defined "good outcome" as scores above the 60th percentile on two of three competence measures. Of the 189 adolescent participants in the Masten et al. (1999) investigation, 23% were classified as resilient, 17% as maladapted, 15% as competent, and 2% as vulnerable. Forty-three percent of participants were unclassified. Although it is common for a relatively large percentage of participants to be unclassified using person-focussed designs, other data supports the validity of this approach. There tends to be high correspondence between such classification systems and independent ratings of group assignment (Cowen et al., 1997; Masten et al., 1999).

According to Masten (2001), researchers have employed MANOVA, discriminant function, and cluster analysis procedures to test full classification models. The most sophisticated person-focussed models speculate about how resilient versus maladapted pathways develop over time, with particular attention to the role of turning points in people's lives. However, the "systematic study of such patterns and pathways is in the nascent stage" (Masten, 2001, p.233).

Resilience and Childhood Psychopathology – Empirical Findings

Risk and Protective Factors for Psychopathology across the Lifespan

Kiesler (1999) notes that the *American Psychological Society Report,* published in 1996, identified four major risk variables for mental illness across the lifespan: (1) low SES, (2) family conflict and disruption, (3) gender (i.e., prevalence rate differences marked for certain disorders such as females and eating disorders and depression, and males and ADD and substance abuse), and (4) ethnicity (i.e., minority groups generally have higher rates of mental illness likely due to combination of lower SES, family discord, and societal discrimination). Existing risk factor research also suggests that there is significant overlap in the risk factors for different disorders (i.e., very few are specific), some are developmentally sensitive, and they tend to combine in a multivariate and aggregate fashion to foster maladaptive outcomes (Kiesler, 1999).

Kiesler (1999) reports that similar broad-based literature reviews have divided key protective factors into the following categories: 1. individual personality characteristics (e.g., IQ, temperament, self-esteem, autonomy, good coping skills); 2. family features (e.g., smaller family structure, family cohesion, absence of discord, presence of a caring person such as grandparent, and adequate parental rule-setting); and 3. availability of external support (e.g., social systems such as social agency, school, or church that support child's coping efforts and sense of competence). Some researchers have stressed the centrality of coping skills (e.g., problem-focused versus avoidance coping, positive reframing, acceptance of reality of existence of the problem) and related personality attributes (e.g., optimism, self-determination, mastery) in fostering resilient outcomes (Carver, 1999; Kiesler, 1999). The term "hardiness" refers to those who seem to cope

effectively with life's stresses through such strategies as commitment to a life goal, positive responses to challenge, and an internal locus of control (Kiesler, 1999).

Risk Factors for Childhood Psychopathology

There is widespread agreement that risk factors for general childhood psychopathology are multivariate in nature (e.g., Sameroff et al., 1997). In the Sameroff et al. (1997) research program, risk variables from a series of ecological levels were assessed, ranging from microsystems (e.g., family process) to macrosystems (e.g., community). They discovered that the effects of these distal systems were mediated by more proximal variables. Thus, the likelihood of psychological maladjustment and academic failure is far greater for those exposed to multiple rather than single risks. Specifically, the findings suggest that cumulative risk far outweighs the impact of individual demographic variables such as race, sex, and socioeconomic status (SES) on development. The presence of risk appears to be a relatively stable feature in the lives of many families, and may contribute to stability in child characteristics (Sameroff et al., 1997).

Personal. The findings of several cross-sectional (e.g., Jessor et al., 1998) and longitudinal (e.g., Masten et al., 1999) studies suggest that low self-esteem represents a risk factor for negative developmental outcomes among adolescents. Masten et al. (1999) found that maladaptive adolescents obtained lower IQ scores and reported higher levels of negative emotionality during childhood than their resilient peers. Other risk factors against 'making it' (i.e., demonstrating competence in academic and behavioural domains) included hopelessness and low expectations for success (Jessor et al., 1998).

Familial. The Masten et al. (1999) study suggests that the maladaptive group of adolescents suffered from poorer parenting quality during childhood than their resilient peers. Similarly, Sameroff et al. (1997) found that parental lack of support for autonomy and negative family climate exerted a negative influence on many facets of adolescent functioning (e.g., parent-rated adolescent psychological adjustment; adolescent-rated competence, problem behaviour, and academic performance).

Peer. Several cross-sectional investigations suggest that peer influences represent a potent contributor to adolescent maladjustment. Specifically, peer modeling of delinquent behaviour has been found to be significantly negatively correlated with such outcomes as psychological adjustment and grades (e.g., Jessor et al., 1998; Sameroff et al., 1997; Voydanoff & Donnelly, 1999). Peer pressure was inversely associated with psychological adjustment in the Voydanoff and Donnelly (1999) investigation, and negative peer influences appeared to have a stronger effect on the well-being of adolescents than inadequate adult supervision.

Systemic. Jessor et al. (1998) found that socioeconomic disadvantage constituted a significant risk factor for "making it" among a sample of adolescents. Longitudinal evidence suggests that SES is inversely related to general competence, and to academic achievement in particular (e.g., Masten et al., 1999). Although the relationship between SES and academic achievement appears direct, Masten et al. (1999) suggest that the link between SES and other areas of childhood competence (i.e., conduct and social) may be moderated by parenting quality and childhood IQ.

Protective Factors against Childhood Psychopathology – Univariate Findings

Although there has been considerable interest in risk factors for child and adolescent mental health difficulties, fewer researchers have examined the protective factors that promote adaptive outcomes. More research has focussed on the protective influence of parents than on other environmental influences (e.g., presence of other supportive adults, peer influences, participation in organized activities, school environment) (Voydanoff & Donnelly, 1999). Although the majority of past resilience research was cross-sectional in nature, an increasing number of prospective studies are being conducted (e.g., Masten, et al., 1999). However, as Masten et al. (1998) notes: "Still rare are studies linking multiple aspects of adaptation, cumulative adversity exposure, and multiple resource/protective factors, particularly over longer intervals" (p.144).

Personal. Longitudinal evidence supports the relationship between childhood IQ and such adolescent outcomes as academic achievement and social competence (Cowen et al., 1997; Masten et al., 1999). However, Masten et al.'s (1999) hypothesis that children in the resilient group would display higher intelligence than those in the competent group was not supported empirically. A correlational study of children aged 8-14 years conducted by Jackson and Frick (1998) yielded results which suggested that dispositional variables (i.e., high IQ and easy temperament) are directly related to adaptive behavioural outcomes.

Because their resilient group scored significantly higher than either the competent or maladaptive groups on a measure of positive emotionality, Masten et al. (1999) suggest

that their findings support mastery and stress-and-coping theories. Longitudinal (e.g., Cowen et al., 1997; Masten et al., 1999) and cross-sectional findings (e.g., Cowen et al., 1997) also suggest that resilient children differ from maladapted peers on other measures of psychological well-being (i.e., higher self-esteem, and lower psychological distress). Cowen et al. (1997) provided cross-sectional and longitudinal evidence to support the relation between the following child-rated characteristics and resilient outcomes in their sample of inner-city children: more rule conformity, greater empathy, and more realistic control attributions. Yates, Yates, and Lippett (1995) found that academic success was related to an optimistic explanatory style in a sample of preadolescent children. Cross-sectional findings indicated that the 'stress resilient' group outperformed the 'stress affected' group on measures of school interest, internal locus of control, and use of adaptive problem-solving and coping strategies. Jessor et al. (1998) reported that attitudinal intolerance of deviance and a positive orientation towards health represented protective factors against maladaptive outcomes in their cross-sectional study of disadvantaged adolescents. Attitudinal intolerance of deviance buffered the impact of several risk factors (i.e., orientation to friends vs. parents, and effects of friends as models of problem behaviour) (Jessor et al., 1998).

Hauser (1999) employed a person-centered approach in order to better understand how resilient development unfolds. Using a follow-back design of annual narratives, he discovered a number of themes regarding constructions of the self within the stories of resilient adolescents. Resilient adolescents demonstrated considerable self-reflection, self-efficacy, self-complexity, persistence and ambition, and tended to have more positive

than negative feelings about their own worth. Resilient youth demonstrated less helplessness and rage, and higher self-esteem, than average outcome adolescents.

Social. Several studies of childhood resilience (e.g., Jackson & Frick, 1998) have used broad measures of social support encompassing parents, teachers, classmates, and friends. In the Jackson and Frick (1998) investigation, the measure of social support loaded on a protective variable which included internal locus of control. Scores on this dimension appeared to buffer the impact of adversity on externalizing behaviour. Social support/internal control played a protective role against the effects of negative life events on internalizing behaviour for girl participants only. This finding is consistent with literature suggesting that social supports are more important for girls than for boys (Jackson & Frick, 1998). However, these findings must be interpreted cautiously because of the inability to tease apart the effect of social support versus internal locus of control. Cowen et al. (1997) provided cross-sectional evidence suggesting that resilient inner-city children perceive themselves as having better social skills and more social support than their maladjusted peers. Hauser (1999) also identified several key themes regarding relationships in the narratives of resilient adolescents. Resilient adolescents wrote stories suggesting they often considered the motives, thoughts, and feelings of others, saw relationships as very important to their well being, and had connections between their self-image and interpersonal experiences.

Familial. Masten et al. (1999) found that parenting quality was a robust prospective predictor of childhood conduct, as well as predicting several adolescent competence dimensions (i.e., academic, conduct, and social). These findings support the link between the quality of parent-child relationships and social competence during

adolescence. This appears consistent with the position of attachment theorists that parent-child relationships serve as a template for future relationships with others (Masten et al., 1999). The Masten et al. (1999) results also highlight the bi-directional nature of the child's relationships, and they have called for more research regarding the extent to which children influence the availability of their own resources. Surprisingly, family environment was unrelated to child adjustment in a cross-sectional study by Jackson and Frick (1998). However, parental monitoring (i.e., how often parents know who their children are with and what they are doing) was positively associated with adolescent psychological well-being. Hauser (1999) discovered that the narratives pertaining to parental relationships of resilient adolescents tended to show both continuity and change, but most had positive perceptions of at least one parental relationship. Resilient adolescents reported more supportive relationships with their parents than the average outcome group.

Peer. Although researchers have typically focused on the negative impact of peer influences on adolescent development, there are indications that friends may also shape adolescent lives in a positive way. Voydanoff and Donnelly (1999) found that affiliation with friends who planned to go to college was positively related to adolescent academic success. Other findings (e.g., Jessor et al., 1998) suggest that having friends who model conventional behaviour increases adolescents' chances of "making it". Moreover, having friends as models of conventional behaviour appears to moderate the adverse impact of associating with delinquent peers (Jessor et al., 1998). In the Hauser (1999) study, the resilient group narratives contained more references to supportive friendships than the average outcome group.

Systemic. Voydanoff and Donnelly (1999) examined whether various adolescent resources were related to adolescent well-being. Neither of the organizational variables (i.e., participation in organized activities or positive perceived school environment) appeared to be associated with psychological adjustment or academic achievement.

Summary. There is consensus among general childhood psychopathology resilience researchers that risk and protective factors are multivariate and operate at the individual, social, and societal levels. Both personal and contextual variables are important determinants of adaptive and maladaptive developmental outcomes (e.g., Jessor et al., 1998). The fact that many childhood risk variables predict adolescent adjustment implies that "the divergent pathways were well underway by childhood" (Masten et al., 1999, p.165). Resilience researchers stress the importance of adaptive coping in determining adaptive outcomes.

Empirical findings indicate that the following risk factors are associated with maladaptive developmental outcomes among high-risk children: personal – low self-esteem, low IQ, negative emotionality, decreased optimism; familial – poor parenting, decreased parental support for adolescent autonomy, general family dysfunction; peer – peer modelling of delinquent behaviour, peer pressure; societal – low SES. The following factors appeared to exert a protective influence on developmental outcomes: personal – high IQ, positive emotionality/easy temperament, high self-esteem, adaptive coping (optimistic explanatory style, realistic control attributions, constructive problem-solving); familial - good parenting quality, parental monitoring; peer – modelling prosocial behaviour, supportive peer relationships.

Multivariate Findings from the Rochester Child Resilience Project

Study design. The ongoing *Rochester Child Resilience Project (RCRP)* by Cowen et al. (1997), was designed to address the following two questions: (1) What are the correlates of resilient outcomes? (2) What are the antecedents of these protective variables? They divided their sample of inner-city elementary school children into two groups labelled "stress resilient" (SR) and "stress affected" (SA). Participants in both groups had experienced at least four or more stressful life events. However, members of the SR group demonstrated successful outcomes (i.e., scored in top one-third on 2 of 3 adjustment screening measures and no worse than middle third on remaining measure), and members of the SA group demonstrated maladaptive outcomes (i.e., scored in bottom third on same measures).

Results. The results of cross-sectional analyses suggested that the following child variables were most effective in discriminating between the SR and SA groups: global self-worth, realistic control attributions, social problem-solving skills, and self esteem. This constellation of variables correctly classified 84% of participants as SR or SA. The preliminary results of the longitudinal component of the Cowen et al. (1997) investigation indicated that several variables assessed at 7-8 years of age discriminated between SR and SA adolescent outcomes. These were self-rated rule compliance, perceived self-worth, social problem solving, and the controllable scale of the realistic control measure. Cowen et al. (1997) employed parent interview data to explore the processes associated with the aforementioned skills. The following set of cross-sectional predictors demonstrated 86% accuracy in discriminating between SR and SA groups: positive parental expectations for the child's future, fewer separations of child and primary caregiver during infancy, an

easy child temperament, parent's use of appropriate and reasoned discipline, involvement of the father-figure in caretaking during infancy, overall child-care help in family, and consistent parental discipline. Longitudinal analyses identified the following variables as maximally predictive of SR group membership: parent's positive views of child's future, parent use of effective coping strategies, parent global mental health during past year, and parent-child relationship during preschool years.

Conclusions & future directions. Cowen et al. (1997) remark on the likely importance of the concept of "emotionally responsive parenting" in favouring SR outcomes under stressful life conditions. The results of follow-up projects have identified correlations between parent-child relationship warmth and such child variables as perceived competence, self-rated adjustment, and locus of control. Cowen et al. (1997) identified several proximal child and parent variables that warrant further study. First, childhood optimism appears to reduce the adverse effects of high stress exposure on self-rated competence, and was directly related to better socioemotional adjustment and a stronger internal locus of control in their study. Wyman et al., 1996 (cited in Cowen et al., 1997) also found that the effect of the caregiver's attachment history and resources on the child's adjustment (i.e., IQ and academic achievement) appeared to be mediated by parenting attitudes and the parent-child relationship.

Summary. The *RCRP* findings provide cross-sectional and longitudinal evidence to support the protective role played by the following child characteristics: high self-esteem, adaptive coping, good social problem solving skills, and high rule-governed behaviour. Cross-sectional and longitudinal findings support the protective role of the following familial variables: adaptive parental coping, good parental mental health, and

'emotionally responsive parenting'. Not only is emotionally responsive parenting associated with better general developmental outcomes, but its influence appears to be mediated by child characteristics such as high self-esteem and adaptive coping. The impact of environmental variables such as low SES appears to be mediated by their impact on parental functioning.

Empirical Evaluation of Theoretical Risk and Protection Models

Additive model. Several researchers have evaluated the additive and interactive models with respect to the interplay between risk and protective factors in determining developmental outcomes (e.g., Jackson & Frick, 1998; Voydanoff & Donnelly, 1999). Findings that suggest that risk and protective factors are related directly to child adjustment support the additive model. For example, Jackson and Frick (1998) discovered that negative life events and certain protective factors (i.e., dispositional and social support/internal locus of control) predicted externalizing behaviour in an additive fashion. Voydanoff and Donnelly (1999) found several risk (e.g., peers engaging in delinquent activities, peer pressure) and protective (e.g., friends planning to go to college, parental monitoring) factors to be related directly to adolescent adjustment. Findings from other studies suggest that ego development (Luthar, 1991) and social support (Bowen & Chapman, 1996) are directly related to psychological adjustment in high-risk adolescents.

Interactive model. Empirical findings congruent with the interactive model have been fewer and less robust. Voydanoff and Donnelly (1999) found affiliation with friends planning to go to college and participation in organized activities buffered risks to academic success associated with having delinquent peers. Masten et al. (1988) found that variables such as IQ, SES, and parenting quality moderated the impact of stress

exposure on level of classroom disruptive behaviour. Cross-sectional and longitudinal data from the Jessor et al. (1998) study suggest that risk is more closely related to outcome in situations of low rather than high protection. Because both models have garnered at least some support, Voydanoff and Donnelly (1999) conclude that:

> In some situations, adolescent resources and parental behaviour are associated with the well-being of all adolescents, whereas in others they are relatively more important for those adolescents experiencing risks (p.345).

Limitations and Future Directions

Despite the fact that an increasing number of studies have examined the phenomena of resilience, the literature is limited by inconsistent use of standardized measures, and variable definitions of resilience. Masten et al. (1999) note that resilience is typically defined "clinically, or by cutoff scores on multiple dimensions of competence combined with cut-off scores on the adversity/risk parameter" (p.145).

Cowen et al. (1997) suggest that future research should focus on elucidating the pathways that form protective qualities. Other researchers recommend that studies be grounded in well-defined theoretical models, and use large enough samples to detect interactions (Jackson and Frick, 1998; Jessor et al., 1998). There are unanimous calls for more attention to factors that promote adjustment, not just maladjustment.

Risk and Protective Factors for Disordered Eating

High-risk eating disorder research was historically hampered by a tendency to focus on single risk domains, yielding little information regarding the relative importance of the variables in question (Leung et al., 1996). Such work was also limited by a failure to use designs capable of clarifying the risk factors specific to eating pathology, and those

associated with general psychopathology (Pike, 1995). Leung et al. (1996) advocate for the application of more sophisticated multivariate designs in an attempt to advance the field beyond description and towards an understanding of the causal mechanisms between "vulnerability markers, moderator variables, and outcomes in the vulnerable as well as invulnerable subjects" (p.235). Unresolved issues in the area of high risk research include: (1) use of the term "risk" to refer to both precursors and symptoms (e.g., dieting and body dissatisfaction), and (2) whether to study risk factors for a range of eating disturbances, or just for the clinical endpoint (Leon, Keel, Klump, & Fulkerson, 1997). Leon et al. (1997) support the use of a dimensional rather than categorical perspective on eating pathology.

The etiological models of eating disorders that have developed during the past 20 years have generally been multidimensional, and have included "biological variables such as inherited vulnerabilities and predispositions, the interpersonal experiences of the developing child, and the sociocultural milieu" (Connors, 1996, p.291). Similarly, there is widespread agreement that risk factors for eating disturbances are multivariate and operate at biological, psychological, behavioural, social, and cultural levels (Shisslak et al., 1998; Taylor et al., 1998). The following sections review the literature concerning a range of intraindividual and environmental risk factors for eating disturbances. Although preadolescent girls are of interest in the present study, the risk factor literature tends to be scarce for this age group. Therefore, it is often supplemented with data regarding adolescent girls and young adult women.

Risk Factors

I. Intraindividual

A. Physical.

(i) Genetic, neurotransmitters, hormonal: Leung, et al. (1996) state that the "biological risk approach" holds the least promise for advancing our knowledge about directions for prevention and early intervention. With the exception of genetic studies (e.g., Kendler et al., 1990 & 1991, cited in Leon et al., 1997), findings in the other domains have been confounded by the effects of the disorder (Leon et al., 1997). Connors (1996) suggests that the genetic contribution to eating pathology may be expressed via temperament. She highlights the parallels between the adult personalities of children with inhibited temperaments and the personality traits of eating disordered individuals. The present study will not examine these types of risk factors[1].

(ii) Body Mass Index (BMI): Rodin et al. (1992) states that women and girls with higher BMI are at greater risk for eating disturbances because they are more likely to start dieting in an effort to lose weight. The results of both cross-sectional (Keel, Fulkerson, & Leon, 1997; Taylor et al., 1998) and longitudinal (Keel et al., 1997) studies suggest that BMI is significantly positively associated with eating disturbances of varying levels of severity among preadolescent girls. Keel et al. (1997) notes that the extent to which participants appeared overweight due to higher BMIs rather than advanced physical maturity, was predictive of increased eating pathology at 1-year follow-up. Similar findings were obtained by researchers investigating the relationship between BMI and eating disturbance among adolescents. There is both cross-sectional (e.g., Edmunds &

[1] Interested readers should consult Kaye (1995) and Strober (1995) for reviews

Hill, 1999; French, Perry, Leon, & Fulkerson, 1995; Taylor et al., 1998) and prospective (Stice, Mazotti, Krebs, & Martin, 1998) support for this relationship. On the other hand, the relationship between BMI and eating disturbances failed to reach significance, or was obscured due to methodological issues in several other studies (e.g., French et al., 1995; Stice et al., 1998). However, overall, previous findings strongly suggest that heavier girls are at higher risk for developing eating disturbances.

B. Psychological.

(i) Body Dissatisfaction: Stormer & Thompson (1996) state that body image is important to investigate because of its etiological role in eating disorders, and because it represents a clinically significant concern in its own right. Veron-Guidry, Williamson, and Netmeyer (1997) also maintain that body image disturbance is primary and eating disturbance secondary, and suggest that "Anorexia nervosa (AN) and BN are both manifestations of a more general body image disorder" (p.25). Others have noted that body dissatisfaction is a high base-rate concern that represents a necessary but insufficient condition for the development of eating pathology (Leon, Fulkerson, Perry, & Early-Zald, 1995). Some research suggests that body dissatisfaction increases with age during adolescence (e.g., Rodin et al., 1992).

Keel et al. (1997) examined the link between body dissatisfaction and disordered eating among preadolescent girls, and discovered that although there was a significant positive cross-sectional correlation, the relationship was not significant at 1-year follow-up. Cross-sectional evidence supports the association between higher levels of body dissatisfaction and disturbed eating among adolescent girls (e.g., Edmunds & Hill, 1999; Killen et al., 1996; Leon et al, 1995; Stice et al., 1998). Two studies have provided

longitudinal support for the link between body dissatisfaction and dieting (French et al, 1995; Stice et al., 1998). However, body dissatisfaction did not emerge as a significant prospective predictor of disordered eating in a study by Leon et al. (1995). Therefore, it is unclear whether body dissatisfaction precedes the onset of disordered eating during the preadolescent years. Preliminary evidence supports this sequence once girls reach adolescence.

Researchers have suggested that as children mature cognitively, the determinants of body dissatisfaction may shift from more concrete indices like BMI to more abstract constructs such as body image (Leon et al., 1997). This appears to be the case in a study by Keel et al. (1997) in which more concrete body characteristics (i.e., BMI) were found to be better predictors of disordered eating among the preadolescent girls compared to the early adolescent girls.

(ii) Self-esteem. Research with preadolescent girls has demonstrated a cross-sectional inverse relationship between global self-esteem and disordered eating (e.g., Edmunds & Hill, 1999; French et al., 1995; Keel et al., 1997). Shisslak et al. (1998) reported an association between lower self-confidence and higher weight control behaviour scores among their sample of elementary school girls. However, the results of a longitudinal study by Keel et al. (1997) failed to support these cross-sectional findings.

Cross-sectional findings with adolescent samples support the relationship between low self-esteem and increased disordered eating (e.g., French et al., 1995; Ross & Ivis, 1999; Thomas, James, & Bachman, 2002). For example, a subset of data from the Ontario Student Drug Use Survey conducted in 1997 revealed an inverse correlation between global self-esteem and disordered eating (Ross & Ivis, 1999). French et al. (1995)

discovered that several self-concept dimensions (e.g., romantic, scholastic, behavioural conduct, and global self-concept) were inversely related to excessive dieting. Other researchers have provided prospective data suggesting that self-esteem deficits precede the onset of disordered eating among adolescents (e.g., Button, Sonuga-Barke, Davies, & Thompson, 1996; Wood, Waller, & Gowers, 1994).

(iii) Depression: Cross-sectional research suggests that there is a positive relationship between depression and disordered eating among preadolescent girls (e.g., Keel et al., 1997; Killen, et al., 1994). However, depression scores were not prospectively predictive of disordered eating scores in the Keel et al. (1997) study. There has also been cross-sectional support for the relationship between depression and eating disturbances within adolescent samples (e.g., Ross & Ivis, 1999; Thomas et al., 2002; Wichstrom, 1995), but prospective findings are inconsistent (e.g., Leon et al., 1995; Rastam, 1992; Thompson, Coovert, Richards, Johnson, & Cattarin, 1995). Based on these findings, it seems clear that depression and disordered eating are closely related, but remains uncertain whether this relationship is correlational or causal (Leon et al., 1995).

(iv) Personality characteristics: Because of the paucity of information regarding the personality characteristics associated with eating pathology among preadolescents, the following section is based on the adolescent literature. Many researchers have examined relationships between the personality constructs assessed by the *Eating Disorders Inventory* (i.e., ineffectiveness, interoceptive awareness, perfectionism, interpersonal distrust, maturity fears) and disordered eating. Among adolescent girls, the role of low levels of interoceptive awareness (i.e., alexythymia) has garnered both cross-sectional (e.g., French et al., 1995; Killen et al., 1996; Leon et al., 1995; Pike, 1995) and

longitudinal support (Leon et al., 1995). However, interoceptive awareness was not related prospectively to disordered eating in the study by Killen et al. (1996). Ineffectiveness has also demonstrated a positive cross-sectional linkage with eating disturbance (e.g., French et al., 1995; Killen et al., 1996; Pike, 1995), but has failed to emerge as a significant prospective predictor in some studies (e.g., Killen et al., 1996; Leon et al., 1995). Although French et al. (1995) found perfectionism to be significantly positively related to dieting status among an adolescent sample, the results of other cross-sectional (Killen et al., 1996; Pike, 1995) and longitudinal (Killen et al., 1996) analyses have failed to replicate this finding. Shisslak et al. (1998) suggest that the detrimental impact of perfectionism on eating attitudes may be contingent upon its interaction with a high pressure environment. Adolescent frequent dieters demonstrated higher levels of interpersonal distrust than intermittent and nondieting groups in a study by French et al. (1995), but interpersonal distrust was neither cross-sectionally nor prospectively related to disordered eating in the Killen et al. (1996) investigation. Finally, the hypothesized relationship between maturity fears and disordered eating has not garnered much empirical support (French et al., 1995; Killen et al., 1996).

Other personality dimensions that have been examined by eating disorder researchers include negative emotionality (i.e., stress reactivity), emotional constraint, neuroticism, and obsessionality. Researches have speculated that disordered eating represents a maladaptive coping response to chronic negative emotionality (e.g., Leon et al., 1997). The cross-sectional relationship between negative emotionality and eating disturbance has been supported empirically (e.g., French et al., 1995; Leon et al., 1995). Killen et al. (1996) were interested in temperamental risk factors for eating disorders.

They were particularly interested in the impact of emotionality given that previous temperament models of eating disorders suggest that a predisposition to emotionality combined with impulsivity increases the risk for developing an eating disorder. At baseline, the asymptomatic and partial syndrome groups in their study differed significantly in terms of emotionality. There appeared to be a trend towards prospective significance such that those who went on to develop partial syndrome eating disorders obtained higher scores on the emotionality measure; however, the multivariate relationship was nonsignificant. Killen et al. (1996) concluded that this does not mean that temperament and disordered eating are unrelated, only that temperament "may influence eating disorders through weight and shape concerns and other more proximal variables in ways that are not yet understood" (p.940).

Several researchers have reported positive correlations between concepts related to emotional constraint and disordered eating among adolescent girls (e.g., Leon et al., 1995; Zaitsoff, Geller, & Srikameswaran, 2002). For example, Zaitsoff et al. (2002) found higher levels of anger inhibition and self-silencing to be significantly related to higher levels of disordered eating. Although emotional constraint was cross-sectionally associated with eating pathology in the Leon et al. (1995) investigation, it was not significant longitudinally. Patton (1988, cited in Leon et al., 1997) found obsessionality and neuroticism to be significant correlates of eating pathology. In a retrospective case-control study of adolescents, Rastam (1992) found premorbid personality problems to be more prevalent among the anorexic group relative to controls. Obsessionality appeared to precede the onset of anorexic symptoms. Other researchers have described the typical personality profiles of individuals with clinical eating disorders (e.g., Shisslak et al.,

1998). Traits that have been associated with bulimic pathology include need for social approval, conflict avoidance, and low assertiveness, whereas correlates of anorexic pathology include obsessionality, social inhibition, compliance, and emotional constriction.

In summary, personality characteristics such as low interoceptive awareness and negative emotionality have garnered the strongest support as predictors of eating disturbances among adolescent girls. Constructs such as ineffectiveness, obsessionality, and emotional constraint have obtained moderate empirical support, whereas findings are either mixed or weak for perfectionism and interpersonal distrust.

(v) Coping: Prior to reviewing the empirical work in this area, several commonly used terms warrant clarification. According to Brodzinsky et al. (1992), the coping literature has generally distinguished between two types of coping behaviour: confrontational and avoidant. "The former involve behaviours that that seek to change the stressful situation or control the distress, whereas the latter involve behaviours that avoid dealing with the problem, or address the problem indirectly" (p. 196). They explain that other researchers have preferred a typology that distinguishes between problem-focussed coping (i.e., efforts to modify the source of distress) and emotion-focussed coping (i.e., attempts to regulate the emotional distress caused by the stressor). There is considerable overlap between the behavioural descriptions of "avoidant coping" and "emotion-focussed coping" (Denisoff & Endler, 2000), as well as the confrontational and problem-solving coping styles.

Few studies have addressed the relationship between coping styles and disordered eating among children and adolescents (Fryer, Waller, & Kroese, 1997). However,

preliminary cross-sectional findings suggest that emotion-focused coping is related to low self-esteem, which is subsequently strongly associated with disturbed eating in teenage girls (Fryer, et al., 1997). The literature regarding coping and eating disturbances among young adult women is also sparse (Denisoff & Endler, 2000). Several researchers have reported a positive cross-sectional relationship between disordered eating and emotion-focused coping (Denisoff & Endler, 2000; Showers & Larson, 1999), and avoidance coping (Mayhew & Edelmann, 1989). According to Ball and Lee (2002), these cross-sectional findings may be misleading, because the results of their longitudinal investigation did not support the prospective relationship between coping and disordered eating. Researchers have also questioned whether maladaptive coping is a specific risk factor for the development of eating disturbances (e.g., Paxton & Diggins, 1997). The results of a study by Ghaderi and Scott (2000) support the specificity of the relationship between avoidance coping and disordered eating. Despite ongoing controversy regarding the nature of this relationship among young adult women, it is worthwhile exploring whether maladaptive coping constitutes a risk factor for disordered eating among preadolescent girls.

(vi) Attachment: Sharpe et al. (1998) propose that "attachment theory may provide an important perspective for identifying risk factors that contribute to the development of eating disorders" (p.39). They highlight parallels between descriptions of eating disorder personality characteristics, and those of insecurely attached individuals (e.g., feelings of social incompetence, low self-esteem, and lack of perceived personal effectiveness). Although some studies have investigated the attachment styles of eating disorder patients, minimal attention has been devoted to the potential relationship among preadolescent

girls (Sharpe et al., 1998). Sharpe et al. (1998) discovered that preadolescent girls classified as insecurely attached obtained significantly higher scores on a measure of weight concerns, and reported significantly lower self-esteem than did those classified as securely attached. Sharpe et al. (1998) speculate that in an effort to feel accepted by others, insecurely attached girls may be more likely to strive to attain society's thin-ideal. They recommend that the next step be establishing whether attachment styles have prospective significance, and determining their importance relative to other predictors.

C. Behavioural.

(i) Dieting: The majority of studies have examined the relationship between dieting and eating pathology among adolescent samples. Strong and Huon (1998) refer to dieting as a necessary but insufficient condition for the development of an eating disorder, and they use the term "dieting-induced disorders" to emphasize this point. Previous research suggests a strong cross-sectional and longitudinal link between dieting and eating pathology among adolescent girls. For example, the results of the longitudinal investigation by French et al. (1995) suggested that baseline dieting status is related to eating disorder risk scores; frequent dieters obtained higher risk scores than intermittent dieters and nondieters. Frequent dieters also reported more unhealthy weight control behaviours such as vomiting and using diet pills. At 3-year follow-up, there was a significant differential increase in the use of these extreme dieting methods (e.g., vomiting, diet pills, etc.) in the frequent dieting group relative to intermittent and nondieters. However, overall eating disorder risk did not show significant differential change. Using a "weight concerns" measure containing items tapping dieting history, weight concerns, and body dissatisfaction, Killen et al. (1996) provided longitudinal

support for the link between these constructs and disordered eating. Specifically, they found baseline weight concern scores were predictive of the development of a partial syndrome eating disorder at the 4-year follow-up assessment. Killen et al. (1996) interpreted their findings as support for the social learning theory of eating disorders which emphasizes the risk posed by society's preoccupation with weight and shape. Researchers such as Taylor et al. (1998) stress the importance of obtaining a better understanding of factors predisposing girls to weight concerns.

(ii) Bingeing: Cross-sectional findings have supported the relationship between binge eating and dieting among adolescent samples (e.g., French et al., 1995; Stice et al., 1998). Stice et al. (1998) also found that bingeing was a significant prospective predictor of dieting, and contributed unique variance to the risk model. They interpreted this prospective relationship as support for the notion that dieting may be a response to bingeing for some, although they acknowledged that a reciprocal relationship is more probable.

(iii) Substance abuse: Cross-sectional studies by Killen et al. (1996), Shisslak et al. (1998), and French et al. (1995) have yielded findings that support the association between substance use and eating disturbance in adolescent girls. Alcohol consumption was not longitudinally related to eating disorder status in the Killen et al. (1996) study. However, the Leon et al. (1995) findings indicated that there was a differential increase between dieting groups in such behaviour at 3-year follow-up, such that frequent dieters demonstrated a greater increase in substance use scores compared to intermittent and nondieters (French et al., 1995). French et al (1995) interpreted this as support for the notion that "dieting is part of a constellation of unhealthy problem behaviours in

adolescents... the onset of which may be determined by a common set of social and environmental risk factors" (p.439).

D. Developmental. Leon et al. (1997) hypothesize that the salience of various eating disorder risk factors may change as girls pass through different developmental stages. The transition from elementary to middle school may represent a particularly high risk period for the onset of appearance-related problems due to the convergence of physical, sexual, psychological, and social changes (Shisslak et al., 1998). Pubertal timing is the developmental transition that has received the most research attention in relation to eating pathology. Although researchers speculate that early pubertal maturation and associated weight gain heighten eating disorder risk among adolescent girls, research findings have been mixed. Several cross-sectional studies have offered support for the association between early pubertal timing and poor body image (e.g., Alsaker, 1992; Blyth, Simmons, & Zakin, 1985; O'Dea & Abraham, 1999). O'Dea and Abraham (1999) discovered that postmenarcheal adolescent girls demonstrated increased body dissatisfaction and decreased self-esteem relative to their premenarcheal peers. Moreover, their findings suggest that high achieving, more anxious postmenarcheal girls are at highest risk for eating disturbances.

Early pubertal timing was not related to body dissatisfaction in the Levine, Smolak, Moodey, Shuman, and Hessen (1994) investigation. Some researchers suggest that maturational timing only plays a role in body image and eating concerns when experienced simultaneously with other developmental transitions, such as the onset of dating (Levine et al., 1994; Smolak, Levine, & Gralen, 1993). Findings from longitudinal studies, and cross-sectional investigations with samples of adolescent and young adult

women, suggest that the effects of pubertal timing on eating attitudes and behaviour do not extend beyond early adolescence (e.g., Gralen et al., 1990; Stormer & Thompson, 1996). Although level of pubertal development emerged as a significant cross-sectional and longitudinal predictor of disordered eating within the preadolescent sample studied by Keel et al. (1997), the direction of the relationship was opposite to the prediction. Early maturers obtained lower disordered eating scores than later maturers, and there appeared to be an interaction with BMI. Specifically, "relatively heavier girls at earlier stages of puberty were more likely to report attitudes and behaviours consistent with disordered eating one year later" (Keel et al., 1997, p.213).

II. Environmental

According to Smolak and Striegel-Moore (1996) the eating disorder field has traditionally overemphasized the role of the mother, and largely overlooked the influence of the father and peers. Most research reviewed in the following sections addresses the sources of social influence separately (i.e., media, parents, and peers). However, some researchers employed measures that assess general social pressure for thinness. For example, Stice et al. (1998) discovered significant positive cross-sectional (bivariate and multivariate) and longitudinal (trend) relationships between perceived social pressure and dieting in a sample of high school girls. Stice et al. (1998) speculated that the multivariate longitudinal significance of social pressure dropped out due to multicollinearity. Stormer and Thompson (1996) used a combined measure of parental and peer weight-related teasing, and discovered that a childhood history of such teasing was predictive of eating disturbances among young adult women.

A. Media. Levine, Smolak, and Hayden (1994) note that the majority of young adolescent girls in their study reported receiving clear messages from the media, peers, and family members emphasizing the importance and attainability of thinness. They found that increased reliance on fashion magazines for information about attractiveness and dieting strategies was associated with higher disordered eating scores (Levine et al., 1994). Cross-sectional research with preadolescent girls indicates that internalization of the thin-ideal is associated with increased weight concern (e.g., Taylor et al., 1998). Cross-sectional evidence also supports the positive relationship between exposure to thin-ideal media, thin-ideal internalization, and disordered eating among adolescent girls (e.g., Harrison, 2000; Stice et al., 1998; Taylor et al., 1998). Harrison (2000) reported that the strength of the association between exposure to thin-ideal media and disordered eating appears to increase with age during adolescence.

Stormer and Thompson (1996) stress that it is the internalization of the thin-ideal, rather than simply an awareness, that puts girls at risk for developing eating disturbances. Thompson and Stice (2001) note that the results of cross-sectional and longitudinal research supports internalization of the thin-ideal as a causal risk factor for the development of eating disturbances. Researchers are increasingly interested in factors influencing individual differences in susceptibility to thin-ideal internalization (Harrison, 2001; Thompson & Stice, 2001). They have attempted to determine which women are most vulnerable and/or resilient to media pressures for thinness (Berel & Irving, 1998), and which factors determine whether vulnerability is expressed in the form of normative discontent or a clinical eating disorder (Leon et al., 1997). Preliminary work by Stice (1994, cited in Berel & Irving, 1998) suggests that self-esteem and identity confusion

mediate between thin-ideal internalization and eating disturbances. Levine et al. (1994) reported confirmation of their hypothesis that adolescent girls' internalization of the thinness ideal is more likely than normative discontent to result in a clinical eating disturbance when it is combined with simultaneous developmental transitions (e.g., onset of puberty, dating, and academic pressures). Elevated body dissatisfaction appears to moderate the relationship between media pressure and disordered eating among young adult women (Young, McFatter, & Clopton, 2001).

In summary, there is strong evidence to suggest that internalization of the thin-ideal is a risk factor for eating disorders among preadolescent girls. Preliminary findings suggest that the impact of thin-ideal internalization may be mediated and/or moderated by other variables such as self-esteem, identity confusion, body dissatisfaction, and simultaneous developmental transitions.

B. Family.

(i) Parental pressures for thinness: Leon et al. (1997) state that family members, particularly mothers, may either reinforce or counteract the culturally promoted thinness ideal. This is supported by research findings suggesting that the family represents the primary source of information about dieting for preadolescent children (Schur, Saunders, & Steiner, 2000). Parents influence the eating attitudes and behaviours of their children by modelling weight concerns through their own behaviour, or directly encouraging their children to be thin. Preliminary evidence suggests parental pressure for thinness may be a more important predictor of adolescent disordered eating than the quality of these relationships (Vincent & McCabe, 2000).

Few researchers have examined the impact of parental modelling on the development of eating disturbances among preadolescent girls (Edmunds & Hill, 1999; Stice, Agras, & Hammer, 1999). However, preliminary findings suggest it may have a significant impact on the eating attitudes and behaviours of both preschool children (Stice et al., 1999) and preadolescent girls (Smolak, Levine, & Schermer, 1999). The results of the Stice et al. (1999) investigation indicated that maternal characteristics such as BMI, restraint, and drive for thinness predicted the onset of childhood disordered eating behaviours including secretive eating and overeating. Findings with adolescent girls generally suggest that negative parental eating attitudes and behaviour are cross-sectionally associated with increased disordered eating in their adolescent daughters (Levine et al., 1994; MacBrayer, Smith, McCarthy, Demos, & Simmons, 2001; Taylor et al., 1998; Wertheim, Virginia, & Paxton, 1999). However, the results of several studies do not support the significance of this relationship (Pike, 1995; Thelen & Cormier, 1995).

The adverse impact of direct parental pressure for thinness on the eating attitudes and behaviours of both preadolescent and adolescent girls is well documented (e.g., Levine, et al., 1994; Smolak, et al., 1999; Thelen & Cormier, 1995; Wertheim, Mee, & Paxton, 1999). Moreover, direct parental pressure for thinness appears to be associated with disordered eating regardless of the daughter's actual weight (Wertheim et al., 1999). Direct parental encouragement to lose weight appears to be a more powerful predictor than parental modelling of weight concerns for both preadolescent (Smolak, Levine, & Schermer, 1999) and adolescent girls (Wertheim et al., 1999). Other researchers have focussed on the impact of weight/shape-related teasing by family members on the eating attitudes and behaviours of adolescent girls (e.g., Levine, et al., 1994; MacBrayer, Smith,

McCarthy, Demon, & Simmons, 2001). Results of these studies suggest that increased family weight/shape teasing is associated with increased disordered eating among adolescents.

Edmunds and Hill (1999) speculate that parents also influence their children's eating attitudes and behaviours in more subtle ways. In order to test this hypothesis, they divided their sample of preadolescent and adolescent girls into a highly restrained group and a nonrestrained group. They discovered that increased dietary restraint in the girls was significantly positively related to perceived parental control (e.g., parents discouraged eating between meals, eating too much, and eating sweets). They interpreted this finding as support for the notion that parental overcontrol is associated with impaired self-regulation in girls, and subsequent potential for weight gain.

In summary, empirical findings suggest that parental modelling of disordered eating attitudes and behaviour may be a risk factor for the development of eating disturbances among preadolescent girls. There is strong evidence to suggest that direct parental pressure for thinness has an adverse impact on the eating attitudes and behaviours of preadolescent girls.

(ii) Family functioning: Researchers have assessed many dimensions of family dysfunction in relation to the development of eating pathology (Connors, 1996). These dimensions have included: cohesiveness, support for autonomy, expressiveness, organization, conflict/hostility, achievement expectations, parental psychopathology (eating and affective), and familial psychopathology. Previous research has generally suggested that eating disordered families tend to function less well in each of these areas compared to controls, with the exception of inconclusive findings regarding the impact of

family organization and achievement expectations (Connors, 1996). However, much of this literature is flawed by methodological problems (Rodin et al., 1992). It has been particularly difficult to ascertain whether identified patterns of family dysfunction are specific to eating disorders, or predictive of general psychological distress (Connors, 1996).

Limited data is available regarding the relationship between family dysfunction and disordered eating among preadolescent girls. However, some evidence suggests that perceived parent relationships characterized by low warmth, high overprotection, and poor communication are associated with increased eating pathology in adolescent girls (e.g., Lattimore & Butterworth, 1999; Neumark-Sztainer, Story, Hannan, Beuhring, & Resnick, 2000). Classic studies by Humphrey (1987; 1989) provide self-report and observational data suggesting that the families of adolescents with eating disorders are more hostile, enmeshed, and less supportive of their daughter's autonomy. Mothers of adolescent girls with eating disorders report less satisfaction with the family climate than did mothers of control subjects (Pike & Rodin, 1991). Research findings with young adult women consistently support the positive relationship between parenting that is perceived to be low in warmth and high in overprotection and disordered eating in daughters (e.g., Bulik, Sullivan, Fear, & Pickering, 2000; Calam, Waller, Slade, & Newton, 1990; Haudek, Rorty, & Henker, 1999; Romans, Gendall, Martin, & Mullen, 2001).

The results of several studies challenge the presumed strength of the relationship between parenting quality, general family dysfunction, and adolescent eating disturbances. Pike's (1995) findings suggest that general family functioning is less predictive of disordered eating than a family history of eating pathology. Castro, Toro,

and Cruz (2000) failed to find significant differences in perceived parenting quality between the group of adolescent participants with anorexia nervosa and normal controls. Differences were found between participants with anorexia who demonstrated good short-term outcomes compared to those with poor outcomes. Specifically, those with poor outcomes perceived more rejection and overcontrol from parents than those with good outcomes.

Researchers have sought to better understand the mechanisms of influence of family dysfunction on disordered eating outcomes in adolescent girls. A study by Head and Williamson (1990) suggests that the effect of family characteristics (i.e., high conflict, restriction, and achievement orientation) on disordered eating outcomes may be mediated by child personality traits such as neuroticism, introversion, and perfectionism. Researchers have theorized that highly critical families may increase the likelihood that girls will seek approval by losing weight, and that girls from chaotic or enmeshed families may seek control through restricting their eating (Leon et al., 1997).

In summary, studies with adolescents and young adult women indicate that family characteristics such as low warmth, high overprotection, high conflict, and high achievement orientation may be risk factors for disordered eating among preadolescents. Preliminary evidence suggests that this relationship may be direct or indirect (i.e., mediated by child personality characteristics such as negative emotionality). Additional research is required to determine whether family dysfunction is best conceptualized as a specific or nonspecific risk factor.

C. Peers.

(i) Peer pressures for thinness: Peers become increasingly influential as children enter adolescence, and the strength of their influence has been consistently demonstrated in the literature on teenage alcohol, drug, and tobacco use (Shisslak et al., 1998). Despite the potential importance of this source of social pressure on eating attitudes and behaviours, peer group influences have been underresearched (Rodin et al., 1992; Smolak & Striegel-Moore, 1996). Similar to parental mechanisms of influence, peer pressure for thinness is typically chanelled through modelling, or direct communication of weight-related pressure (Lieberman, Gauvin, Bukowski, & White, 2001). Preliminary evidence suggests that peer pressure for thinness is a more important predictor of adolescent disordered eating outcomes than the quality of peer relationships (Vincent & McCabe, 2000).

Several studies have found that the extent to which peers are perceived as valuing thinness and endorsing weight control behaviours is cross-sectionally related to weight concerns in preadolescent girls (e.g., Shisslak et al., 1998; Taylor et al., 1998). In their 1998 cross-sectional investigation, Taylor et al. found that weight-related teasing by peers was significant at the univariate level, but not the multivariate level, for the preadolescent group. However, it was significantly associated with weight concerns at both univariate and multivariate levels among the adolescent sample. These findings are consistent with robust cross-sectional evidence supporting the positive relationship between peer pressure for thinness and disordered eating among adolescents (e.g., Lieberman, et al., 2001; Levine et al., 1994; Paxton, Schutz, Wertheim, & Muir, 1999; Pike, 1995, Shisslak et al., 1998; Taylor et al., 1998; Vincent & McCabe, 2000). Using an innovative design, Paxton

et al. (1999) discovered that similarity was greater within than between adolescent friendship cliques for various dimensions of disordered eating attitudes and behaviour.

The results of longitudinal investigations suggest weight-related teasing by peers is prospectively predictive of disordered eating among adolescents (e.g., Thompson et al., 1995). Moreover, the Thompson et al. (1995) findings indicated that peer weight-related teasing mediated the relationship between increased BMI and disordered eating outcomes. The Lieberman et al. (2001) investigation provides information about the specific aspects of peer relationships that adversely impact adolescent eating attitudes and behaviour. Results indicated that high externalized self-perceptions, weight-related teasing by peers, and attributions about the importance of weight and shape for popularity and dating were important predictors of disordered eating.

In summary, there is moderate evidence to suggest that peer pressure for thinness is a risk factor for disordered eating among preadolescent girls, and strong evidence for its impact on adolescent girls. Additional research is required to determine whether peer influences on disordered eating are more important for adolescents than preadolescents, as predicted by developmental theory (Shisslak et al., 1998).

(ii) Peer support/social skills: Relatively few researchers have explored the impact of impaired peer relationships on the development of eating disturbances (Pike, 1995), particularly among preadolescents. A cross-sectional study by Pike (1995) suggests that difficulty expressing disagreement with peers is significantly positively associated with bulimic symptoms among adolescent girls. Pike (1995) notes that difficulty negotiating conflict with peers appears more important than some family variables. Mueller et al. (1995) reported an inverse relationship between eating concerns and perceived social

support in their adolescent sample. Research with young adult women has yielded mixed findings regarding the relationship between perceived peer support and disordered eating. For example, increased disordered eating was associated with increased dissatisfaction with the quality of peer relationships in a study by Rorty, Yager, Buckwalter, and Rossotto (1999). However, Ghaderi and Scott (1999) found perceived support from family to be associated with an eating disorder diagnosis, whereas perceived support from friends was not.

There is moderate evidence suggesting that social skills deficits and low perceived peer support are risk factors for eating disturbances among adolescent girls, and findings among adult samples have been mixed. The role of these dimensions of peer relationships warrants further investigation among preadolescents.

D. Adverse life events. Researchers interested in the relationship between childhood adversity and eating disorders have traditionally focused on childhood sexual abuse (Troop & Treasure, 1997). Connors (2001) notes that few researchers have specifically examined the link between child sexual abuse and eating disturbance during childhood or adolescence. However, the existing literature suggests a history of either physical or sexual abuse is a nonspecific risk factor for the development of disordered eating during adolescence or adulthood (e.g., Neumark-Sztainer, et al., 2000). Connors (2001) maintains that the relationship between eating disorders and child sexual abuse is likely moderated by such variables as parental support and family functioning.

Recent research has examined a broader range of adverse life events (e.g., parental neglect, divorce, poverty). Findings regarding the relationship between broadly defined childhood adversity and disordered eating are mixed. Johnson, Cohen, Kasen, and Brook

(2002) provide longitudinal data suggesting childhood adversity is predictive of disordered eating during adolescence. Other researchers such as Sharpe, Ryst, Hinshaw, and Steiner (1997) have failed to find differences between eating disorder and control groups in terms of their history of adverse life events. Troop and Treasure (1997) draw the following conclusions regarding previous adversity and eating disorder research: (1) childhood adversity appears more common among women with eating disorders than those without eating disorders, (2) women with BN may experience higher rates of childhood adversity than those with AN, and (3) the rates of childhood adversity among women with eating disorders do not seem to differ significantly from those with other psychiatric disorders.

The results of a cross-sectional study by Shisslak et al. (1998) revealed that the interaction between divorce and BMI was associated with higher weight control behaviour scores among preadolescent girls. The interaction between divorce and father's pressure to be thin was significantly related to weight concerns in the adolescent sample. Together these findings suggest that heavier preadolescent girls, and adolescent girls who perceive greater pressure for thinness from their fathers, are more vulnerable to divorce-related stress (Shisslak et al., 1998).

In summary, adverse life events may represent a risk factor for eating disturbances among preadolescent girls, particularly when experienced simultaneously with other risk conditions. In general, adverse life events appear to be nonspecific rather than specific risk factors.

III. Multivariate Findings

(i) Preadolescent findings. The previously reviewed univariate findings highlight risk factors for disordered eating in preadolescent girls that operate at the personal, social, and cultural levels. Several researchers have subjected such variables to multivariate analyses in order to establish their relative importance (e.g., Keel et al., 1997; Shisslak et al., 1998; Taylor et al., 1998). Taylor et al (1998) employed a cross-sectional design, and found that the following variables were significantly related to preadolescent weight concerns in order of decreasing importance: increased perceived importance peers place on weight, increased trying to look like media images, and increased BMI. Shisslak et al. (1998) examined predictors of weight control behaviour among elementary school girls using stepwise regression analyses. The following cross-sectional predictors emerged as significant while controlling for demographic variables: increased BMI, decreased self-confidence, increased sensitivity to weight-related peer pressure, and the interaction between BMI and divorce. Keel et al. (1997) identified the following cross-sectional predictors of disordered eating among preadolescent girls in decreasing order of importance: increased BMI, later puberty, increased BD, and increased depression. They also discovered that baseline BMI and pubertal development scores predicted disordered eating at one-year follow-up.

(ii) Adolescent findings. Researchers have also attempted to determine the relative contribution of various risk factors to disordered eating in adolescent girls (e.g., McVey, Pepler, Davis, Flett, Abdolell, 2002; Shisslak et al., 1998; Stice & Agras, 1998; Stice et al., 1998; Stice, Presnell, & Spangler, 2002; Taylor et al., 1998). Variables emerging as significant cross-sectional predictors of disordered eating in the following studies are

generally listed in order of decreasing importance. McVey et al. (2002) discovered that the following variables were significant multivariate predictors of disordered eating among a sample of young adolescent girls: low competence in physical appearance, high importance of social acceptance, high self-oriented perfectionism, and low paternal support. Taylor et al. (1998) reported that the following variables were significantly related to weight concerns at the multivariate level in their sample of young adolescent girls: increased peer emphasis on thinness, decreased confidence, increased BMI, increased thin-ideal internalization, and increased weight-related teasing. Significant predictors in the Shisslak et al. (1998) study included: increased body dissatisfaction, divorce, increased sensitivity to weight-related peer pressure, increased substance use, increased BMI, and the interaction between divorce and father's pressure to be thin. Univariate and multivariate analyses identified the following variables as predictors of dieting behaviour during late adolescence: increased body dissatisfaction, increased perceived social pressure to be thin, and increased internalization of the thin-ideal (Stice et al., 1998).

The results of several longitudinal investigations provide information about the relative importance of various prospective predictors of disordered eating (e.g., Stice & Agras, 1998; Stice et al., 1998; Stice et al., 2002). The most important longitudinal predictor of dieting behaviour in the Stice et al. (1998) investigation was binge eating, and there was a trend towards significance for body dissatisfaction. Stice and Agras (1998) identified the following prospective predictors of the onset of bulimic behaviour during late adolescence: greater baseline perceived social pressure to be thin, increased thin-ideal internalization, increased body dissatisfaction, elevated initial dieting, and

increased depression. They interpret the finding that dieting predicted the onset of both bingeing and purging as support for the notion that dieting is a precursor to BN. The connection between depression and disordered eating suggests that girls engage in bingeing and purging in order to regulate negative affect (Stice & Agras, 1998). Stice et al. (2002) discovered that the following variables prospectively predicted binge eating behaviour with 92% accuracy: elevated dieting, pressure to be thin, modeling of eating disturbances, appearance overvaluation, body dissatisfaction, depressive symptoms, emotional eating, body mass, low self-esteem, and low social support. Moreover, they identified several different risk pathways to binge eating outcomes.

Summary and integration. Several variables appear to be related to disordered eating among preadolescent girls across studies. These include increased BMI, increased peer pressure for thinness, increased internalization of the thin-ideal, and decreased self-self-esteem. For adolescent girls, the findings converge to suggest that the following risk factors are the most salient: increased social pressure for thinness (particularly peer), increased body dissatisfaction, increased internalization of the thin-ideal, and increased BMI. Other variables that have received some support within this age group include increased dieting behaviour, increased bingeing, increased depression, decreased self-esteem, increased externalized self-perceptions, increased self-oriented perfectionism, decreased social support, and parental divorce. Furthermore, the longitudinal designs used by some researchers suggest that increased BMI, body dissatisfaction, bingeing and dieting behaviour, decreased self-esteem, perceived social pressures for thinness, thin-ideal internalization, and depression precede the onset of eating disturbances.

There is considerable overlap between the patterns of risk factors for preadolescent and adolescent girls. Findings to date strongly support a multifactorial (e.g., biopsychosocial model) approach to the study of eating disorder risk. The robust influence of peers on the eating attitudes and behaviours of both preadolescent and adolescent girls is striking. However, multicollinearity makes it difficult to interpret multivariate findings, particularly in the case of longitudinal studies. Although variables such as body dissatisfaction and dieting emerge as significant prospective predictors, it is unclear whether they represent risk factors for the onset of the disorder, or indications that the "disease process" has already begun. Preliminary evidence supports the prospective role of such non-symptom risk factors as increased depression, decreased self-esteem, thin-ideal internalization, and social pressures for thinness. Fewer eating disorder risk factors have been identified for preadolescent girls compared with adolescent girls, therefore this is an important area for future research.

The preadolescent and adolescent risk models also differ in some respects. Findings suggest that the emphasis of young girls on concrete aspects of their bodies (e.g., BMI, pubertal development) may be usurped by abstract conceptions of self (e.g., body image) as they grow older (e.g., Keel et al., 1997; Shisslak et al., 1998; Stice & Agras, 1998). Such findings are congruent with speculation that there may be developmental differences in eating disorder risk factor patterns (Stice & Agras, 1998).

Protective Factors

Despite the large body of literature that has accumulated about risk factors in the development of eating disturbances, very little is known about protective factors (e.g., Rodin et al., 1992; Taylor et al., 1998). Similarly, Stice and Agras (1998) had difficulty

identifying potential predictors of the cessation of disordered eating behaviour because most of the literature focuses on etiological factors. The following section will review preliminary theoretical and empirical evidence for the role of various individual and environmental factors in the protection of girls and women against the development of disordered eating attitudes and behaviours. It is possible that the opposite pole of many of the previously discussed eating disorder risk factors may exert protective influences.

I. Intraindividual

A. Physical. Connors (1996) believes that for high-risk girls, the most important protective factor against body dissatisfaction is likely a genetic predisposition towards slenderness. Connors (1996) stresses that these girls "would not be protected against psychopathology in general, but are unlikely to develop eating disorders" (p.303).

B. Psychological.

(i) Body Dissatisfaction (BD): Several researchers have theorized that a positive body image may protect girls against the development of eating disturbances (e.g., Connors, 1996). This is supported by cross-sectional findings that physical appearance concerns were inversely correlated with dietary restraint in a sample of early adolescent girls (Edmunds & Hill, 1999). Other studies have provided some support for the protective role of positive body image. For example, Chandy, Harris, Blum, and Resnick (1994) divided adolescents whose parents misused substances into two groups: those that endorsed 3 or more unhealthy weight control behaviours, and those that reported none. They discovered that parental alcohol misuse was a risk factor for eating problems, whereas a positive body image appeared to be protective. In a longitudinal study by Stice and Agras (1998), decreased body dissatisfaction was a significant predictor of the

cessation of purgeing behaviours in adolescent girls. They concluded that girls who are relatively content with their bodies may be more likely to stop purgeing.

(ii) Self-esteem: The results of several cross-sectional investigations suggest that self-esteem and self-confidence are negatively correlated with disordered eating among preadolescent (e.g., Shisslak et al., 1998) and adolescent girls (e.g., Edmunds & Hill, 1999; Taylor et al., 1998). Moreover, the results of a study by French et al. (2001) indicated that variables related to "positive identity" were the strongest discriminators between participants engaging in dieting behaviour and those with clinical eating pathology. They concluded that personal characteristics such as self-esteem, sense of purpose, and values related to abstinence from alcohol and sex appear to be protective against disordered eating, as well as other health risk behaviours.

(iii) Coping: Limited data are available regarding the potentially protective role of adaptive coping against the development of eating disturbances in preadolescent or adolescent girls. However, Phelps et al. (1999) note that variables such as self-esteem and adaptive coping are of particular interest to eating disorder prevention researchers because they can be effectively taught and increased. The results of a retrospective study by Troop and Treasure (1997) suggest that a mastery versus helplessness childhood coping orientation may represent a protective factor against the development of eating disorders. These findings are discussed in more detail in a later section regarding integrated risk and protective factor models. Findings regarding the role of problem-focussed coping and disordered eating among young adult women have been mixed. Several studies suggest that cognitive-behavioural coping is inversely related to disordered eating (e.g., Mayhew & Edelmann, 1989), but in other studies this relationship

has failed to reach significance (e.g., Denisoff & Endler, 2000; Showers & Larson, 1999). The results of the Ghaderi and Scott (2000) investigation suggest that adaptive coping (i.e., social assistance seeking and purposeful problem-solving) is inversely related to eating pathology, but it may represent a general versus specific protective factor.

Childhood psychopathology resilience researchers often include references to optimism and positive attributional styles in their discussion of the protective role of adaptive coping (Cowen et al., 1997). Few researchers have examined the relationship between positive attributional styles and disordered eating among children and adolescents. However, preliminary findings with young adult women suggest that dysfunctional attributional styles are associated with disordered eating (e.g., Mansfield & Wade, 2000). Therefore, the influence of positive attributional styles on eating disturbances among preadolescent girls warrants exploration.

(iv) Personality traits: Researchers have theorized that the opposite poles of personality-related risk factors such as high social-approval seeking, low assertiveness, and negative emotionality may be protective against the development of eating disturbances (Leon et al., 1997; Rodin et al., 1992).

(v) Autonomy: The results of several studies suggest that increased autonomy is an important protective factor against the development of eating disturbances among adolescent girls (Lattimore & Butterworth, 1999; Muir, Wertheim, & Paxton, 1999; Strong & Huon, 1998). For example, Muir et al. (1999) found that the most common reason for not dieting among participants who considered dieting was "didn't want to be pressured to do something she didn't want to do". It also appears that increased autonomy mediates the relationship between social pressures for thinness on disordered eating

outcomes. Findings suggest that parenting styles characterized by high warmth and low overprotection may encourage the development of increased adolescent autonomy (Strong & Huon, 1998). Retrospective findings suggest that the ability to successfully navigate the tension between autonomy and relatedness during adolescence is an important predictor of recovery from an eating disorder during the young adult years (Hesse-Beiber, Marino, & Watts, 1999). Hesse-Beiber et al. (1999) discovered that several factors appear to influence this negotiation: (1) a chronic abuse history, and (2) parental messages about food, weight, and autonomy. Other research with young adult women suggests that the protective influence of increased autonomy on disordered eating is mediated by its impact on self-esteem (Frederick & Grow, 1996).

(vi) Attachment: Based on their findings that insecure attachment is associated with increased eating pathology in preadolescent girls, Sharpe et al. (1998) theorized that secure attachment may play a protective role.

C. Behavioural. In the longitudinal study by Stice and Agras (1998), lower dieting scores predicted the cessation of purgeing behaviour in a sample of adolescent girls.

Summary. The protective role of self-esteem against the development of eating disorders has been supported empirically with preadolescent and adolescent samples. Positive body image, increased autonomy, and decreased dieting have garnered empirical support as protective factors for adolescent girls. Research with young adult women suggests that adaptive coping (e.g., mastery vs helplessness; cognitive-behavioural) and positive attributional styles are inversely associated with disordered eating. Therefore, the possibility that they play a protective role against eating disturbances for preadolescent girls warrants investigation. There is theoretical support for the protective role of such

personality characteristics as assertiveness and positive emotionality, as well as a secure attachment style.

II. Environmental

A. Media

(i) Internalization thin-ideal: Researchers have speculated that it is not awareness of, but internalization of the thin-ideal that heightens eating disorder risk in adolescent girls (e.g., Rodin et al., 1992). Conversely, decreased internalization of the thin-ideal may protect against the onset of eating disturbances. Rodin et al. (1992) observe that:

> "A developmental process that enables women to find their own voice will allow them to form more moderate personal goals regarding thinness and success, and thus serve a protective function" (p.369).

Preliminary empirical support for this notion was provided by Stice and Agras (1998), whose longitudinal findings indicated that lower thin-ideal internalization predicted the cessation of bingeing behaviour in a sample of adolescent girls.

(ii) Subcultures: Rodin et al. (1992) explain that it is possible for certain professions that focus on the body as an agent rather than an aesthetic object to decrease the likelihood women will be preoccupied about their weight. Preliminary empirical findings by Zucker, Womble, Williamson, and Perrin (1999) support this theory. They compared three groups of college women: judged sport students (i.e., sports in which physical appearance influences performance evaluation such as diving and gymnastics), refereed sport students (i.e., sports in which physical appearance has no influence on performance evaluation such as tennis and basketball), and nonathletic students. Results

indicated that the refereed sport group obtained significantly lower scores on measures of overconcern with body size and shape than the judged sport and nonathletic groups.

B. Family. The bulk of research attention has been devoted to determining how parents amplify societal pressures for thinness, but they may also counteract such pressure, particularly if they are made aware of its harmful impact (Leon et al., 1997; Rodin et al., 1992). Because the results of the Schur et al. (2000) investigation suggest the family is an important source of information about dieting for preadolescent children, they speculate that the family can play a critical role in fostering healthy eating attitudes and behaviour. Gross and Nelson (2000) offered preliminary empirical evidence to support the notion that positive parental messages about weight and eating are protective. Specifically, they discovered that young adult women with lower levels of disordered eating perceived that their mothers communicated positive verbal messages about weight and eating.

Researchers investigating the impact of family dysfunction on disordered eating outcomes speculate that strong familial relationships may decrease the risk for disordered eating among high-risk youth (Neumark-Sztainer et al., 2000). McVey et al. (2002) offered preliminary support for the protective role of paternal support against the development of eating disturbances in young adolescent girls. Specifically, increased paternal support was associated with decreased disordered eating among those participants who were considered "at-risk" due to a history of school-related adversity. Smolak and Striegel-Moore (1996) note that the developmental literature suggests that supportive versus achievement parenting may produce children who are less socially self-conscious. Extrapolating from these findings, they theorize that such parenting may be an

indirect protective factor against eating disturbances such that its influence is mediated by social self-consciousness.

C. Peers. Stress and social support researchers have demonstrated that social support appears to buffer against the impact of stressful life events in adults (Cohen & Wills, 1985, cited in Ghaderi & Scott, 1999). Several researchers have speculated that peer support may be a protective factor against the development of eating disturbances, however this remains an under-researched area (Rodin et al., 1992; Smolak & Striegel-Moore, 1996; Taylor et al., 1998). Rodin et al. (1992) suggest that supportive peer relationships may exert a protective influence by modeling healthy eating attitudes and behaviours, or by "satisfying needs that might otherwise be displaced to food" (p.367).

Healthy peer group attitudes towards weight and eating may also exert a protective influence. For example, Muir et al. (1999) found one of the most common reasons for not dieting among adolescent participants who considered dieting was feeling accepted by others (i.e., "friends told her she doesn't need to diet").

Summary. Despite considerable theorizing regarding the potential protective influence of environmental forces such as media, parents, and peers, there has been little empirical work in this area. The most promising environmental influences include peer and parental modelling of healthy eating attitudes and behaviours, decreased internalization of the thin-ideal, supportive parental and peer relationships, and involvement in strength-oriented athletic subcultures.

Evaluation of Risk and Protective Models

I. Dual Pathway Model

Numerous multivariate etiological models have been proposed in an attempt to explain how the previously discussed individual risk and protective factors combine to produce eating pathology (Stice, 2001). The dual pathway model of bulimia nervosa was presented by Stice (1994), and it resembles the two-component model previously developed by Garner and colleagues (1984, cited in Pike, 1995). The dual pathway model proposes that there are two pathways from body dissatisfaction to bulimia nervosa; one via internalization of the thin-ideal and dietary restraint, and the other via negative affectivity (Thompson & Smolak, 2001). Stice (2001) notes that although each of the predictors of the model has gained prospective empirical support, temporal precedence has yet to be established.

According to the dual pathway model, risk factors can be divided into those that are specific to eating disorders, and those that predict general psychological distress (Thompson & Smolak, 2001). The presence of both general and specific risk factors is required for the development of eating pathology (Fairburn, Welch, Doll, Davies, & O'Connor, 1997). Numerous studies have been conducted to identify specific and nonspecific risk factors related to eating pathology (e.g., Fairburn, et al., 1997; Pike, 1995; Steiger, Leung, Puentes-Neuman, & Gottheil, 1992). Findings have supported the following risk/protective factors as specific to eating pathology: parental expectations, parental pressures for thinness, childhood obesity, self-esteem, self-efficacy, and dieting. General risk/protective factors include family dysfunction, poor social support, poor social skills, history of adverse life events, etc. Although most of this research was

conducted with adolescent girls and young adult women, it seems likely that the dual pathway model would also explain the development of eating pathology in preadolescents.

II. Mediators of Social Pressures for Thinness on Disordered Eating Outcomes

Mediational role of body image. Several researchers have tested integrated risk and protective factor models to identify mediators of social pressures for thinness on disordered eating outcomes among preadolescent and adolescent girls. The model tested by Veron-Guidry et al. (1997) predicts that the effects of social pressure for thinness, self-esteem, depression, and pubertal timing on disordered eating outcomes are mediated by body dissatisfaction. Their study was conducted with a sample of preadolescent girls, and they discovered pubertal timing was not significantly related to either body dissatisfaction or disordered eating. They speculated that these results were unreliable due to the small percentage of post-menarcheal participants (Veron-Guidry et al., 1997). Structural Equation Modelling (SEM) findings suggested that there was an adequate fit between the data and the model, and that social pressure clearly exerted an influence on eating disturbance via body dissatisfaction. Although depression and self-esteem were significantly correlated with both body dissatisfaction and disordered eating, their paths through body dissatisfaction were not significant, which may have been a function of multicollinearity (Veron-Guidry et al., 1997). Veron-Guidry et al. (1997) concluded that body image disturbance is a critical and proximal risk variable for eating disorders.

The Veron-Guidry et al. (1997) model is similar to that proposed by Thompson and colleagues (1995). However, Thompson et al. (1995) were interested in a particular type of social pressure for thinness, that is, a history of weight-related teasing. Using an

adolescent sample, they discovered that overweight status had no independent effect on disordered eating, its effect was entirely mediated by a history of weight-related teasing. In addition, the influence of weight-related teasing on disordered eating outcomes was partially mediated by body dissatisfaction.

Mediational role of adolescent autonomy. Strong and Huon's (1998) model predicts that the level of "protective traits and skills" possessed by the individual mediates the impact of social pressures for thinness on dieting behaviour. The protective traits in their model include different aspects of autonomy (i.e., conformity disposition, individualism, self-reliance, and locus of control), and the protective skills include interpersonal conflict negotiation and social self-efficacy. These protective variables are predicted to be heavily influenced by family variables, such as parenting style (i.e., care and overprotection). They evaluated their model using a sample of adolescent girls, and path analysis results suggested that a parental style characterized by low care and high overprotection was associated with decreased adolescent autonomy. Decreased autonomy was linked to increased perceived parental pressure to diet, and increased dieting behaviour. Contrary to expectations, perceived peer pressure to diet did not emerge as a significant predictor of dieting behaviour. However, in an extension of this study, Lattimore and Butterworth (1999) discovered that both parental and peer pressure influenced dietary restraint in adolescents, and that the impact of global family functioning was mediated by individual autonomy. Cumulatively, these studies highlight potential individual (i.e., autonomy) and family processes (i.e., high parental nurturing, low parental overprotection) that may contribute to resilience against social pressures for thinness.

Twamley and Davis (1999) evaluated personal and environmental characteristics mediating the impact of the thin-ideal on disordered eating outcomes among young adult women. They were specifically interested in potentially protective personality (i.e., nonconformity, gender role, feminism, control attributions regarding weight and shape, self-esteem) and environmental characteristics (i.e., family and peer influences). Consistent with previous research, they discovered that internalization of the thin-ideal mediated the relationship between exposure to thinness norms and disordered eating outcomes. They identified several personal and environmental characteristics that appear to moderate relationships between thinness norms and disordered eating: nonconformity, self-esteem, ideal shape, and family pressures for thinness. Moreover, their findings suggest that high nonconformity and low family pressures for thinness may be protective against the internalization of the thin-ideal despite exposure to thinness norms. High self-esteem may be protective against the development of clinical eating pathology among those at risk due to elevated body dissatisfaction.

The problem of multicollinearity. Unfortunately, the results of some studies designed to identify risk and protective factors for disordered eating have been difficult to interpret due to problems of multicollinearity. For example, Stice et al. (1998) theorized that disordered eating results from a combination of elevated BMI, perceived social pressure to be thin, internalization of the thin ideal, and body dissatisfaction. They tested this theory using a longitudinal design to determine whether the previously mentioned set of variables predicted dieting behaviours in adolescents. They discovered that each variable was positively correlated with dieting behaviour, and that BMI, pressure to be thin, body dissatisfaction and binge eating prospectively predicted dieting over a 9-month

period at the univariate level. The total model accounted for significant variance in dieting scores. However, only a few variables demonstrated significant unique effects at the multivariate level (i.e., binge eating and body dissatisfaction). They concluded that "the risk factors are related in a complex mediational process that results in multicollinearity" (p.201).

Summary. This section reviewed studies testing models regarding the interplay between risk and protective factors that mediate the influence of sociocultural pressures for thinness on disordered eating outcomes. Preadolescent findings suggest that the adverse impact of social pressure for thinness on disordered eating is mediated by body dissatisfaction. Research with adolescents and young adults suggests that increased autonomy and self-esteem buffer social pressures for thinness, and these potentially protective factors deserve further study with preadolescents. Similarly, the possibility that parenting high in support and low in overprotection exerts a protective influence on eating outcomes, and that its effect is mediated by child autonomy, deserves to be investigated with preadolescents.

III. Personality Vulnerabilities

Researchers have hypothesized that "personality and possibly temperamental factors are significant variables in differentiating between 'normative' dieters and those exhibiting more serious disordered eating patterns" (Leon et al., 1995, p.141). Leon et al. (1995) theorize that a personality/ temperamental vulnerability to psychopathology (e.g., low interoceptive awareness, high stress reactivity, high negative emotionality) coupled with societal pressure for thinness and body dissatisfaction often leads to disordered

eating. They have tested this model using a series of longitudinal investigations with adolescent girls (Leon et al., 1995; Leon et al., 1997). Leon et al. (1995) reported that baseline eating pathology scores were the most robust predictors of eating pathology scores at follow-up. Low interoceptive awareness, negative affect, and self-esteem were prospectively predictive personality variables (Leon et al., 1995; Leon et al., 1997).

Based on these findings, they speculated that negative affect exerts a stronger influence on disordered eating outcomes than family process, pubertal timing, or health behaviour variables (Leon et al., 1997). Moreover:

> The fact that the strongest predictors were previous risk scores suggests that when disordered eating becomes a strong pattern, these habits override individual or group differences in personality, behavioral, and attitudinal factors (Leon et al., 1995, p.147).

Because previously mentioned personality variables (interoceptive awareness, negative affectivity, self-esteem) have been established as potential causal risk/protective factors with adolescents, they warrant further exploration among preadolescents. The possibility that they mediate the impact of social pressures for thinness should also be investigated.

IV. The Protective Role of Adaptive Coping

General childhood psychopathology researchers have identified adaptive coping as an important protective factor for high-risk children (Masten, 2001). Although few researchers have examined the potentially protective role of adaptive coping against disordered eating outcomes, the results of a retrospective study by Troop and Treasure (1997) provide preliminary support. Their sample of young adult women was divided into

an eating disorder group and a control group. Both groups reported equally high levels of childhood adversity. As predicted, childhood helplessness was more frequent among women with a history of an eating disorder, and childhood mastery was more frequent among those without an eating disorder. Troop and Treasure (1997) speculate about the mechanisms by which childhood helplessness and mastery either exacerbate or buffer adult eating disorder risk. They suggest that the experience of successful or unsuccessful coping during childhood may become internalized as self-efficacy beliefs. Troop & Treasure (1997) conclude:

> There is a high rate of childhood helplessness and a lower rate of childhood mastery in women who develop eating disorders. Thus, it is not simply the presence of adverse experiences in childhood that is of aetiological importance in eating disorders but how these are negotiated (p.537).

In summary, Troop and Treasure (1997) offer findings that suggest that adaptive coping may moderate the effect of adversity on disordered eating outcomes. The coping style they referred to as "mastery" appears similar to the "problem-focussed" coping style. Although cumulative findings regarding the relationship between problem-focussed coping and disordered eating among young adult women have been mixed, the possibility that it represents a protective factor against eating disturbances among preadolescent girls warrants exploration.

Summary

Previous eating disorder risk/protection models have made a significant contribution to our understanding of the complex processes influencing movement in either direction along the disordered eating spectrum. The dual pathway model highlights

the important role of both specific and nonspecific risk/protective factors in determining disordered eating outcomes. Models evaluating the risk/protective factors that mediate the influence of social pressures for thinness suggest that child characteristics, such as increased autonomy, buffer against disordered eating outcomes. The potentially important risk/protective role of adaptive coping and certain personality characteristics (e.g., interoceptive awareness, negative and positive emotionality, self-esteem) was also highlighted. Researchers have also begun to identify familial processes which influence the development of such protective child characteristics (e.g., parental support of autonomy; emotionally responsive parenting). Evidence suggests the impact of risk/protective factors on clinical eating pathology is mediated by body dissatisfaction.

Implications of Previous Research for the Present Study

Theoretical Implications

The childhood psychopathology resilience literature has the potential to enrich the eating disorder field in many ways. On a theoretical level, it has challenged eating disorder researchers to expand their interest in risk/pathology to include protection/resilience (Crago et al., 2001). Resilience researchers have discovered that risk/protective variables often affect developmental outcomes in a "bipolar" fashion, such that risk and protection represent opposite ends of the same dimension. Moreover, they likely exert their influence on developmental outcomes in direct, indirect, and interactional ways (Masten, 2001). It is possible that eating disorder risk/protective factors will behave in a similar fashion. According to Cargo et al. (2001), both general and specific eating disorder risk/protective factors contribute to disordered eating outcomes. Developmental psychopathologists emphasize the continued use of eating

disorder models that are multivariate (i.e., biopsychosocial). They stress the importance of identifying the childhood predictors of vulnerability and resilience, and they also encourage research regarding the environmental conditions fostering child risk/protective characteristics.

Resilience researchers have struggled to standardize the operational definition of resilience, and this may be a particularly difficult task with regard to eating pathology. Defining the adversity component of the resilience definition is difficult because, according to Leung et al. (1996), many of the strongest predictors of disordered eating are both precursors and symptoms. Moreover, eating disorder researchers have little choice but to define successful outcomes in terms of absence of psychopathology because measures of healthy eating attitudes and behaviours have yet to be developed. Resilience researchers recommend that multiple outcome domains be assessed, including level of general psychological distress. Therefore, eating disorder resilience researchers should include measures of various aspects of eating pathology (e.g., attitudinal and behavioural) and general psychological distress.

Methodological Issues

Developmental psychopathologists have provided the eating disorder field with new research design options. Application of the person-focused design strategy described by Masten (1999; 2001) may advance our understanding of factors contributing to eating disorder resilience. The "full-classification model" compares resilient, competent, maladapted, and vulnerable groups, and these differences are often analyzed using MANOVA and/or discriminant function analyses. Developmental psychopathologists have also aspired to improve variable-focused designs in order to assess complex

relationships between risk/ protective factors and developmental outcomes. Main effect and interactive models are often tested using regression and/or modeling techniques (Masten, 2001).

Sample Study

Although the Showers and Larson (1999) investigation did not appear to be influenced by developmental psychopathology or resilience research, their study design exemplifies the application of such principles to eating disorder research. They were interested in the self-knowledge features and coping strategies differentiating women with and without disordered eating symptoms. They divided their sample of college women into three groups: (1) disordered - high body dissatisfaction and disordered eating symptoms, (2) nondisordered – high body dissatisfaction with no disordered eating symptoms, and (3) positive beliefs – low body dissatisfaction and no disordered eating symptoms. They employed a two-stage screening process to increase the reliability of group membership, and to maximize group differences. Risk/outcome criteria were based on various percentile rank cutoff scores on established measures of body dissatisfaction and bulimic symptoms.

The results of the initial screen indicated that 17% were classified as disordered, 26% as nondisordered, and 25% as positive beliefs. Approximately 30% of participants were unclassified. The 205 participants selected by the initial screen were screened again using more stringent criteria, and were distributed across groups as follows: 17% disordered, 17% nondisordered, 21% positive beliefs, and 55% unclassified. Findings of validity check analyses supported this classification system. For example, groups differed

in the expected direction on other measures of disordered eating outcome and history of psychiatric treatment.

Findings suggested that the content and structure of the self-knowledge of the disordered group differed significantly from the nondisordered group. For example, the disordered group had a more negative overall self-concept, they rated physical appearance beliefs higher in importance, and physical appearance beliefs tended to pervade other aspects of self-knowledge. In addition, the disordered group was more likely to employ emotion-focussed coping strategies. There were few differences between the nondisordered and positive belief groups. Showers and Larson (1999) interpret the results as suggesting that "a woman can have a strongly negative body image without maintaining a negative perception of the self as a whole" (p.695). They note that features of self-knowledge characterizing the nondisordered group have implications for helping women cope with body dissatisfaction.

Key Preadolescent Eating Disorder Risk and Protective Factors

The general childhood psychopathology resilience literature highlights protective factors that should be further explored in relation to preadolescent eating disturbances. They include personal factors such as positive emotionality/easy temperament, high self-esteem, good social problem solving skills, and adaptive coping (optimistic explanatory style, realistic control attributions, constructive problem-solving); familial factors such as emotionally responsive parenting; and peer factors such as modelling, and supportive relationships. Research findings suggest that familial variables, such as emotionally responsive parenting, may exert an indirect influence on outcome variables via child characteristics (e.g., high self-esteem, adaptive coping).

The eating disorder risk literature offers strong support for a biopsychosocial model. The findings also suggest that there may be developmental differences in eating disorder risk factor patterns (Stice & Agras, 1998). Several risk variables appear particularly salient for preadolescent girls. These are higher BMI, increased peer pressure for thinness, increased internalization of the thin-ideal, and decreased self-esteem. Although there is a paucity of literature regarding eating disorder protective factors, high self-esteem has received empirical support with preadolescent samples. Other promising protective factors at the personal level include positive body image, increased autonomy, decreased dieting, adaptive coping, positive attributional styles, and positive emotionality. The most promising environmental influences include peer and parental modelling of healthy eating attitudes and behaviours, decreased internalization of the thin-ideal, and supportive parental and peer relationships.

The preadolescent eating disorder risk and protective factors listed in Table 1 were derived from an integration of findings from the childhood psychopathology resilience and eating disorder literatures. Table 1 includes variables across child, parental, peer, and societal domains. It incorporates a dual-pathway format, such that risk/protective factors are separated into "specific" and "nonspecific" streams. Personality characteristics, such as higher autonomy and higher self-esteem, were selected based on evidence suggesting they mediate the impact of social pressures for thinness. The important protective role of adaptive coping is also reflected in the table. Finally, environmental factors such as parental care/overcontrol and peer support, were chosen due to their potential role in shaping child protective characteristics.

Table 1

Preadolescent Eating Disturbance Risk and Protective Variables

	Environmental influences	Child characteristics	Outcome variable
Specific	Peer pressure thinness	Body dissatisfaction	Disordered eating behaviour
	Parent pressure thinness	autonomy	
	Media pressure thinness/ internalization thin-ideal		
Nonspecific	Parental care	self-esteem	
	Parental overcontrol	adaptive coping	
	Peer support	Optimism/positive attributional style	

Objectives of the Present Study

The overall objective of the present study was to identify key potential protective and risk factors for eating disturbances among preadolescent girls. This objective was met using both person-focussed and variable-focussed designs.

Person-Focussed Approach

During the person-focussed phase of the present study, the method of classifying participants recommended by child psychopathology resilience researchers (e.g., Masten, 2001) was adapted for the study of eating disorders. Risk status was defined in terms of scores on a measure of body dissatisfaction because it has been empirically established as the strongest predictor of eating disorder symptoms among adolescents (Phelps et al., 1999). Moreover, it provides consistency with other studies that used elevated body dissatisfaction to identify high-risk participants (e.g., Showers & Larson, 1999). Outcome was assessed using measures of disordered eating behaviour. Potential risk/protective variables were selected from among those listed in Table 1. They included the following child characteristics: self-esteem, autonomy, attributional style, and coping strategies. The following environmental influences were also examined: perceived sociocultural pressures for thinness (parental, peer, media), parental care/overprotection, and peer support.

Participants with different risk and outcome profiles were compared on the aforementioned child and environmental variables. Comparisons between those classified as resilient and maladapted were of particular interest because they provide information about potential risk/protective factors.

Variable-Focussed Approach

The objective of the variable-focussed approach was to identify potential child and environmental risk/protective factors by determining whether selected variables were associated with disordered eating. Masten (2001) noted that main effect and interactive models are often tested using regression and/or modeling techniques. Multiple regressions were selected to evaluate main effect models in the present study.

Hypotheses of the Present Study[2]

Hypothesis 1

There is strong empirical evidence that self-esteem may be a causal protective factor for disordered eating in adolescents and young adult women. Moreover, the Showers and Larson (1999) findings suggest that high self-esteem differentiates at-risk women with good versus poor disordered eating outcomes. Childhood psychopathology resilience researchers using person-focussed designs have identified self-esteem as a potential protective factor. Therefore, it was predicted that the present findings would support self-esteem as a potential protective factor against disordered eating in preadolescent girls. The person-focussed hypothesis was that participants classified as resilient would demonstrate higher self-esteem than those classified as maladapted. The variable-focussed hypothesis was that self-esteem would be inversely related to disordered eating.

Hypothesis 2

Previous research provides moderate empirical evidence that increased emotional

[2] please refer to Tables 2 & 3 for specific studies supporting each hypothesis

Table 2

Summary of Literature Supporting Primary Hypotheses regarding Potential Child Characteristic Risk/Protective Factors

Hypothesis	Evidence & Source	Confidence
#1 self-esteem protective	Cross sectional preadolescent ED: French et al. 1995 Keel et al. 1997 Shisslak et al. 1998 Longitudinal adolescent ED: Button et al. 1996 Wood et al. 1994 Stice et al. 2002 Cross sectional adolescent ED: Edmunds & Hill 1999 French et al. 1995; 2001 Ross & Ivis 1999 Taylor et al. 1998 Thomas et al. 2002 Childhood psychopathology: Cowen et al. 1997 (longitudinal) Jessor et al. 1998 (cross sectional) Masten et al. 1999 (longitudinal)	Strong
#2 emotional autonomy protective	Cross sectional adolescent ED: Lattimore & Butterworth 1999 Wertheim & Paxton 1999 Strong & Huon 1998 Cross sectional young adult ED: Hesse-Beiber et al. 1999 Frederick & Grow 1996	Moderate

Hypothesis	Evidence & Source	Confidence
#3A adaptive coping protective	Cross sectional preadolescent ED: Troop & Treasure 1997 (retrospect) Cross sectional young adult ED: Ghaderi & Scott 2000 Mayhew & Edelmann 1989 Childhood psychopathology: Masten et al. 1999 (longitudinal) Cowen et al. 1997 (longitudinal) Yates et al. 1995 (cross sectional)	Moderate
#3B positive attribution protective	Cross sectional young adult ED: Mansfield & Wade 2000 Childhood psychopathology: Cowen et al. 1997 (longitudinal) Jessor et al. 1998 (cross sectional) Yates et al. 1995 (cross sectional)	Moderate
#3C maladaptive coping risk	Cross sectional young adult ED: Denisoff & Endler 2000 Ghaderi & Scott 2000 Mahew & Edelmann 1989 Showers & Larson 1999	Weak

Note. Confidence ratings determined as follows: Strong = longitudinal evidence specific to disordered eating; Moderate = cross-sectional evidence specific to disordered eating and/or longitudinal evidence re childhood psychopathology; Weak = cross-sectional evidence re adult disordered eating and/or cross-sectional evidence re childhood psychopathology

Table 3

Summary of Literature Supporting Primary Hypotheses regarding Potential Environmental Characteristic Risk/Protective Factors

Hypothesis	Evidence & Source	Confidence
#4A media pressure for thinness risk	Cross sectional preadolescent ED: Stice & Agras 1998 Taylor et al. 1998 Longitudinal adolescent ED: Thompson & Stice 2001 Cross sectional adolescent ED: Harrison 2000 Stice et al. 1998 Taylor et al. 1998	Strong
#4B parent pressure for thinness risk	Cross sectional preadolescent ED: Edmunds & Hill 1999 Smolak et al. 1999 Stice et al. 1999 Cross sectional adolescent ED: Levine et al. 1994 MacBrayer et al. 2001 Taylor et al. 1998 Thelen & Cormier 1995 Wertheim et al. 1999 Cross sectional young adult ED: Gross & Nelson 2000	Moderate
#4C peer pressure for thinness risk	Cross sectional preadolescent ED: Shisslak et al. 1998 Taylor et al. 1998	Moderate

Hypothesis	Evidence & Source	Confidence
	Cross sectional adolescent ED: Lieberman et al. 2001 Levine et al. 1994 Muir et al. 1999 Paxton et al. 1999 Pike 1995 Shisslak et al. 1998 Taylor et al. 1998 Vincent & McCabe 2000	
#5A parental support: parental care protective parental overcontrol risk	Cross sectional adolescent ED: Humphrey 1987; 1989 Lattimore & Butterworth 1999 McVey et al. 2002 Neumark-Sztainer et al. 2000 Cross sectional young adult ED: Bulik et al. 2000 Calam et al. 1990 Haudek et al. 1999 Romans et al. 2001 Childhood psychopathology: Cowen et al. 1997 (longitudinal) Masten et al. 1999 (longitudinal)	Moderate
#5B peer support protective	Cross sectional adolescent ED: Mueller et al. 1995 Pike 1995 Cross sectional young adult ED: Rorty et al. 1999 Childhood psychopathology: Voyandoff & Donnelly 1999 (cross)	Moderate

Hypothesis	Evidence & Source	Confidence
	Hauser 1999 (cross-sectional)	

Note. Confidence ratings determined as follows: Strong = longitudinal evidence specific to disordered eating; Moderate = cross-sectional evidence specific to disordered eating and/or longitudinal evidence re childhood psychopathology; Weak = cross-sectional evidence re adult disordered eating and/or cross-sectional evidence re childhood psychopathology

autonomy is a protective factor against disordered eating in adolescents and young adults. The Muir et al. (1999) findings suggest increased autonomy may protect girls who are at-risk for engaging in dieting behaviour. Thus, in the current study, increased emotional autonomy was predicted to be a potential protective factor for disordered eating among preadolescent girls. The resilient group was expected to demonstrate greater emotional autonomy than the maladapted group. An inverse relationship between emotional autonomy and disordered eating was predicted.

Hypothesis 3

Hypothesis 3A. Few researchers have examined the relation between coping or attributional style and disordered eating in children and adolescents. However, there is moderate evidence that adaptive coping may be protective for disordered eating in young women. Childhood psychopathology resilience researchers using person-focussed designs have identified adaptive coping as a potential protective factor. Based on these findings, adaptive coping was expected to be a protective factor for disordered eating in preadolescents. It was predicted that the resilient group would demonstrate greater adaptive coping than the maladapted group. It was also expected that adaptive coping would be inversely associated with disordered eating.

Hypothesis 3B. There is moderate evidence that a positive attributional style is inversely linked with disordered eating in young women. Childhood psychopathology resilience researchers using person-focussed designs have identified positive attributional style as a potential protective factor. Based on these findings, positive attributional style was expected to be a protective factor for disordered eating in preadolescents. It was predicted that the resilient group would demonstrate greater positive attribution than the

maladapted group. It was also expected that positive attribution would be inversely associated with disordered eating.

Hypothesis 3C. There is weak evidence that maladaptive coping is positively associated with disordered eating in young women. Therefore, maladaptive coping was expected to be a risk factor for disordered eating in preadolescents in the present study. It was predicted that the resilient group would demonstrate less maladaptive coping than the maladapted group. It was also expected that maladaptive coping would be positively associated with disordered eating.

Hypothesis 4

Hypothesis 4A. Previous research provides strong support for media pressure for thinness as a causal risk factor for disordered eating in adolescent girls. Preliminary findings also suggest that it has an adverse impact on the eating attitudes and behaviours of preadolescent girls. Therefore, it was predicted that media pressure for thinness would be a potential risk factor for disordered eating among preadolescent girls. It was predicted that the resilient group would perceive less media pressure for thinness than the maladapted group. It was hypothesized that media pressure for thinness and disordered eating would be positively related.

Hypothesis 4B. Previous research provides moderate support for parental pressure for thinness as a risk factor for disordered eating in adolescent girls. Preliminary findings also suggest that it has an adverse impact on the eating attitudes and behaviours of preadolescent girls. Therefore, it was predicted that parent pressure for thinness would be a potential risk factor for disordered eating among preadolescent girls. It was predicted that the resilient group would perceive less parent pressure for thinness than the

maladapted group. It was hypothesized that parent pressure for thinness and disordered eating would be positively related.

Hypothesis 4C. Previous research provides moderate support for peer pressure for thinness as a risk factor for disordered eating in adolescent girls. Preliminary findings also suggest that it has an adverse impact on the eating attitudes and behaviours of preadolescent girls. Therefore it was predicted that peer pressure for thinness would be a potential risk factor for disordered eating among preadolescent girls. It was predicted that the resilient group would perceive less peer pressure for thinness than the maladapted group. It was hypothesized that peer pressure for thinness and disordered eating would be positively related.

Hypothesis 5

Hypothesis 5A. Few studies have examined the relationship between supportive parental relationships and disordered eating among preadolescent girls. However, research suggests that increased parental support may protect against the development of eating disturbances among high-risk adolescents. Certain dimensions of parental relationships, such as high care and low overcontrol, may be particularly important. Moderate evidence supports dysfunctional familial relationships as a risk factor for disordered eating in adolescents and young women. Childhood psychopathology resilience researchers using person-focussed designs have identified parental support as a potential protective factor. Therefore, parental support was hypothesized to be a potential protective factor for disordered eating in preadolescent girls. The resilient group was expected to report a higher level of parental care and lower level of parental overcontrol than the maladapted group. It was predicted that parental care would be inversely

associated with disordered eating, and that parental overcontrol would be positively associated with disordered eating.

Hypothesis 5B. The protective role of peer support in relation to eating disorders has yet to be adequately evaluated. Moderate evidence suggests that decreased peer support is a risk factor for adolescent disordered eating. Peer support was expected to be a potential protective factor for disordered eating in preadolescent girls. The resilient group was expected to perceive greater peer support than the maladapted group, and peer support was hypothesized to be inversely associated with disordered eating.

Secondary Hypotheses

Predicted group differences. Specific hypotheses were not formulated regarding other groups in the full-classification model (i.e., competent and vulnerable). However, previous child psychopathology resilience research suggests that good outcomes would be associated with higher levels of potential protective factors (Masten, 2001). For example, the competent and resilient groups would likely demonstrate higher levels of potential protective factors than the maladapted and vulnerable groups. It is possible that elevated risk status will be associated with increased potential risk factors and decreased potential protective factors. For example, Muir et al. (1999) found decreased perceived peer pressure for thinness differentiated those adolescent girls at lower risk for disordered eating from the higher risk group. Based on this literature, it was expected that decreased risk status and improved outcomes would generally be associated with higher levels of potential protective factors and lower levels of potential risk factors.

The results of comparisons between the resilient and competent groups were also of interest. Some researchers speculate that resilient individuals achieve good outcomes

despite adversity because they possess higher levels of protective characteristics than competent individuals (Masten, 1999). Therefore, differences between the resilient group and competent group on measures of potential protective factors were evaluated. Other researchers propose that there may be a "cost" of resilience (e.g., Luthar, 1991), and that it is achieved at the expense of increased psychological distress. Subsequently, differences between resilient and competent group scores on a measure of psychological distress were investigated.

CHAPTER II

Method

Participants

Response Rates

Twenty-nine school principals from the Windsor-Essex Catholic District School Board were asked to permit recruitment of child participants at their schools and 9 (31%) agreed[3]. Six of 27 (22%) principals from the Greater Essex County District School Board also agreed to allow the researcher to recruit participants from their schools[4]. Parent consent forms were distributed to the parents of 380 girls in grades 4-6 from the Windsor-Essex Catholic District School Board. 175 (46%) of those parents provided consent for their daughters to participate in the study. None of the girls refused assent. Parent consent forms were distributed to the parents of 520 girls in grades 4-6 from the Greater Essex County District School Board. 206 (39%) of those parents provided consent for their daughters to participate in the study. None of the girls refused assent. The final sample consisted of 381 girls in grades 4-6. All participants were treated in accordance with the ethical standards for research with human subjects (American Psychological Association, 1992).

Descriptive Information

There was approximately equal distribution of participants across grades (grade 4 = 34%; grade 5 = 31%; grade 6 = 35%), and school boards (Windsor-Essex Catholic District = 46.1%; Greater Essex County District = 53.9%). Participants ranged in age

[3] Immaculate Conception, Notre Dame, Our Lady of Mount Carmel, Our Lady of Lourdes, St. John, Sacred Heart, St. Maria Goretti, W.J. Langlois, H.J. Lassaline

[4] Belle River, Campbell, Benson, Forest Glade, A.V. Graham, Eastwood

from 9-12 years, with a mean age of 10.43 years (SD = 0.96). The ethnic distribution of the sample was as follows: 80% White, 5% Other (e.g., Lebanese), 4% Chinese, 3% Black, 3% Asian Indian, 2% Filipino, 1% Latino/Hispanic, and <1% Cambodian, Korean, Vietnamese, Pacific Islander, and Japanese. No data were available on the socioeconomic status of the participants at the individual level. However, the schools that participated in the project typically included students from a variety of middle-class and lower-class neighbourhoods.

The mean height of participants was 1.43 m (SD = 0.11), and the mean weight was 38.05 kg (SD = 9.26). A Body Mass Index score (BMI = weight in kg / height in m^2) was calculated for each participant. The mean BMI was 18.42 (SD = 3.40). This mean BMI is similar to that reported in other large-scale samples of disordered eating among elementary school girls (e.g., Taylor et al., 1998).

Measures

Demographic Information

A demographic information questionnaire was developed for the purposes of the present study. The Demographic Questionnaire includes questions about age, grade, ethnicity, height, and weight (see Appendix A).

McKnight Risk Factor Survey (MRFS-III)

The McKnight Risk Factor Survey (MRFS-III; Shisslak, et al., 1999) was designed to assess potential risk and protective factors for disordered eating in preadolescent and adolescent girls. Multiple MRFS-III scales were used in the present

study[5]. Therefore, information about overall scale development and psychometrics is presented in this section, while specific information about individual scales is presented in the relevant section below. The original version of the MRFS was extensively pilot tested before Shisslak et al. (1999) evaluated the psychometric properties of the MRFS-III. Their sample consisted of 103 elementary school girls (grades 4-5), 420 middle school girls (grades 6-8), and 66 high school girls (grades 9-12). The MRFS-III elementary version contains 75 items, and the middle school and high school versions consist of 79 items each. A 3-point Likert scale is the response format for the elementary version, whereas the middle and high school versions use a 5-point Likert scale.

Several reports document relationships between MRFS-III risk and protective domains, and disordered eating in preadolescent and adolescent girls (e.g., Shisslak et al., 1998; Taylor et al., 1998). Initial evaluations of the psychometric properties of the MRFS-III have supported its reliability and validity (Shisslak et al., 1999). For example, the factor structure remained stable across age groups. High convergent validity was demonstrated for specific MRFS-III scales and related measures (e.g., Rosenberg Self-Esteem Scale, and CES-D).

Body Image Measures

Body Rating Scale (BRS). The BRS (Sherman, Iacono, & Donnelly, 1995) is a measure of body dissatisfaction developed specifically for use with children and adolescents (see Appendix B). Sherman et al. (1995) created preadolescent and adolescent versions of their scale because they believed that the figures in the original

[5] MRFS-III scales (Elementary version) employed in the present study included: Overconcern with Weight and Shape Scale, Weight Control Behaviours Scale, Importance Peers Put on Weight/Eating Scale, Parent

Stunkard Figure Rating Scale (FRS) were more appropriate for research with adults. The BRS consists of nine figure drawings of a female body, ranging from thin (1) to fat (9). One series depicts a "preadolescent" female and the other, a more physically mature "adolescent" female. The preadolescent series was used in the present study. Participants were asked to look at all nine figures and choose the ones that best matched their current appearance (current) and their ideal appearance (ideal). Body dissatisfaction is assessed by calculating the difference between current and ideal figures. Difference scores range from –8 to +8. A positive score indicates that the participant perceives her current shape to be heavier than her ideal shape, and higher scores suggest increased body dissatisfaction. Sherman et al. (1995) provide data supporting the reliability and validity of the BRS. In terms of validity, BRS scores are moderately correlated with BMI (Sherman et al., 1995).

MRFS-III Overconcern with Weight and Shape Scale (MRFS-III OWS). The MRFS-III OWS consists of 5 items, and was used in the present study as a measure of body dissatisfaction (see Appendix C). Scores range from 5-15, with higher scores indicating increased body dissatisfaction. Respondents are asked how often they have experienced each item over the past year. Sample items include: "Thought about wanting to be thinner" and "How much has your weight made a difference in how you feel about yourself?". The scale has demonstrated good test-retest reliability and internal consistency. Shisslak et al. (1999) reported test-retest reliability coefficients of .79, .85, and .90, and Cronbach alphas of .82, .86, and .87, with their Elementary, Middle, and High school samples, respectively. Shisslak et al. (1999) note that the convergent validity

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Concern with Thinness Scale, and Media Modelling Scale. Two subscales were added from the Middle

of this scale is supported by strong correlations with the Weight Concerns Scale developed by Killen et al. (1996), as follows: .74 among elementary school girls, .83 among middle school girls, and .88 among high school girls.

Disordered Eating Measures

Children's version of the Eating Attitudes Test (ChEAT). The ChEAT (Maloney, McGuire, Daniels, & Specker, 1989) measures a variety of attitudes and behaviours associated with bulimia and anorexia nervosa. It is one of the most widely used measures of eating disturbances among children (Smolak, 1996). The ChEAT (see Appendix D) is a 25-item adaptation of the Garner and Garfinkel (1979) *Eating Attitudes Test*. Examples of ChEAT items include " I have gone on eating binges where I feel that I might not be able to stop" and "I like my stomach to be empty". Each item is rated on a 6-point scale ranging from 1 (always) to 6 (never). For each question, the most symptomatic response is recoded to a score of 3, the next most symptomatic to a 2, and the next to a 1. The remaining three choices received a score of 0. Summing scores across all the items yields a continuous measure of disturbed eating attitudes and behaviour. Scores range from 0 to 75, with higher scores indicating greater eating pathology. A total score of 20 is recommended as a clinical cutoff score (Maloney et al., 1989).

Maloney and colleagues (Maloney, McGuire, & Daniels, 1988; Maloney et al., 1989) report that reliability estimates for the ChEAT are comparable to those of the EAT. An average alpha coefficient of .76 and a test-retest reliability average of .81 were reported by Maloney et al. (1988) suggesting that the scale possesses good reliability. Other studies have replicated these reliability findings (Kelly, Ricciardelli, & Clarke,

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School version: Activities Scale, and Competitive Sports Scale.

1999; Levine et al., 1994). For example, Levine et al. (1994) reported an average alpha coefficient of .88 in their sample of 10-14 year old girls. There is some debate regarding the construct validity of the ChEAT (Smolak, 1996), particularly among very young children. However, several studies support the construct validity of the ChEAT by providing evidence of factor similarity to the EAT (Kelly, et al., 1999; Smolak & Levine, 1994). Also, ChEAT scores are predicted by poor body image, results that parallel those obtained with adolescent and adult women, and further support ChEAT construct validity (Kelly et al., 1999). Kelly et al. (1999) found that the ChEAT possessed good psychometric properties with a sample of children in grades 2 to 4, supporting its use with young children. However, the results of Collins' (1991) study cast some doubt on the construct validity of the ChEAT, particularly with boys.

MRFS-III Weight Control Behaviours Scale (MRFS-III WCB). The MRFS-III WCB was employed in the present study as a measure of disordered eating. The Weight Control Behaviours Scale consists of 6 questions asking how often participants have used various dieting methods during the past year (see Appendix E). Scores range from 6-18, with higher scores indicating increased disordered eating behaviour. The list of dieting methods includes: starving for a day or more, restricting food intake, skipping meals, exercising, and eating fewer sweets. Shisslak et al. (1999) report test-retest reliability coefficients for this subscale of .76, .86, and .93 with elementary, middle, and high school students, respectively. Cronbach alphas of .86, .90, and .90 for the youngest to oldest age groups suggest that the scale possesses high internal consistency.

Psychological Distress Measure

Children's Depression Inventory (CDI). The Children's Depression Inventory (Kovacs, 1982) is a 27-item self-report inventory of depressive symptoms among children and adolescents (see Appendix F). Respondents are asked to consider how well CDI items applied to him or her during the past two weeks. Each item consists of three choices keyed as follows: 0 = absence of symptom, 1 = mild symptom, and 2 = definite symptom (Kovacs, 1992). Sample items include: "I am sad once in a while, I am sad many times, I am sad all the time" and "I have trouble sleeping every night, I have trouble sleeping many nights, I sleep pretty well".[6] Total scores range from 0-54, with higher scores suggesting increased pathology. Kovacs (1992) recommends a clinical cutoff score of 20. Subscale scores can be derived in the areas of negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self-esteem.

The CDI is the most widely used self-report measure of depression in children (Fristad, Emery, & Beck, 1997), and it has been subjected to many psychometric evaluations (Kovacs, 1992). Data suggest the CDI is internally consistent, with alpha coefficients typically falling in the .80s (Reynolds, 1994). Test-retest reliability data are variable, with coefficients ranging from .38-.87 (Reynolds, 1994). Reynolds (1994) suggests that this variability may be attributable to methodological inconsistencies between studies, and to the transience of depressed mood among non-clinical samples. Some researchers have questioned the stability of the CDI factorial structure (Kovacs, 1992; Reynolds, 1994). The CDI demonstrates good concurrent validity (Kovacs, 1992; Crowley & Emerson, 1996). It appears to have good discriminatory validity for depressed

and nondepressed controls, but its discriminant validity for anxiety is poor (Compas, 1997). Therefore, some researchers suggest that the CDI is best considered a measure of children's subjective distress rather than depression (e.g., Stark, Kaslow, & Laurent, 1993). It was selected for the present study because of its ability to assess general subjective distress, and because of its widespread use in the child eating disorder literature.

Child Characteristic Measures[7]

Rosenberg's Self-Esteem Scale (RSE). The RSE (Rosenberg, 1965; see Appendix G) is a 10-item measure of global self-esteem. Respondents rate their agreement with self-descriptive statements on a 4-point scale. Response choices range from (1) strongly disagree to (4) strongly agree. Sample items include "On the whole, I am satisfied with myself" and "I wish I could have more respect for myself". Total scores range from 10 to 40, with higher scores indicating greater self-esteem. This widely used scale has good reliability and validity with adolescents, and it has been used by other eating disorder researchers (e.g., Button, Sonuga-Barke, Davies, & Thompson, 1996; Keel et al., 1997).

Emotional Autonomy Scale (EAS). The EAS was developed by Steinberg and Silverberg (1986) to tap several dimensions of early adolescent autonomy. This 20-item inventory can be divided into four subscales: Individuation, Parental Deidealization, Nondependency on Parents, and Perceives Parents as People. Respondents rate EAS items (see Appendix H) using a 4-point Likert scale ranging from "strongly agree" to

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[6] From "Children's Depression Inventory Manual" by M. Kovacs, 1992. Copyright 1992 by MultiHealth Systems, Inc. Reprinted with permission.

[7] Please refer to Table 4 for a summary of child characteristic variables and measures

Table 4

Child Characteristic Variables and Measures

Variable	Measure	Description
Global self-esteem	Rosenberg's Self-Esteem Inventory	-used w/ preadolescents -10 items -good psychometrics
Emotional autonomy	Emotional Autonomy Scale	-not widely used w preadolescent -used abbreviated form 9 items -questionable reliability, good validity
Attributional style/ optimism	Children's Attributional Style Questionnaire-Revised	-used with preadolescents -24 items -moderate reliability, good validity
Coping strategies (adaptive & maladaptive)	Coping Scale for Children and Youth	-used with preadolescents -total scale 29 items -4 subscales: -Assistance seeking (4 items) -Cognitive-behavioural problem-solving (8 items) -Cognitive Avoidance (11 items) -Behavioural Avoidance (6 items) -all subscales good psychometrics

"strongly disagree". The abbreviated 9-item version of the scale employed by Lattimore and Butterworth (1999) was used in the present study (i.e., Individuation and Nondependency on Parents subscale items only). The abbreviated version has a maximum score of 36 and a minimum score of 9. Higher scores suggest greater emotional autonomy. Sample items from the 5-item Individuation subscale include "There are some things about me that my parents don't know", and "There are things that I will do differently from my mother and father when I become a parent". Samples of the four items comprising the Nondependency on Parents subscale include "I go to my parents for help before trying to solve a problem myself" and "It's better for kids to go to their best friend than to their parents for advice on some things".

Steinberg and Silverberg (1986) reported good internal consistency for the overall scale (α = .73). The Individuation subscale possesses adequate internal consistency (α = .60), whereas the internal consistency for the Nondependency on Parents subscale was low (α = .51). As predicted, Steinberg and Silverberg (1986) found EAS scores increased with age in their sample of children in grades 5 through 9. The construct validity of the EAS is supported by correlations with measures of other aspects of autonomy, such as self-reliance and resistance to peer pressure (Steinberg & Silverberg, 1986).

Children's Attributional Style Questionnaire-Revised (CASQ-R). The CASQ-R (Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998) is a 24-item measure assessing children's causal explanations for positive and negative events. The CASQ-R was derived from the 48-item CASQ. The original Seligman et al. CASQ (1984, cited in Thompson et al., 1998) was the most widely used measure of children's attributional style. The CASQ-R (see Appendix I) is composed of 24 forced-choice items, half addressing positive

outcomes and half addressing negative outcomes. For the 12 positive events, 2 items tap the internal-external dimension, 7 items assess the stable-unstable dimension, and 3 items address the global-specific dimension. Sample positive event items in each dimension include: "You get an A on a test: A. I am smart or B. I am good at the subject the test was in" (global-specific); "You make a new friend: A. I am a nice person or B. The people that I meet are nice" (internal-external); "You have been getting along well with your family: A. I am usually easy to get along with when I am with my family or B. Once in a while I am easy to get along with when I am with my family" (stable-unstable). For the 12 negative events, 3 items tap the internal-external dimension, 6 items assess the stable-unstable dimension, and 3 items address the global-specific dimension. Positive, negative, and overall (positive composite minus negative composite) scores are derived. The lower the positive composite score, the higher the negative composite score, and the lower the overall composite score, the more depressive is the attributional style. The composite scores of attributional style scales, such as the CASQ-R, have also served as measures of childhood optimism (e.g., Yates, et al., 1995). Yates et al. (1995) explain that the optimist's explanations of negative events are more likely to be temporary, specific, and external. The composite score was used in the present study as a measure of positive attributional style/optimism.

The results of the Thompson et al. (1998) investigation suggest that the CASQ-R has moderate internal consistency, and fair test-retest reliability. Their findings support the criterion-related validity of CASQ-R. For example, they found CASQ-R composite scores were significantly related to scores on self-report depressive symptom inventories (Thompson et al., 1998).

Coping Scale for Children and Youth (CSCY). The CSCY (Brodzinsky, et al., 1992) is a 29-item inventory assessing children's coping strategies. Children are asked to rate how often they use various coping behaviours in their efforts to deal with a stressor occurring within the past few months. CSCY (see Appendix J) item ratings are made on a 4-point Likert scale: (0) never, (1) sometimes, (2) often, and (3) very often. The four categories of coping behaviours were empirically derived through factor analysis and include: assistance seeking, cognitive-behavioural problem solving, cognitive avoidance, and behavioural avoidance. A mean item score for each subscale is derived by calculating the sum of subscale items divided by the number of subscale items. Higher mean scores suggest greater use of the type of coping strategy assessed by a particular subscale.

The Assistance Seeking scale (CSCY AS) contains 4 items relating to one's tendency to consult others when problem-solving (e.g., "I asked someone in my family for help with the problem" and "I kept my feelings to myself"). Eight items comprise the Cognitive-Behavioural Problem-Solving scale (CSCY CBPS) which lists strategies containing both cognitive/affective and direct behavioural components (e.g., " I made a plan to solve the problem and then I followed the plan" and "I thought about the problem in a new way so that it didn't upset me as much"). The Cognitive Avoidance scale (CSCY CA) consists of 11 items concerning emotional management, selective attention, and minimization of the problem (e.g., "I tried not thinking about the problem", "I tried to pretend the problem didn't happen", and "I hoped that things would somehow work out so I didn't do anything"). The six items comprising the Behavioural Avoidance scale (CSCY BA) tap such strategies as staying away from reminders of the problem, or reducing tension through indirect means such as displacement of anger (e.g., "I tried not

to be with anyone who reminded me of the problem" and "When I was upset about the problem, I was mean to someone even though they didn't deserve it").

The Brodzinsky et al. (1992) findings suggest the CSCY scales possess acceptable internal consistency. Alpha coefficients were as follows: Assistance Seeking $\alpha = .72$, Cognitive-Behavioural Problem Solving $\alpha = .81$, Cognitive Avoidance $\alpha = .80$, Behavioural Avoidance $\alpha = .70$. They also reported high test-retest reliabilities: Assistance Seeking $r = .80$, Cognitive-Behavioural Problem Solving $r = .80$, Cognitive Avoidance $r = .81$, Behavioural Avoidance $r = .73$. Several findings support the construct validity of the CSCY. First, CSCY domain scores correlate in the expected direction with subscale scores of another established measure of children's coping called the Kidcope (Stark, Spirito, & Williams, 1988, cited in Brodzinsky et al., 1992). Second, the results concerning the relation between CSCY scores and perceived self-competence are consistent with previous findings. Specifically, children with high self-esteem are more likely to employ assistance-seeking strategies and cognitive-behavioural problem-solving, whereas those with lower self-esteem tend to use avoidance strategies (Brodzinsky et al., 1992).

Environmental Influence Measures[8]

MRFS-III Peer Influence Scale (MRFS-III PI). Peer influence on participants' eating attitudes and behaviours was assessed using a combined score on the MRFS-III – Peer Concern with Thinness and Social Eating Scales (Shisslak et al., 1999). The MRFS-III PI composite variable consists of 5 items (see Appendix K). Scores range from 5-15, with higher scores indicating greater perceived peer influence. The Peer Concern with

Table 5

Environmental Characteristic Variables and Measures

Variable	Measure	Description
Media pressure for thinness	MRFS Media Modelling Scale	-used with preadolescents -2 items -moderate test-retest reliability & moderate internal consistency
Parental pressure for thinness	MRFS Parental Concern with Thinness Scale	-used with preadolescents -2 items -moderate internal consistency & low test-retest reliability
Peer pressure for thinness	MRFS Peer Influence Scale	-used with preadolescents -5 items -moderate internal consistency
Parental support/care	Care versus Rejection subscale of Parental Bonding Instrument- Brief Current version	-not widely used w preadolescent -4 items -good psychometrics with older adolescents
Parental overcontrol	Support for Autonomy versus Control subscale of Parental Bonding Instrument- Brief Current version	-not widely used w preadolescent -4 items -good psychometrics with older adolescents
Peer support	Close Friend subscale of Child and Adolescent Social Support Scale	-used with preadolescents -10 items -good internal consistency

Note. MRFS = McKnight Risk Factor Survey - III

[8] Please refer to Table 5 for a summary of environmental characteristic variables and measures

Thinness Scale consists of three items assessing the participant's perception of the extent to which peers value thinness (e.g., "In the past year, how often have your friends talked about wanting to lose weight?"). Shisslak et al. (1999) reported the following test-retest reliability coefficients for the elementary, middle, and high school girls: .73, .62, and .75. Cronbach alphas were consistently low across age groups and ranged from .54 to .57. The Social Eating Scale consists of two items assessing the extent to which participants modify their eating behaviours around their peers (In the past year how often have you changed "Your eating when you were around girls/young women?" and "Your eating when you were around boys?"). Shisslak et al. (1999) reported fair to good test-retest reliability and internal consistency across age groups for this scale. Test-retest reliability coefficients ranged from .71 to .77, and Cronbach Alphas ranged from .63 to .74. Criterion validity was supported by findings suggesting combined scores on the Peer Concern with Thinness and Social Eating scales were important predictors of disordered eating for both preadolescent and adolescent girls (Taylor et al., 1998).

MRFS-III Parental Concern with Thinness (MRFS-III PCT). Parental influence was assessed using the MRFS-III PCT Scale (see Appendix L). This scale is composed of two items concerning perceived parental pressure for his or her daughter to be thin (e.g., "In the past year, how important has it been to your mother that you be thin?"). Scores range from 2-6, with higher scores indicating greater perceived parental pressure for thinness. Shisslak et al. (1999) reported the following reliability data: test-retest reliability coefficients for elementary (.48), middle (.59), and high school (.73) girls; Cronbach alphas for elementary (.87), middle (.75), and high school (.52) girls.

MRFS-III Media Modelling Scale (MRFS-III MM). Perceived media pressure to be thin was assessed by the MRFS-III MM Scale (see Appendix M). This scale is composed of two items (e.g., "In the past year, how often have photographs/pictures of thin girls/women made you wish that you were thin?"). Scores range from 2-6, with higher scores indicating greater perceived media pressure to be thin. Shisslak et al. (1999) reported the following test-retest reliability coefficients for a single-item version of this scale: elementary (.67), middle (.66), and high school (.78) girls.

Brief Current version of the Parental Bonding Instrument (PBI-BC). Perceptions of current parental characteristics were assessed using the PBI-BC (Klimidis, Minas, & Ata, 1992a). The PBI-BC (see Appendix N) consists of eight items selected from the original version of the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979, cited in Klimidis et al., 1992a). Four items comprise the Care versus Rejection subscale (PBI-BC CS), including "My parent appears to understand my problems and worries" and "My parent seems emotionally cold to me". The Support for Autonomy versus Control subscale (PBI-BC SA) also contains four items (e.g., "My parent tries to control everything I do" and "My parent likes me to make my own decisions"). Respondents rate how well each item describes the adults they consider to be their parents using the following three-point scale: (1) almost never, (2) sometimes, and (3) usually. Respondents complete a mother and father version of both PBI-BC scales (PBI BC MCS, PBI BC MSA, PBI BC FCS, PBI BC FSA). According to Klimidis et al. (1992a), it is better to use arithmetic difference scores for each subscale rather than factor scores. Difference scores are preferred because "they preserve information about the direction of any score in relation to the poles of a factor" (Klimidis et al., 1992a, p.376). Arithmetic

difference scores were used in the present study for this reason, as well as to permit comparisons with the Klimidis et al. (1992a) normative sample. Higher positive scores represent greater perceived parental care vs rejection, and greater perceived parental support for autonomy vs control.

Klimidis et al. (1992a) conducted a study with a large sample of older adolescents to evaluate the psychometrics of the PBI-BC. Their findings suggest that each subscale possesses good internal consistency. The alpha coefficient for the PBI-BC FCS was .80, and .75 for MCS. The alpha coefficient was .72 for both PBI-BC MSA & FSA. The concurrent validity of the PBI-BC is supported by findings suggesting that it demonstrates a similar pattern of associations with measures of psychopathology compared with the original PBI (Klimidis et al., 1992b). In general, perceived parental care correlates negatively with psychopathology, whereas perceived parental overprotection correlates positively with psychopathology. Perceived parental care is associated with positive self-evaluations, while there are generally positive correlations between overprotection and negative self-evaluations (Klimidis et al., 1992b).

The Child and Adolescent Social Support Scale (CASSS). The CASSS (Malecki, Demaray, Nolten, & Elliott, 2000; see Appendix O) is a revision of the Student Social Support Scale (SSSS; Nolten, 1994). The SSSS (Nolten, 1994) was developed to assess four types of children's social support (i.e., emotional, instrumental, informational, and appraisal) from four sources (i.e., parents, teachers, classmates, friends). The SSSS demonstrates good reliability and validity (Nolten, 1994; Malecki & Elliott, 1999). The authors of the CASSS (Malecki, et al., 2000) maintained the structure of the SSSS, but made it shorter and more developmentally appropriate. Level 1 of the CASSS is for

elementary school students (grades 3-6) and Level 2 is for secondary students (grades 7-12). Malecki et al. (2000) reported that preliminary CASSS psychometric data are promising. The elementary version total scale coefficient alpha was .95, and subscale coefficient alphas ranged from .88-.93. Item to subscale correlations ranged from .66-.83. The Malecki et al. (2000) findings also support its concurrent validity. As predicted, CASSS total scores (elementary version) were positively correlated with scores on measures of social skills, self concept, and academic competence, and negatively correlated with problem behaviour scores.

Only the 10-item Close Friend subscale of the CASSS (elementary version) was used in the present study. Each item is a statement about one of the 4 previously mentioned types of social support. Respondents are asked to indicate how often they experience that type of support using a scale ranging from 1-never to 6-always. Sample items include "My friend understands my feelings" and "My friend helps me when I need it". Total scores range from 10 to 60, with higher scores indicating greater perceived social support. Malecki et al. (2000) reported good internal consistency for the elementary version of the Close Friend subscale (factor loadings .67-.80).

Procedure

After obtaining approval to conduct the present study from the University of Windsor Psychology Department Ethics Committee, approval was obtained from the research coordinators of the Greater Essex County School Board and the Windsor-Essex Catholic District School Board (see Appendix P). Next, consent to recruit participants was obtained from individual school principals (see Appendix Q). With the permission of the principal, permission letters were distributed to the parents of female students in

grades 4-6 (see Appendix R). Parents were informed that they or their child could refuse participation. Only those students who returned a signed parent permission letter were permitted to participate.

Questionnaires were administered to groups of participants by the primary investigator and an assistant. Groups of participants ranged in size from approximately 10-40 girls. Conditions of privacy varied depending on the physical space. For example, participants tended to have more privacy when questionnaires were completed in classrooms with individual desks compared with multipurpose rooms with shared tables. Before questionnaire packets were opened, the primary investigator reviewed assent forms (see Appendix S) and instructions (see Appendix T) with participants. Although the confidential nature of participants' responses was reinforced, they were also informed about the limits of confidentiality. It was explained that confidentiality would not apply if the participant revealed information suggesting she was being abused, or that she was at risk for self-harm. A list of participant names and corresponding questionnaire numbers were stored in a secure location in case it was necessary to identify a participant, and to contact her guardian.

A small minority of participants (< 5%) was identified as having significant difficulty reading the questionnaires. These participants were either self-identified, or were identified by the investigators because they were completing questionnaires at a much slower pace than their peers. The assistant read the questionnaires aloud to these participants. After completed questionnaire packages were collected, the primary investigator distributed and reviewed debriefing handouts to be shared with parents (see Appendix U). This handout included a brief description of study objectives, and a list of

referrals of community agencies to contact should they require assistance for eating problems, or other emotional concerns. Completed questionnaires and signed consent forms were stored separately to ensure anonymity.

CHAPTER III

Results

Overview of Data Analyses

Stage 1: Preliminary Data Screening

All analyses were conducted using SPSS version 10 (SPSS Inc., 2000). The first step in the data screening process was to screen for erroneous and missing data. Second, preliminary screening analyses (e.g., univariate outliers, normality of distributions) were performed on demographic variables and those variables used to determine group membership. Tabachnick and Fidell (2001) advise the use of different data screening and cleaning procedures for grouped and ungrouped data. Therefore, evaluations of the remaining assumptions were performed separately, and findings are reported in the MANOVA and Multiple Regression sections, respectively. Third, correlational analyses were performed to identify covariates to be used in subsequent analyses.

Stage 2: Descriptive Analyses

Descriptive statistics (e.g., means and standard deviations) were calculated for the entire data set for the following variables: demographic, disordered eating, child and environmental characteristics. Reliability analyses were performed to provide preliminary psychometric data regarding the measures used to assess these constructs. Separate descriptive analyses of study variables were performed according to grade (4-6) and school board (Catholic and Public) membership. ANOVAs were used to determine whether participants differed across grade and school board.

Stage 3: Establishing Group Membership

Descriptive data regarding means, standard deviations, and percentiles informed decisions about how to operationalize the concepts of "above average" and "below average" risk and outcomes. Final decisions about group membership criteria were made according to theoretical and statistical considerations.

Stage 4: MANOVAs

Prior to conducting the MANOVAs, the following multivariate assumptions were evaluated for each group: sample size, normality, outliers, and homogeneity of variance-covariance matrices. The results of ungrouped correlational analyses were used to evaluate assumptions of multicollinearity and singularity. MANOVAs were conducted to test hypotheses regarding differences between participants with different risk and outcome profiles on child and environmental characteristics. The IVs were risk (high vs low) and outcome (good vs poor). DVs were child and environmental characteristic variables grouped according to the results of a principal components analysis (PCA). The multivariate tests of significance were followed by univariate F-tests, and tests of simple effects.

Stage 5: Multiple Regression Analyses

Prior to conducting the multiple regressions, the following multivariate assumptions were evaluated: sample size, normality, outliers, linearity, and multicollinearity/singularity. Multiple regressions were performed to test hypotheses regarding the relationship between child and environmental characteristics, and disordered eating. The first three hierarchical multiple regressions were performed using child characteristic variables as predictors, BMI as the covariate, and disordered eating

constructs (i.e., overconcern with weight and shape, weight control behaviour, and clinical eating pathology) as the dependent variables. The second set of three hierarchical multiple regressions consisted of environmental influence variables as predictors, BMI as the covariate, and disordered eating constructs as the dependent variables. All multiple regression analyses were performed on the ungrouped data set (N=372).

Stage 1: Preliminary Data Screening

Missing Data & Preliminary Assumption Evaluation

The entire data set was screened for missing data. Missing data for most items were randomly distributed and infrequent, and were therefore replaced with item mean values (Tabachnick & Fidell, 2001). Demographic and group criteria variables were screened for univariate outliers and distribution normality by examining descriptive data and histograms (Tabachnick & Fidell, 2001). Findings suggested that there were three univariate outliers. Cases containing these outliers were deleted, reducing the total N from 381 to 378.

Results indicated that one of the measures of body dissatisfaction (BRS) had an extremely narrow range, and it was therefore dropped from subsequent analyses. The distributions of a body dissatisfaction measure (MRFS OWS) and a disordered eating measure (MRFS WCB) were moderately positively skewed. The distributions of a disordered eating measure (CHEAT) and psychological distress measure (CDI) were strongly positively skewed. These positive skews were expected, particularly in the cases of the CDI and CHEAT because they assessed clinical pathology in a nonclinical sample. These variables were not transformed because unaltered values were required to create groups to be used in subsequent analyses.

Correlational Analyses

Correlational analyses were performed on the entire data set in order to identify possible covariates, and to provide data for assumption evaluation in subsequent analyses. The results of correlational analyses are summarized in Tables V1-V4 in Appendix V. According to Tabachnick and Fidell (1989), covariates are variables that correlate significantly with both independent and dependent variables. In order to identify potential demographic variable covariates, bivariate correlations were calculated between demographic variables (age, grade, BMI) and the following group criteria variables: body dissatisfaction (MRFS WCB), disordered eating (MRFS OWS), disordered eating (ChEAT), and psychological distress (CDI). Correlational analyses were performed between demographic variables and the following child characteristic variables: self-esteem (RSEI), emotional autonomy (EAS), positive attributional style (CASQ-R), adaptive coping (CSCY AS & CBPS), and maladaptive coping (CSCY CA & BA). Correlations were also calculated between demographic variables and the following environmental variables: parent pressure for thinness (MRFS PCT), peer pressure for thinness (MRFS PI), media pressure for thinness (MRFS MM), parental care/support for autonomy (PBI BC subscales), and peer support (CASSS).

Results suggested that the only demographic variable significantly correlated with group criteria variables and child/environmental variables was BMI. Specifically, correlations between BMI and group criteria variables were generally moderate (approximately $\underline{r} = .35$). Correlations between BMI and child/environmental variables tended to be small and nonsignificant, with the exception of moderate correlations with

social pressure for thinness variables (r = .20 to .30). Therefore, BMI was a potential covariate to be used in subsequent analyses.

Stage 2: Descriptive Analyses

Descriptive Data

The results of the descriptive analyses of study variables for the entire data set are reported in Tables 6-8. Internal consistencies are also reported. Descriptive data regarding demographic variables are reported in the Participants section. The results of the reliability analyses suggested that most variables had moderate to good internal consistency. However, the internal consistencies of the following variables were poor: emotional autonomy (EAS), positive attributional style (CASQR), adaptive coping-assistance seeking (CSCY AS), and parental support for autonomy (BC PBI- mother and father subscales).

Given that scale authors reported similarly low internal consistencies for the EAS, CASQR, and CSCY AS, they were maintained in the present study (Steinberg & Silverberg, 1986; Thompson et al., 1998). The internal consistencies of PBI BC scales were variable. The MCS and FCS scales possessed moderate internal consistencies, whereas the MSA and FSA scales possessed low internal consistency. These alpha coefficients were significantly lower than those obtained by Klimidis et al. (1992a) with an older adolescent sample.

Grade Differences

Descriptive statistics by grade are reported in Tables 9-11. ANOVA findings indicated that there were few significant differences in mean scores across grades, with

Table 6

Disordered Eating Variable Descriptive Data (N = 371[9])

Variable	X	SD	Clinical	α
Body dissatisfaction (BRS)	0.47	1.15		0.65
Body dissatisfaction (MRFS-OWS)	7.76	2.86		0.87
Disordered eating (MRFS-WCB)	8.87	2.82		0.85
Disordered eating (CHEAT)	5.47	5.36	Nonclin 365 (97%) Clinical 13 (3%)	0.81
Psychological distress (CDI)	6.38	7.22	Nonclin 353 (93%) Clinical 25 (7%)	0.91

[9] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses

Table 7

Child Characteristic Variables Descriptive Data (N = 371[10])

Variable	X	SD	α
Self-esteem (RSE)	31.76	5.46	0.85
Emotional autonomy (EAS)	18.98	3.47	0.49
Attributional Style (CASQR)	5.54	3.10	
Positive attributions (CASQR PE)			0.46
Negative attributions (CASQR NE)			0.34
Coping- Assistance seeking (CSCY AS)	1.42[11]	0.54	0.42
Coping- Cognitive-behavioural problem solving (CSCY CBPS)	1.59[12]	1.50	0.83
Coping- Cognitive avoidance (CSCY CA)	0.93[13]	1.00	0.86
Coping- Behavioural avoidance (CSCY BA)	0.79[14]	1.00	0.72

[10] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses
[11] Mean item score
[12] Mean item score
[13] Mean item score
[14] Mean item score

Table 8

Environmental Influence Variables Descriptive Data (N = 371[15])

Variable	X	SD	α
Parent pressure for thinness (MRFS PCT)	2.47	0.96	0.81
Peer pressure for thinness (MRFS PI)	7.00	2.10	0.72
Media pressure for thinness (MRFS MM)	2.89	1.13	0.66
Parenting- Mother care (PBI BC MCS)	-0.12[16]	1.08	0.60
Parenting- Mother support autonomy (PBI BC MSA)	-0.45[17]	1.33	0.42
Parenting- Father care (PBI BC FCS)	-0.40[18]	1.31	0.67
Parenting- Mother support autonomy (PBI BC FSA)	-0.57[19]	1.34	0.46
Peer support (CASSS)	46.26	10.70	0.94

[15] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses
[16] arithmetic difference score
[17] arithmetic difference score
[18] arithmetic difference score
[19] arithmetic difference score

Table 9

ANOVA Findings re Demographic and Disordered Eating Variables x Grade (N = 371[20])

Variable	Group	N	X	SD
Age	Grade 4	125	9.96_a	0.33
	Grade 5	116	10.88_b	0.34
	Grade 6	130	11.88_c	0.31
Body mass index	Grade 4	125	18.33_a	3.86
	Grade 5	116	17.95_a	2.94
	Grade 6	130	18.94_a	3.32
Body dissatisfaction (BRS)	Grade 4	125	0.53_a	1.24
	Grade 5	116	0.29_a	1.07
	Grade 6	130	0.59_a	1.08
Body dissatisfaction (MRFS OWS)	Grade 4	125	7.45_a	2.89
	Grade 5	116	7.53_a	2.65
	Grade 6	130	8.28_a	2.91
Disordered eating (MRFS WCB)	Grade 4	125	$8.68_{a,c}$	2.91
	Grade 5	116	$8.39_{a,b}$	2.32
	Grade 6	130	9.47_c	2.96
Disordered eating (ChEAT)	Grade 4	125	5.75_a	5.89
	Grade 5	116	5.11_a	4.37
	Grade 6	130	5.36_a	5.17
Psychological distress (CDI)	Grade 4	125	6.03_a	7.04
	Grade 5	116	6.35_a	7.12
	Grade 6	130	6.13_a	6.83

Note. Means that do not share subscripts differ at $p<.05$ in the Neuwman-Keuls comparison. Material in this table discussed in text section "Grade differences" on pages 110 & 117.

[20] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses

Table 10

ANOVA Findings re Child Characteristics x Grade (N = 371[21])

Variable	Group	N	X	SD
Self-esteem (RSE)	Grade 4	125	31.86 $_a$	5.08
	Grade 5	116	31.76 $_a$	5.45
	Grade 6	130	32.13 $_a$	5.48
Emotional autonomy (EAS)	Grade 4	125	18.41 $_a$	3.33
	Grade 5	116	19.03 $_a$	3.62
	Grade 6	130	19.35 $_a$	3.41
Positive attributional style (CASQ-R)	Grade 4	125	5.70 $_a$	3.02
	Grade 5	116	5.44 $_a$	3.31
	Grade 6	130	5.68 $_a$	2.88
Coping– Assistance seeking (CSCY AS)	Grade 4	125	1.39 $_a$	0.56
	Grade 5	116	1.45 $_a$	0.55
	Grade 6	130	1.44 $_a$	0.51
Coping– Cognitive behavioural problem solving (CSCY CBPS)	Grade 4	125	1.52 $_a$	0.63
	Grade 5	116	1.65 $_a$	0.55
	Grade 6	130	1.63 $_a$	0.52
Coping– Cognitive avoidance (CSCY CA)	Grade 4	125	0.89 $_a$	0.52
	Grade 5	116	0.91 $_a$	0.53
	Grade 6	130	0.96 $_a$	0.56
Coping– Behavioural avoidance (CSCY BA)	Grade 4	125	0.81 $_a$	0.55
	Grade 5	116	0.84 $_a$	0.57
	Grade 6	130	0.73 $_a$	0.54

Note. Means that do not share subscripts differ at $p<.05$ in the Neuwman-Keuls comparison. Material in this table discussed in text section "Grade differences" on pages 110 & 117.

[21] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses

Table 11

ANOVA Findings re Environmental Characteristics x Grade (N = 371[22])

Variable	Group	N	X	SD
Parent pressure for thinness (MRFS PCT)	Grade 4	125	2.56_a	1.12
	Grade 5	116	2.34_a	0.85
	Grade 6	130	2.49_a	0.89
Peer pressure for thinness (MRFS PI)	Grade 4	125	6.68_a	2.19
	Grade 5	116	6.74_a	1.84
	Grade 6	130	7.53_b	2.14
Media pressure for thinness (MRFS MM)	Grade 4	125	2.83_a	1.12
	Grade 5	116	2.76_a	1.05
	Grade 6	130	3.03_a	1.19
Parenting- Mother care (PBI BC MCS)	Grade 4	125	0.00_a	1.12
	Grade 5	116	-0.10_a	1.10
	Grade 6	130	-0.21_a	1.00
Parenting- Mother support autonomy (PBI BC MSA)	Grade 4	125	-0.33_a	1.55
	Grade 5	116	-0.49_a	1.16
	Grade 6	130	-0.54_a	1.10
Parenting- Father care (PBI BC FCS)	Grade 4	125	-0.23_a	1.39
	Grade 5	116	-0.54_a	1.32
	Grade 6	130	-0.43_a	1.22
Parenting- Mother support autonomy (PBI BC FSA)	Grade 4	125	-0.47_a	1.39
	Grade 5	116	-0.78_a	1.19
	Grade 6	130	-0.47_a	1.26
Peer support (CASSS)	Grade 4	125	46.65_a	10.83
	Grade 5	116	45.06_a	10.64
	Grade 6	130	47.23_a	10.01

Note. Means that do not share subscripts differ at $p<.05$ in the Neuwman-Keuls comparison. Material in this table discussed in text section "Grade differences" on pages 110 & 117.

[22] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses

the exception of the following variables: age, disordered eating (weight control behaviour), and peer pressure for thinness. Participants in Grade 5 obtained higher mean scores on the measure of weight control behaviour than participants in Grade 6. Participants in Grade 6 obtained significantly higher mean scores on the measure of peer pressure for thinness than those in Grades 4 and 5.

School Board Differences

Descriptive statistics by school board membership are summarized in Tables 12-14. ANOVA findings indicated participants from the Windsor-Essex Catholic District School Board and the Greater Essex County District School Board differed significantly on the following variables: disordered eating (clinical eating pathology), subjective psychological distress, and perceived parental and peer pressure for thinness. Participants from the Catholic School Board obtained higher mean scores on each of these measures.

Stage 3: Establishing Group Membership

Group Criteria

Participants were classified as "high and low risk" if they scored above and below average on the measure of body dissatisfaction, respectively. They were classified as "good and poor outcome" if they scored below and above average on measures of disordered eating, respectively. They were considered "resilient" if they scored above average on the measure of body dissatisfaction, and below average on disordered eating outcome measures. Those classified as "competent" scored below average on the measure of body dissatisfaction, and below average on disordered eating outcome measures. They were considered "maladapted" if they scored above average on body dissatisfaction and

Table 12

ANOVA Findings re Demographic and Disordered Eating Variables x School System (N = 371[23])

Variable	Group	N	X	SD
Age	Catholic	170	10.86_a	0.85
	Public	202	10.97_a	0.87
Body mass index	Catholic	170	18.49_a	3.24
	Public	202	18.39_a	3.56
Body dissatisfaction (BRS)	Catholic	170	0.54_a	1.26
	Public	202	0.44_a	1.04
Body dissatisfaction (MRFS OWS)	Catholic	170	8.06_a	3.08
	Public	202	7.55_a	2.65
Disordered eating (MRFS WCB)	Catholic	170	9.08_a	2.98
	Public	202	8.73_a	2.67
Disordered eating (ChEAT)	Catholic	170	6.34_a	6.62
	Public	202	3.86_b	3.86
Psychological distress (CDI)	Catholic	170	7.53_a	7.98
	Public	202	5.12_b	5.96

Note. Means that do not share subscripts differ at $p<.05$ in the Neuwman-Keuls comparison. Material in this table discussed in text section "School board differences" on page 117.

[23] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses

Table 13

ANOVA Findings re Child Characteristic Variables x School System (N = 371[24])

Variable	Group	N	X	SD
Self-esteem (RSE)	Catholic	170	31.50_a	5.68
	Public	202	32.23_a	5.01
Emotional autonomy (EAS)	Catholic	170	18.78_a	3.46
	Public	202	19.07_a	3.48
Positive attributional style (CASQ-R)	Catholic	170	5.42_a	3.05
	Public	202	5.73_a	3.11
Coping– Assistance seeking (CSCY AS)	Catholic	170	1.43_a	0.55
	Public	202	1.42_a	0.53
Coping– Cognitive behavioural problem solving (CSCY CBPS)	Catholic	170	1.54_a	0.56
	Public	202	1.65_a	0.57
Coping– Cognitive avoidance (CSCY CA)	Catholic	170	0.92_a	0.53
	Public	202	0.93_a	0.55
Coping– Behavioural avoidance (CSCY BA)	Catholic	170	0.85_a	0.56
	Public	202	0.75_a	0.55

Note. Means that do not share subscripts differ at $p<.05$ in the Neuwman-Keuls comparison. Material in this table discussed in text section "School board differences" on page 117.

[24] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses

Table 14

ANOVA Findings re Environmental Characteristic Variables x School System (N = 371[25])

Variable	Group	N	X	SD
Parent pressure for thinness (MRFS PCT)	Catholic	170	2.62_a	1.14
	Public	202	2.35_b	0.76
Peer pressure for thinness (MRFS PI)	Catholic	170	7.34_a	2.31
	Public	202	6.71_b	1.88
Media pressure for thinness (MRFS MM)	Catholic	170	2.93_a	1.20
	Public	202	2.85_a	1.07
Parenting- Mother care (PBI BC MCS)	Catholic	170	-0.17_a	1.56
	Public	202	-0.06_a	0.99
Parenting- Mother support autonomy (PBI BC MSA)	Catholic	170	-0.50_a	1.28
	Public	202	-0.42_a	1.29
Parenting- Father care (PBI BC FCS)	Catholic	170	-0.38_a	1.43
	Public	202	-0.42_a	1.20
Parenting- Mother support autonomy (PBI BC FSA)	Catholic	170	-0.55_a	1.17
	Public	202	-0.59_a	1.38
Peer support (CASSS)	Catholic	170	45.25_a	11.11
	Public	202	47.21_a	9.94

Note. Means that do not share subscripts differ at $p<.05$ in the Neuwman-Keuls comparison. Material in this table discussed in text section "School board differences" on page 117.

[25] N=371 represents entire sample minus cases eliminated during data screening, 110 participants not yet eliminated for grouped analyses

above average on disordered eating outcome measures. "Vulnerable" participants scored below average on body dissatisfaction and above average on disordered eating outcome measures.

Establishing Cutoffs

Descriptive data were used to inform decisions about how to operationalize the concepts of above and below average. Although it was important to have a solution that was both statistically and conceptually valid, compromises were made in order to ensure an adequate number of participants in each of the four groups. According to Tabachnick and Fidell (1989), a minimum number of 20 participants in each group guards against serious violations of the assumptions of unequal cells, and multivariate normality.

Frequency distributions were examined to determine whether it was more appropriate to define cutoffs for "above" and "below" average based on percentiles or standard deviations. Results clearly indicated that it was not feasible to define cutoffs in terms of one standard deviation above/below mean. Specifically, this classification system failed to classify 90 percent of participants. Of a variety of possible percentile rank cutoffs, the results suggested that it was most appropriate to use scores corresponding to the 50^{th} percentile. The measure assessing body dissatisfaction was the McKnight Risk Factor Survey-III Overconcern with Weight and Shape scale, and the following measures assessed disordered eating behaviour: Children's Eating Attitudes Test, and MRFS-III Weight Control Behaviour scale. This classification system produced adequate cell sizes, and included multiple outcome measures spanning the spectrum of disordered eating (subclinical and clinical). However, approximately 35 percent of

participants remained unclassified. Please refer to Table 15 for information about group membership criteria and cell size.

Group Differences on Risk/Outcome Variables

Predicted differences. Group differences on risk/outcome variables were evaluated as a preliminary assessment of the validity of this classification system. Groups were expected to differ in a direction consistent with the classification system. For example, the resilient and maladapted groups were defined as high risk with divergent outcomes. Therefore, it was expected that the resilient and maladapted groups would demonstrate similar levels of body dissatisfaction, and that the resilient group would demonstrate lower levels of disordered eating. Both groups were expected to have significantly higher body dissatisfaction than the low-risk groups (i.e., competent and vulnerable). Because some researchers speculate that resilient children demonstrate more internalizing symptoms than their competent counterparts (e.g., Luthar, 1991), group differences in general psychological distress were evaluated.

Results of group comparisons on risk/outcome variables. Descriptive data regarding scores on risk/outcome variables by level of risk/outcome are summarized in Table 16. Four 2 x 2 between-subjects ANOVAs were performed in which level of risk (high vs low) and outcome (good vs poor) served as the independent variables, and body dissatisfaction, disordered eating (2), and psychological distress were the dependent variables. Univariate tests were significant for the main effects of risk and outcome, as well as the interaction, for each DV. Differences in mean scores were in the expected direction for main effects (see Table 16). For example, participants classified as higher risk obtained higher mean scores on the measure of body dissatisfaction than those at low

Table 15

Final Solution Group Membership Criteria and Cell Size (N = 268[26])

Group	Risk criteria	Outcome criteria	N
High risk	>= 50th %ile body dissatisfaction		149
Low risk	< 50th %ile body dissatisfaction (MRFS OWS)		119
Good outcome		< 50th %ile disordered eating (ChEAT & MRFS WCB)	116
Poor outcome		>= 50th %ile disordered eating (ChEAT & MRFS WCB)	152
Resilient	>= 50th %ile body dissatisfaction	< 50th %ile disordered eating (ChEAT & MRFS WCB)	20
Competent	< 50th %ile body dissatisfaction (MRFS OWS)	< 50th %ile disordered eating (ChEAT & MRFS WCB)	96
Maladapted	>= 50th %ile body dissatisfaction	>= 50th %ile disordered eating (ChEAT & MRFS WCB)	129
Vulnerable	< 50th %ile body dissatisfaction (MRFS OWS)	>= 50th %ile disordered eating (ChEAT & MRFS WCB)	23

Note. MRFS OWS = McKnight Risk Factor Survey Overconcern with Weight and Shape subscale, ChEAT = Children's Eating Attitudes Test, MRFS WCB = McKnight Risk Factor Survey Weight Control Behaviour subscale

[26] 110 participants excluded because did not meet classification criteria

Table 16

Risk/Outcome Variable Descriptives by Level of Risk/Outcome (N = 262[27])

DV	Risk	Outcome	N	X	SD
Body Dissatisfaction (WRFS OWS)	High	Good	20	7.73	0.82
		Poor	128	10.48	2.74
		Total	148	10.11	2.74
	Low	Good	91	5.34	0.47
		Poor	23	5.48	0.51
		Total	114	5.36	0.48
	Total	Good	111	5.77	1.07
		Poor	151	9.72	3.11
		Total	262	8.05	3.14
Disordered Eating (MRFS WCB)	High	Good	20	6.45	0.51
		Poor	128	11.40	2.52
		Total	148	10.74	2.90
	Low	Good	91	6.21	0.40
		Poor	23	9.52	1.83
		Total	114	6.87	1.60
	Total	Good	111	6.25	0.43
		Poor	151	11.12	2.52
		Total	262	9.05	3.09
Disordered Eating (ChEAT)	High	Good	20	2.07	1.01
		Poor	128	9.83	6.73
		Total	148	8.79	6.81
	Low	Good	91	2.45	1.03
		Poor	23	5.40	2.31
		Total	114	3.05	1.82
	Total	Good	111	2.38	1.03
		Poor	151	9.16	6.45
		Total	262	6.29	5.97
Psychological Distress	High	Good	20	5.63	3.97

[27] 110 participants excluded because did not meet classification criteria

DV	Risk	Outcome	N	X	SD
(CDI)		Poor	128	10.17	8.49
		Total	148	9.56	8.16
	Low	Good	91	3.13	4.57
		Poor	23	5.89	6.55
		Total	114	3.67	5.12
	Total	Good	111	3.58	4.56
		Poor	151	9.52	8.34
		Total	262	7.00	7.58

risk, and those classified as poor outcome demonstrated higher means on measures of disordered eating than those classified as good outcome.

Simple effects were generally significantly different in the expected direction. Consistent with the prediction, the Resilient and Maladapted groups obtained significantly higher scores on the measure of body dissatisfaction than the Competent and Vulnerable groups. Although it was predicted that the Resilient and Maladapted groups would have similarly elevated body dissatisfaction, the Maladapted group scored significantly higher than the Resilient group. Consistent with expectations, the Resilient and Competent groups scored significantly lower than the Maladapted group on both measures of disordered eating outcome. As predicted, differences between the Resilient and Competent groups were nonsignificant on outcome measures of disordered eating. The difference between the Resilient and Competent groups on the measure of generalized psychological distress was nonsignificant.

Stage 4: MANOVA

Analytic Strategy Rationale

MANOVA was chosen for the present study instead of a series of ANOVAs because it helps guard against Type I error when dependent variables are moderately correlated (Tabachnick & Fidell, 2001). Please note that the 110 participants who did not meet group criteria were excluded from all MANOVA analyses.

DV Groupings – Results of Principal Components Analysis

Correlations between dependent variables divided according to theoretical criteria (i.e., child and environmental characteristics) tended to be statistically significant, and small to medium in absolute value (see Tables 17-18). Given the variability in the

Table 17

Correlations between Child Characteristic Dependent Variables (N = 378)

Variables	RSE	EAS	CASQR	CSCY AS	CSCY CBPS	CSCY CA	CSCY BA
Self-esteem (RSE)	1.00	-.24**	.55**	.06	.19**	-.31**	-.40**
Emotional autonomy (EAS)		1.00	-.25**	-.19**	-.16**	.14**	.16**
Positive attribution (CASQR)			1.00	0.14**	0.27**	-.22**	-.35**
Adaptive coping-assistance (CSCY AS)				1.00	.51**	.11*	.10
Adaptive coping-problem (CSCY CBPS)					1.00	.03	.08
Maladapt coping- cog avoid (CSCY CA)						1.00	.54**
Maladapt coping- beh'l avoid (CSCY BA)							1.00

* p<.05 (2-tailed), ** p<.01 (2-tailed)

Table 18

Correlations between Environmental Characteristic Dependent Variables (N = 378)

Variables	MRFS PCT	MRFS PI	MRFS MM	PBI MCS	PBI MSA	PBI FCS	PBI FSA	CASSS
Parent pressure thin (MRFS PCT)	1.00	.34**	.35**	.20**	.22**	.10*	.14**	-.16**
Peer pressure thin (MRFS PI)		1.00	.58**	.03	.06	.01	.04	-.12*
Media pressure thin (MRFS MM)			1.00	-.02	.13*	.02	.11*	-.18**
Mother care (PBI MCS)				1.00	.21**	.39**	.09	.12*
Mother support autonomy (PBI MSA)					1.00	.16**	.57**	.05
Father Care (PBI FCS)						1.00	.17**	.09
Father support autonomy (PBI FSA)							1.00	.08
Peer support (CASSS)								1.00

* $p<.05$ (2-tailed), ** $p<.01$ (2-tailed)

magnitude of these correlations, an empirically-derived dependent variable grouping system was preferred. Therefore, a PCA with varimax rotation was performed on 15 child and environmental characteristic variables in order to determine dependent variable groupings for subsequent MANOVAs. Three factors were extracted (see Table 19 for factor loadings). Six of seven variables were retained on the first factor, and they generally pertain to perceived pressure for thinness and maladaptive coping. The second factor contained five variables related to adaptive coping, particularly social assistance seeking. One complex variable was retained on the second factor despite the fact it loaded higher on the first factor for conceptual clarity. Four variables assessing parenting dimensions (i.e., care, support for autonomy) loaded on the third factor.

Evaluation of Assumptions

Unequal sample sizes. Although the sample sizes were quite different between groups (refer to Table 15), the magnitude of these differences was consistent with previous research, and was assumed to represent real differences in the population of interest. Tabachnick and Fidell (2001) suggest that when these conditions are met, unequal sample sizes between cells are not overly problematic. In addition, SPSS 10 includes a procedure to adjust for unequal n.

Multivariate normality. Inspection of dependent variable histograms for each group indicated whether the univariate assumption of normality was met. The following variables were mildly to moderately skewed: positive attributional style (CASQ-R; negative skew), self-esteem (RSEI; negative skew), maladaptive coping- behavioural avoidance (CSCY BA; positive skew), peer pressure for thinness (MRFS PI; positive

Table 19

Factor Loadings Following PCA with Varimax Rotation (N = 371).

Variable	F_1[a]	F_2	F_3
Peer pressures for thinness (MRFS IP)	.74		
Self-esteem (RSEI)	-.73	.33	
Media pressure for thinness (MRFS MM)	.73		
Maladaptive coping- Behavioural avoidance (CSCY- BA)	.68		
Maladaptive coping- Cognitive avoidance (CSCY – CA)	.66		
Parent pressure for thinness (MRFS PCT)	.48		
Adaptive coping- Cognitive behavioural problem-solving (CSCY CBPS)		.78	
Adaptive coping- Assistance seeking (CSCY AS)		.75	
Peer support (CASSS)		.50	
Positive attributional style (CASQR)	-.50	.48	
Emotional autonomy (EAS)		-.45	
Parent support for autonomy- Mother (BC PBI MSA)			.79
Parent support for autonomy- Father (BC PBI FSA)			.75
Parent Care- Mother (BC PBI MCS)			.51
Parent Care- Father (BC PBI FCS)			.51

[a]Factor labels: F_1 Pressure for thinness and Maladaptive coping, F_2 Adaptive Coping, F_3 Parenting

skew), media pressure for thinness (MRFS MM; positive skew), peer support (CASSS; negative skew). The parent pressure for thinness (MRFS PCT) variable distribution had an extremely narrow range (i.e., > 90% scores = 2.00) across groups.

Dependent variables with mild to moderate skews were maintained because MANOVAs are generally robust to such violations (Tabachnick & Fidell, 2001). Tabachnick and Fidell (2001) explain that large samples are less vulnerable to violations of multivariate normality because "the central limit theorem suggests that the sampling distribution of means approaches normality even when raw scores do not" (Tabachnick & Fidell, 2001, p.329). In addition, they note that a sample size of approximately 20 in the smallest cell should ensure robustness. The present sample met both of these conditions. The screening of DV univariate frequency distributions for outliers within each cell was recommended by Tabachnick and Fidell (2001) as an additional step to enhance multivariate normality.

Outliers. Sensitivity to outliers represents one of the more serious MANOVA limitations (Tabachnick & Fidell, 2001). Therefore, dependent variable distributions in each cell were screened for both univariate and multivariate outliers. Univariate outliers were detected by inspecting histograms and examining z-score distributions. Three cases with extreme univariate scores were detected and deleted. Tabachnick and Fidell (2001) recommend that the criterion for multivariate outliers be Mahalanobis distance at $p<.001$. Mahalanobis values were calculated separately for each group. No multivariate outliers were identified for the child characteristic variables. Three were detected among the environmental influence variables, and these cases were subsequently deleted. Deletion of univariate and multivariate outliers reduced the total N to 372.

Homogeneity of variance-covariance matrices. Evidence suggested the assumption regarding homogeneity of variance-covariance matrices was violated. Although the number of cases in each cell exceeded the number of dependent variables, cell sizes were widely discrepant (Tabachnick & Fidell, 2001). In addition, the Box's M Test of Equality of Covariance Matrices was highly significant. Therefore, Pillai's criterion was used to evaluate multivariate significance.

Descriptive Analyses

Descriptive analyses were performed again after data screening and deletion of outliers. Descriptive analyses were performed on demographic variables (see Table 20) and child/environmental dependent variables (see Tables 21-23). The results of group comparisons of demographic variables will be summarized here. Group comparisons were performed using multifactorial ANOVAs with risk (high vs low) and outcome (good vs bad) as independent variables, and age and BMI as dependent variables. The main effects of risk and outcome, as well as the interaction, were nonsignificant for age. The main effect of risk and the interaction were nonsignificant for BMI. However, there was a main effect of outcome, F (1, 258) = 7.50, $p<.01$. Participants with poor outcomes ($\underline{X}$ = 19.28) demonstrated increased BMI compared to those with good outcomes ($\underline{X}$ = 17.16).

MANOVA Findings

Hypotheses. The primary hypotheses predicted that participants classified as resilient would obtain higher potential protective factor scores and lower potential risk factor scores than the maladapted group. These hypotheses were evaluated using 2 x 2 between-subjects MANOVAs with risk (high vs low) and outcome (good vs bad) as the

Table 20

Demographic Variable Descriptives by Risk/Outcome (N = 262)

DV	Risk	Outcome	N	X	SD
Age	High	Good	20	11.08	0.96
		Poor	128	10.97	0.86
		Total	148	10.98	0.88
	Low	Good	91	10.76	0.80
		Poor	23	11.15	0.76
		Total	114	10.84	0.80
	Total	Good	111	10.81	0.84
		Poor	151	11.00	0.85
		Total	262	10.92	0.85
BMI	High	Good	20	17.32	2.16
		Poor	128	19.53	3.84
		Total	148	19.23	3.73
	Low	Good	91	17.12	2.30
		Poor	23	17.93	3.80
		Total	114	17.29	2.67
	Total	Good	111	17.16	2.27
		Poor	151	19.28	3.87
		Total	262	18.38	3.45

Table 21

Descriptive Data regarding Risk by Outcome for Factor 1 DVs (N=262)

DV	Risk	Outcome	N	X	SD
Peer pressure thinness	High	Good	20	6.40	1.30
		Poor	128	8.28	2.30
		Total	148	8.03	2.28
	Low	Good	91	5.92	1.29
		Poor	23	6.65	1.77
		Total	114	6.07	1.42
	Total	Good	111	6.01	1.30
		Poor	151	8.04	2.30
		Total	262	7.18	2.18
Self-esteem	High	Good	20	32.08	4.02
		Poor	128	28.73	5.35
		Total	148	29.18	5.30
	Low	Good	91	34.86	3.95
		Poor	23	32.84	4.90
		Total	114	34.45	4.21
	Total	Good	111	34.36	4.08
		Poor	151	29.36	5.47
		Total	262	31.48	5.51
Media pressure for thinness	High	Good	20	2.45	0.69
		Poor	128	3.70	1.29
		Total	148	3.53	1.30
	Low	Good	91	2.17	0.37
		Poor	23	2.65	0.78
		Total	114	2.27	0.52
	Total	Good	111	2.22	0.45
		Poor	151	3.54	1.28
		Total	262	2.98	1.21
Maladaptive coping-behavioural avoidance	High	Good	20	0.60	0.39
		Poor	128	1.00	0.61
		Total	148	0.95	0.60

DV	Risk	Outcome	N	X	SD
	Low	Good	91	0.62	0.49
		Poor	23	0.97	0.55
		Total	114	0.69	0.52
	Total	Good	111	0.62	0.47
		Poor	151	1.00	0.60
		Total	262	0.84	0.58
Maladaptive coping-cognitive avoidance	High	Good	20	0.66	0.32
		Poor	128	1.10	0.61
		Total	148	1.04	0.60
	Low	Good	91	0.777	0.46
		Poor	23	1.13	0.58
		Total	114	0.84	0.51
	Total	Good	111	0.75	0.44
		Poor	151	1.10	0.61
		Total	262	0.95	0.57
Parental pressure for thinness	High	Good	20	2.10	0.45
		Poor	128	2.92	1.24
		Total	148	2.81	1.19
	Low	Good	91	2.15	0.56
		Poor	23	1.09	0.42
		Total	114	2.14	0.53
	Total	Good	111	2.14	0.54
		Poor	151	2.79	1.19
		Total	262	2.52	1.02

Table 22

Descriptive Data re Risk by Outcome for Factor 2 DVs (N=262)

DV	Risk	Outcome	N	X	SD
Adaptive coping-cognitive-behavioural problem-solving	High	Good	20	1.42	0.38
		Poor	128	1.62	0.63
		Total	148	1.59	0.60
	Low	Good	91	1.66	0.50
		Poor	23	1.66	0.55
		Total	114	1.66	0.51
	Total	Good	111	1.62	0.49
		Poor	151	1.62	0.61
		Total	262	1.62	0.56
Adaptive coping- social assistance seeking	High	Good	20	1.31	0.48
		Poor	128	1.41	0.55
		Total	148	1.40	0.54
	Low	Good	91	1.47	0.52
		Poor	23	1.47	0.63
		Total	114	1.47	0.54
	Total	Good	111	1.44	0.52
		Poor	151	1.42	0.56
		Total	262	1.43	0.54
Peer support	High	Good	20	44.11	10.18
		Poor	128	44.79	11.11
		Total	148	44.70	10.96
	Low	Good	91	48.47	9.08
		Poor	23	47.17	12.29
		Total	114	48.21	9.77
	Total	Good	111	47.69	9.39
		Poor	151	45.15	11.29
		Total	262	46.22	10.58
Positive attributional style	High	Good	20	5.75	1.65
		Poor	128	4.64	3.11
		Total	148	4.79	2.98

DV	Risk	Outcome	N	X	SD
	Low	Good	91	6.59	2.61
		Poor	23	5.60	3.52
		Total	114	6.39	2.83
	Total	Good	111	6.44	2.48
		Poor	151	4.78	3.18
		Total	262	5.49	3.02
Emotional autonomy	High	Good	20	19.00	3.23
		Poor	128	19.61	3.54
		Total	148	19.53	3.49
	Low	Good	91	18.31	3.11
		Poor	23	19.53	3.55
		Total	114	18.55	3.22
	Total	Good	111	18.43	3.13
		Poor	151	19.60	3.53
		Total	262	19.11	3.41

Table 23

Descriptive Data re Risk by Outcome for Factor 3 DVs (N=262)

DV	Risk	Outcome	N	X	SD
Mother care	Above avg	Good	20	-0.40	0.94
		Poor	128	-0.12	1.14
		Total	148	-0.16	1.12
	Below avg	Good	91	-0.05	1.07
		Poor	23	-0.12	1.10
		Total	114	-0.07	1.07
	Total	Good	111	-.12	1.05
		Poor	151	-.12	1.13
		Total	262	-.12	1.10
Mother support for autonomy	Above avg	Good	20	-0.50	1.40
		Poor	128	-0.35	1.24
		Total	148	-0.37	1.26
	Below avg	Good	91	-0.55	1.21
		Poor	23	-0.70	1.02
		Total	114	-0.58	1.17
	Total	Good	111	-0.54	1.24
		Poor	151	-0.41	1.21
		Total	262	-0.46	1.22
Father care	Above avg	Good	20	-0.43	1.56
		Poor	128	-0.39	1.48
		Total	148	-0.40	1.49
	Below avg	Good	91	-0.42	0.98
		Poor	23	-1.09	1.24
		Total	114	-0.56	1.07
	Total	Good	111	-0.42	1.10
		Poor	151	-0.550	1.47
		Total	262	-0.47	1.32
Father support for autonomy	Above avg	Good	20	-0.67	0.86
		Poor	128	-0.41	1.29
		Total	148	-0.45	1.24

DV	Risk	Outcome	N	X	SD
	Below avg	Good	91	-0.66	1.19
		Poor	23	-0.87	1.36
		Total	114	-0.70	1.22
	Total	Good	111	-0.66	1.13
		Poor	151	-0.48	1.30
		Total	262	-0.56	1.24

IVs and child and environmental characteristics as the DVs. It was predicted that there would be significant interactions between risk and outcome for each DV, and that tests of simple effects would reveal that those participants classified as high risk and good outcome would obtain high mean scores in the adaptive direction than those classified as high risk and poor outcome.

Secondary hypotheses were also evaluated using the same 2 x 2 MANOVAs, however main effects were of interest instead of interactions. Although specific hypotheses were not formulated, it was generally expected that there would be main effects of risk and outcome such that low risk and good outcome would be associated with increased protection and decreased risk.

Covariate. MANOVAs were initially performed as MANCOVAs with BMI as the covariate. However, the combined dependent variables were not significantly related to the covariate, and only the MANOVA results are reported.

Risk/outcome x pressure for thinness/maladaptive coping. In the first 2 x 2 between-subjects MANOVA, risk (high vs low) and outcome (good vs bad) served as the independent variables. The dependent variables included: peer pressure for thinness, self-esteem, media pressure for thinness, maladaptive coping (behavioural avoidance), maladaptive coping (cognitive avoidance), and parent pressure for thinness. Multivariate tests of main effects were significant for both risk and outcome. With the use of Pillai's criterion, the combined dependent variable was significantly affected by level of risk F (6, 253) = 6.08, $p<.001$. The combined dependent variable was significantly affected by level of outcome F (6, 253) = 6.87, $p<.001$. The multivariate test for the interaction was not significant, F (6, 253) = 1.88, $p>.05$.

Univariate F tests were performed to evaluate the impact of each main effect on the individual dependent variables. Because six ANOVAs were performed, alpha was set at $p<.01$ in order to control for Type I error. Results are summarized in Table 24. There were significant main effects of risk for the following variables: peer pressure for thinness, self-esteem, media pressure for thinness, and the effect for parent pressure for thinness approached significance. Examination of means in Table 21 indicated that participants classified as high risk demonstrated lower self-esteem and greater perceived social pressure for thinness from peers, media, and parents than those classified as low risk. There were significant main effects of outcome for most DVs such that those classified as having poor outcomes demonstrated greater perceived social pressure for thinness from media and peers, lower self-esteem, and greater maladaptive coping than those with good outcomes. The effect of parent pressure for thinness approached significance.

Risk/outcome x adaptive coping. In the second 2 x 2 between-subjects MANOVA, risk (high vs low) and outcome (good vs bad) served as the independent variables. The dependent variables included: adaptive coping (cognitive-behavioural problem solving), adaptive coping (social assistance seeking), peer support, positive attributional style, and emotional autonomy. Multivariate tests of main effects were nonsignificant for both risk F (5, 254) = 1.29, $p>.05$ and outcome F (5, 254) = 1.80, $p>.05$. The multivariate test was nonsignificant for the interaction, F (5, 254) = 0.30, $p>.05$.

Risk/outcome x adaptive coping. In the third 2 x 2 between-subjects MANOVA, risk (high vs low) and outcome (good vs bad) served as the independent variables. The

Table 24

Results of Univariate Tests of Main Effects and Interaction on Pressure for Thinness/ Maladaptive Coping DVs (N = 262[28])

Source	Dependent Variable	DF	F	Sig of F
Risk	Peer pressures for thinness (MRFS IP)	1	11.08	.001
	Self-esteem (RSEI)	1	18.58	.000
	Media pressure for thinness (MRFS MM)	1	16.52	.000
	Maladaptive coping- Behavioural avoidance (CSCY- BA)	1	0.00	.956
	Maladaptive coping- Cognitive avoidance (CSCY – CA)	1	0.66	.419
	Parent pressure for thinness (MRFS PCT)	1	6.00	.015
Outcome	Peer pressures for thinness (MRFS IP)	1	17.10	.000
	Self-esteem (RSEI)	1	11.26	.001
	Media pressure for thinness (MRFS MM)	1	28.06	.000
	Maladaptive coping- Behavioural avoidance (CSCY- BA)	1	16.42	.000
	Maladaptive coping- Cognitive avoidance (CSCY – CA)	1	19.16	.000
	Parent pressure for thinness (MRFS PCT)	1	5.65	.018

[28] 110 participants excluded because did not meet classification criteria

dependent variables included: mother care, mother support for autonomy, father care, and father support for autonomy. Multivariate tests of main effects were nonsignificant for both risk F (4, 255) = 1.60, p>.05 and outcome F (4, 255) = 0.93, p>.05. The multivariate test was nonsignificant for the interaction, F (4, 255) = 0.86, p>.05.

Stage 5: Multiple Regression Analyses

Analytic Strategy Rationale

Multiple regressions are useful in that they provide information about the relative importance of predictors, as well as information about moderator and mediator variables (Tabachnick & Fidell, 2001). Moreover, this strategy provides the opportunity to evaluate predictors of different aspects of disordered eating separately.

Evaluation of Assumptions

Sample size. Tabachnick and Fidell (2001) recommend the following rules of thumb when evaluating adequacy of sample size: N>=50 + 8m (where m is the number of predictors) for testing the multiple correlation, and N>= 104 + m for testing individual predictors. The present sample of 372 is clearly adequate according to both of these formulas.

Multivariate normality. Inspection of variable histograms and skewness/kurtosis data suggested that approximately half (11 of 18) of the distributions were extremely skewed. Variables with a strong positive skew included: maladaptive coping- cognitive avoidance and behavioural avoidance (CSCY CA & BA), social pressures for thinness (peer, parent, and media; MRFS PI, PCT, & MM), body dissatisfaction (MRFS OWS), disordered eating (MRFS WCB & ChEAT). Variables with strong negative skews included: self-esteem (RSEI), positive attributional style (CASQR), and peer support

(CASSS). Transformations resulted in improved distributions for all variables except the Children's Eating Attitudes Test, which remained strongly positively skewed. Therefore, the original metric was maintained for this variable.

Outliers. Variable distributions were screened for both univariate and multivariate outliers. Univariate outliers were detected by inspecting histograms and examining z-score distributions. Four cases with extreme univariate scores were detected and deleted. Tabachnick and Fidell (2001) recommend that the criterion for multivariate outliers be Mahalanobis distance at $p<.001$. Two were detected and subsequently deleted. Deletion of univariate and multivariate outliers reduced the total N to 372.

Linearity. It was not feasible to examine all pairwise scatterplots given the large number of variables in the present study (Tabachnick & Fidell, 2001). Therefore, a random inspection of bivariate scatterplots was conducted. Bivariate scatterplots were generally pleasing and supported the assumptions of linearity and homoscedasticity. However, scatterplots of variables paired with Children's Eating Attitudes Test tended to be asymmetrical due to its nonnormal distribution.

Multicollinearity and singularity. Correlations between variables were examined to screen for multicollinearity and singularity (Tabachnick & Fidell, 2001). Bivariate correlations between dependent variables are reported in Tables 17 and 18 (pages 128-129). Results suggested that none of the variables were highly correlated ($r > .85$), therefore neither multicollinearity nor singularity appeared to be of concern (Tabachnick & Fidell, 2001).

Multiple Regression Findings

Hypotheses. It was hypothesized that the following child characteristics would be inversely associated with disordered eating: self-esteem, emotional autonomy, adaptive coping, and positive attributional style. Maladaptive coping was expected to be positively associated with disordered eating. It was hypothesized that the following environmental characteristics would be inversely associated with disordered eating: parental and peer support. Social pressures for thinness were expected to be positively associated with disordered eating. These hypotheses were evaluated using sequential multiple regressions with measures assessing these constructs as IVs, BMI as the covariate, and measures of disordered eating as DVs.

Child Characteristic Predictors of Overconcern with Weight and Shape. To determine whether child characteristic variables significantly predicted overconcern with weight and shape while controlling for BMI, BMI was forced to enter the equation on the first step. Child characteristic variables were entered as a set on the second step. Table 25 displays the unstandardized regression coefficient (B), standardized regression coefficient (β), squared semi-partial correlation (sr^2), as well as the change in R^2 after each step. The total R^2 (0.38) was significant F (8, 363) = 27.43, $p<.001$ after all of the IVs had been entered into the equation. The increment in R^2 was also significantly different after each step. Of the child characteristic variables, self-esteem was the only significant predictor (β = -0.47) of scores on the measure of overconcern with weight and shape. Several other child characteristic variables were significantly correlated with overconcern with weight and shape: emotional autonomy (r = .15), positive attributional style (r = -.28), cognitive

Table 25

Summary of Hierarchical Regression Analysis for Child Characteristic Variables Predicting Overconcern with Weight and Shape (N = 372)

Variable	B	β	sr^2
Step 1			
Body mass index	0.005	0.354	0.12***
Step 2			
Self-esteem	-0.022	-0.473	0.14***
Emotional autonomy	0.000	0.056	0.00
Positive attributional style	-0.000	-0.009	0.00
Social assistance coping	0.003	0.033	0.00
Cognitive-behavioural coping	0.000	0.011	0.00
Cognitive avoidance coping	-0.011	-0.046	0.00
Behavioural avoidance coping	0.000	0.000	0.00

Note. $\Delta R^2 = .15$ for Step 1 ($p<.001$); $\Delta R^2 = .19$ for Step 2 ($p<.001$).

*$p<.05$. **$p<.01$. ***$p<.001$.

avoidant coping (r = .21), and behavioural avoidant coping (r = .24). Apparently, the relationship between each of these variables and overconcern with weight and shape is mediated by their relationships with BMI and other child characteristic variables.

Child Characteristic Predictors of Weight Control Behaviour. To determine whether child characteristic variables significantly predicted weight control behaviour while controlling for BMI, BMI was forced to enter the equation on the first step. Child characteristic variables were entered as a set on the second step (results summarized in Table 26). The total R^2 (0.34) was significant F (8, 363) = 23.44, $p<.001$ after all of the IVs had been entered into the equation. The increment in R^2 was also significantly different after each step. Of the child characteristic variables, self-esteem was the only significant predictor ($\beta = -0.37$) of scores on the measure of overconcern with weight and shape. Several other child characteristic variables were significantly correlated with weight control behaviour: emotional autonomy (r = .15), positive attributional style (r = -.22), cognitive avoidant coping (r = .22), and behavioural avoidant coping (r = .28). Apparently, the relationship between each of these variables and weight control behaviour is mediated by their relationships with BMI and other child characteristic variables.

Child Characteristic Predictors of Clinical Eating Pathology. To determine whether child characteristic variables significantly predicted clinical eating pathology while controlling for BMI, BMI was forced to enter the equation on the first step. Child characteristic variables were entered as a set on the second step (results summarized in Table 27). The total R^2 (0.29) was significant F (8, 363) = 18.21, $p<.001$ after all of the IVs had been entered into the equation. The increment in R^2 was also significantly different after each step. The following child characteristic variables significantly

Table 26

Summary of Hierarchical Regression Analysis for Child Characteristic Variables Predicting Weight Control Behaviour (N = 372)

Variable	B	β	sr^2
Step 1			
Body mass index	0.015	0.392	0.15***
Step 2			
Self-esteem	-0.050	-0.373	0.09***
Emotional autonomy	0.003	0.078	0.01
Positive attributional style	0.008	0.037	0.00
Social assistance coping	-0.013	-0.054	0.00
Cognitive-behavioural coping	0.017	0.075	0.00
Cognitive avoidance coping	-0.029	-0.043	0.00
Behavioural avoidance coping	0.059	0.091	0.01

Note. R^2 = .15 for Step 1; ΔR^2 = .19 for Step 2 ($p<.001$).

*$p<.05$. **$p<.01$. ***$p<.001$.

Table 27

Summary of Hierarchical Regression Analysis for Child Characteristic Variables Predicting Clinical Eating Pathology (N = 372)

Variable	B	β	sr^2
Step 1			
Body mass index	0.271	0.171	0.03***
Step 2			
Self-esteem	-1.933	-0.346	0.08***
Emotional autonomy	0.132	0.085	0.01
Positive attributional style	-0.366	-0.042	0.00
Social assistance coping	-0.198	-0.020	0.00
Cognitive-behavioural coping	-1.826	-0.191	0.02***
Cognitive avoidance coping	4.303	0.154	0.02**
Behavioural avoidance coping	2.032	0.077	0.00

Note. R^2 = .03 for Step 1; ΔR^2 = .26 for Step 2 ($p<.001$).

*$p<.05$. **$p<.01$. ***$p<.001$.

predicted clinical eating pathology scores: self-esteem (β = -0.35), cognitive- behavioural problem-solving coping (β = -0.19), and cognitive avoidant coping (β = 0.15). Several other child characteristic variables were significantly correlated with weight control behaviour: emotional autonomy (r = .17), positive attributional style (r = -.26), and cognitive avoidant coping (r = .33). Apparently, the relationship between each of these variables and clinical eating pathology is mediated by their relationships with BMI and other child characteristic variables.

Environmental Influence Predictors of Overconcern with Weight and Shape. To determine whether environmental influence variables significantly predicted overconcern with weight and shape while controlling for BMI, BMI was forced to enter the equation on the first step. Environmental influence variables were entered as a set on the second step (results summarized in Table 28). The total R^2 (0.55) was significant F (9, 362) = 48.42, $p<.001$ after all of the IVs had been entered into the equation. The increment in R^2 was also significantly different after each step. The following environmental influence variables were significant predictors of overconcern with weight and shape scores: media pressures for thinness (β = 0.39), peer pressures for thinness (β = 0.27), and parental pressures for thinness (β = 0.16). Scores on the measure of mother care approached significance as a predictor of overconcern with weight and shape (β = -0.10). Peer support was significantly correlated with overconcern with weight and shape (r = -0.19), but this relationship appears to be mediated by relationships with BMI and other environmental influence variables.

Table 28

Summary of Hierarchical Regression Analysis for Environmental Influence Variables Predicting Overconcern with Weight and Shape (N = 372)

Variable	B	β	sr^2
Step 1			
Body mass index	0.005	0.354	0.12***
Step 2			
Peer pressure for thinness	0.302	0.270	0.05***
Media pressure for thinness	0.146	0.393	0.10***
Parental pressure for thinness	0.070	0.163	0.02***
Mother care	-0.004	-0.096	0.01*
Mother overcontrol	0.000	0.011	0.00
Father care	0.002	0.054	0.00
Father overcontrol	0.000	0.011	0.00
Peer support	-0.002	-0.065	0.00

Note. R^2 = .12 for Step 1; ΔR^2 = .42 for Step 2 ($p<.001$).

*$p<.05$. **$p<.01$. ***$p<.001$.

Environmental Influence Predictors of Weight Control Behaviour. To determine whether environmental influence variables significantly predicted weight control behaviour while controlling for BMI, BMI was forced to enter the equation on the first step. Environmental influence variables were entered as a set on the second step (results summarized in Table 29). The total R^2 (0.48) was significant F (9, 362) = 37.95, $p<.001$ after all of the IVs had been entered into the equation. The increment in R^2 was also significantly different after each step. The following environmental influence variables significantly predicted clinical eating pathology scores: media pressures for thinness (β = 0.36), peer pressures for thinness (β = 0.28), and parental pressures for thinness (β = 0.10).

Environmental Influence Predictors of Clinical Eating Pathology. To determine whether environmental influence variables significantly predicted clinical eating pathology while controlling for BMI, BMI was forced to enter the equation on the first step. Environmental influence variables were entered as a set on the second step (results summarized in Table 30). The total R^2 (0.36) was significant F (9, 362) = 22.10, $p<.001$ after all of the IVs had been entered into the equation. The increment in R^2 was also significantly different after each step. The following environmental influence variables were significant predictors of clinical eating pathology scores: media pressures for thinness (β = 0.28), peer pressures for thinness (β = 0.28), and parental pressures for thinness (β = 0.22).

Table 29

Summary of Hierarchical Regression Analysis for Environmental Influence Variables Predicting Weight Control Behaviour (N = 372)

Variable	B	β	sr^2
Step 1			
Body mass index	0.015	0.392	0.15***
Step 2			
Peer pressure for thinness	0.927	0.281	0.06***
Media pressure for thinness	0.397	0.362	0.09***
Parental pressure for thinness	0.130	0.103	0.01*
Mother care	0.000	0.000	0.00
Mother overcontrol	-0.000	-0.003	0.00
Father care	-0.000	-0.002	0.00
Father overcontrol	0.002	0.023	0.00
Peer support	-0.002	-0.065	0.00

Note. R^2 = .15 for Step 1; ΔR^2 = .33 for Step 2 ($p<.001$).

*$p<.05$. **$p<.01$. ***$p<.001$.

Table 30

Summary of Hierarchical Regression Analysis for Environmental Influence Variables Predicting Clinical Eating Pathology (N = 372)

Variable	B	β	sr^2
Step 1			
Body mass index	0.271	0.171	0.03***
Step 2			
Peer pressure for thinness	38.532	0.284	0.06***
Media pressure for thinness	12.537	0.278	0.05***
Parental pressure for thinness	11.270	0.217	0.04***
Mother care	-0.058	-0.012	0.00
Mother overcontrol	-0.011	-0.003	0.00
Father care	-0.050	-0.012	0.00
Father overcontrol	0.048	0.012	0.00
Peer support	0.076	0.022	0.00

Note. R^2 = .03 for Step 1; ΔR^2 = .32 for Step 2 ($p<.001$).

*$p<.05$. **$p<.01$. ***$p<.001$.

CHAPTER IV

Discussion

Classification System

Conceptualization Challenges

This study incorporates one of the first known attempts to apply the person-focussed design recommended by childhood psychopathology researchers such as Masten (2001) to the study of eating disturbances. During the conceptualization phase of the present study, difficulties were encountered defining and operationalizing the concepts of eating disorder risk and outcome, particularly with a preadolescent population. For example, risk status was defined in terms of body dissatisfaction because definitive non-symptom eating disorder risk factors have yet to be identified. However, using a symptom risk factor such as body dissatisfaction potentially confounds identification of participants with good outcomes. For example, the resilient group demonstrates good outcomes in terms of less disordered eating behaviour, but because they also demonstrate elevated body dissatisfaction, it is possible there is a disease process underway. Due to the limited availability of measures of healthy eating attitudes and behaviour, successful outcomes were defined as decreased levels of eating pathology. The task of assessing risk and outcome constructs was further complicated by the paucity of literature regarding disordered eating among preadolescent children.

Classification System Performance

Evaluations of classification system performance indicate that conceptual difficulties were not adequately resolved. One of the most serious shortcomings of the current attempt was the use of the 50th percentile cutoff to determine group membership.

Use of the 50th percentile decreases confidence in the classification of participants as high or low risk, and good or poor outcome. Similar to previous person-focussed investigations (e.g., Masten et al., 1999; Showers & Larson, 1999), current cell sizes were small, and a large percentage of participants were unclassified (35%). A significantly smaller percentage of participants in the present study were classified as resilient (5%) compared to previous research (23% in Masten et al., 1999 and 26% in Showers & Larson, 1999). Although the crude validity check used in the present study suggested that groups differed in the expected direction on risk/outcome variables, a more sophisticated check would be required to ensure validity.

Summary of Findings

Person-Focussed

Primary hypotheses. The primary hypotheses predicted that the resilient group would obtain higher scores on potential protective variables and lower scores on potential risk variables than the maladapted group. These hypotheses were not supported by the MANOVA results because the risk by outcome interactions failed to reach significance for all child and environmental characteristic variables.

Secondary hypotheses. The secondary hypotheses were partially supported by the present findings. They predicted that participants classified as low risk would report increased levels of potential protective characteristics and decreased levels of potential risk characteristics compared to the high-risk group. The results indicated that the low-risk group scored higher on the measure of self-esteem and lower on measures of social pressures for thinness. Differences between high and low-risk groups were nonsignificant

for the following variables: maladaptive coping, adaptive coping, positive attributional style, emotional autonomy, peer support, and parental support.

Secondary hypotheses also predicted that participants classified as having good outcomes would demonstrate increased protection and decreased risk relative to those with poor outcomes. Results partially supported these hypotheses such that participants with good outcomes demonstrated higher self-esteem, lower social pressure for thinness, and lower maladaptive coping. Differences between those with good and poor outcomes were nonsignificant for adaptive coping, positive attributional style, emotional autonomy, peer support, and parental support.

Results of the present study stand in contrast to the Luthar (1991) findings indicating that the resilient individuals score higher on a measure of internalized distress. Current findings were consistent with those of Masten et al. (1999), suggesting that resilient outcomes are not obtained at the "cost" of increased psychological distress.

Variable-Focussed

Child characteristics. As predicted, the results indicated that self-esteem was inversely associated with disordered eating attitudes and behaviours. Findings regarding the association between coping and disordered eating were less clear. Contrary to predictions, neither adaptive or maladaptive coping were significantly predictive of subclinical disordered eating. However, the current results suggest that both adaptive and maladaptive coping may be associated with clinical eating pathology. In particular, increased cognitive-behavioural problem-solving coping and decreased cognitive avoidant coping appear to be linked to reduced clinical eating pathology.

Environmental characteristics. There was strong evidence supporting the hypothesized relationship between perceived sociocultural pressures for thinness and disordered eating. Perceived pressure for thinness from media, peers, and parents consistently emerged as significant predictors of disordered eating. However, the current results generally did not support the predicted association between social support and disordered eating. Neither perceived parental care, parental overcontrol, or peer support were significant predictors of disordered eating. There was weak evidence of an inverse association between maternal care and overconcern with weight and shape, but not with other aspects of disordered eating.

Relative importance of predictors. The current results provide information about the relative importance of the child characteristic and environmental predictors. Self-esteem emerged as one of the most important predictors, accounting for 10-15% of the variance in disordered eating scores while controlling for BMI. Internalization of the media promoted thin-ideal was another important predictor, it accounted for approximately 10% of disordered eating variance while controlling for BMI. Perceived peer pressures for thinness accounted for 5% of the variance, and parental pressures for thinness accounted for 1-4% of the variance in disordered eating. Cognitive-behavioural problem-solving coping, cognitive avoidant coping, and maternal care were also significant predictors, but accounted for a small percentage of unique variance (1-2%). The set of environmental influence variables accounted for a larger percentage of unique variance in disordered eating scores (30-40%), controlling for BMI, than did the set of child characteristic variables (20%).

Overall Findings

Overall findings are summarized in Tables 31 and 32. The current findings strongly support self-esteem as a potential protective factor, and social pressures for thinness as potential risk factors for disordered eating in preadolescent girls. There was moderate support for the potentially detrimental impact of maladaptive coping. The potentially protective role of adaptive coping and maternal support garnered weak support. The risk/protective role of the following variables was not supported by current findings: emotional autonomy, positive attribution, and peer support.

Explanation of Nonsignificant Findings

General Explanations

The potential risk/protective role of the following variables received little to no support across analyses: emotional autonomy, positive attributional style, adaptive coping, peer support, and parental support. This may indicate that these variables are truly unrelated to eating pathology. It is also possible that nonsignificant findings reflect developmental differences in risk/protective factors. Because of the paucity of research regarding preadolescent risk/protective factors, many of the variables were selected based on their observed significance in adolescent and young adult samples. Discrepant findings may also be related to measurement difficulties. For example, the internal consistencies were low for the measures assessing the following constructs: emotional autonomy, positive attributional style, and parental overcontrol.

With regards to the variable-focussed analyses, nonsignificance may have been due to the problem of multicollinearity. For example, variables such as emotional autonomy, positive attributional style, and avoidant coping were significantly correlated

Table 31

Summary of Results regarding Potential Child Characteristic Risk/Protective Factors

Hypothesis	Findings Support	Findings Not Support	Interpret'n
#1 self-esteem protective (strong)	MANOVA (main effect risk & outcome) Regressions (all)		Strong
#2 emotional autonomy protective (moderate)		MANOVAs (all) Regressions (all)	None
#3A adaptive coping protective (moderate)	Regressions (1 of 3)	MANOVAs (all) Regressions (2 of 3)	Weak
#3B positive attribution protective (moderate)		MANOVAs (all) Regressions (all)	None
#3C maladaptive coping risk (weak)	MANOVA (main effect outcome) Regressions (1 of 3)	MANOVA (main effect risk & ixn) Regressions (2 of 3)	Moderate

Note. Confidence ratings in interpretation column determined as follows: Strong = support from majority of MANOVA and Regression analyses; Moderate = at least some support from both MANOVA and Regression analyses; Weak = at least some support from MANOVA or Regression analyses; None = support from neither MANOVA nor Regressions

Table 32

Summary of Results regarding Potential Environmental Characteristic Risk/Protective Factors

Hypothesis	Findings Support	Findings Not Support	Interpret'n
#4A media pressure risk (strong)	MANOVAs (main effects risk & outcome) Regressions (all)		Strong
#4B parent pressure risk (moderate)	MANOVAs (main effects risk & outcome) Regressions (all)		Strong
#4C peer pressure risk (moderate)	MANOVAs (trend main effects) Regressions (all)		Strong
#5A parental support protective (moderate)	Regressions (maternal care 1 of 3)	MANOVAs (all) Regressions (maternal care 2 of 3; paternal care all; parental overcontrol all)	Weak
#5B peer support protective (moderate)		MANOVAs (all) & Regressions (all)	None

Note. Confidence ratings in interpretation column determined as follows: Strong = support from majority of MANOVA and Regression analyses; Moderate = at least some support from both MANOVA and Regression analyses; Weak = at least some support from MANOVA or Regression analyses; None = support from neither MANOVA nor Regressions

with disordered eating outcomes. However, they were not significant at the multivariate level. Previous researchers interested in risk and protective factors for disordered eating have encountered the problem of multicollinearity. Stice et al. (1998) concluded simply that "the risk factors are related in a complex mediational process that results in multicollinearity" (p.201).

There are several possible explanations for the lack of significant interaction effects in the person-focussed analyses. First, it may have been attributable to aforementioned limitations of the classification system itself. Second, it may reflect a more general trend within the childhood psychopathology resilience literature. Specifically, empirical findings with the interactive model have been fewer and less robust than the additive (main effects) model (Masten, 2001).

Specific Explanations

Emotional autonomy. The lack of support for emotional autonomy as a potential protective factor stand in contrast to those of Muir et al. (1999) who found that increased autonomy differentiates at-risk adolescent girls with good eating outcomes from those with poor outcomes. The current findings are also inconsistent with prior results indicating that increased emotional autonomy is inversely associated with disordered eating in adolescent girls (Lattimore & Butterworth, 1999; Strong & Huon, 1998).

Attributional style/adaptive coping. The prediction that increased positive attributional style and adaptive coping would be protective against disordered eating in preadolescents was generally not supported. However, this finding was consistent with several other studies indicating that the association between disordered eating and adaptive coping failed to reach significance in young adult samples (e.g., Denisoff &

Endler, 2000). The current findings converge with those of Showers and Larson (1999), who found that maladaptive but not adaptive coping was significantly associated with disordered eating outcomes in high-risk women. The results of the Troop and Treasure (1997) investigation also suggest that the relationship between disordered eating and adaptive coping, while significant, may be less robust than its relationship with maladaptive coping. The current findings do not support the idea that adaptive coping exerts a protective influence on general developmental outcomes (e.g., Cowen et al., 1997).

Parental support. Contrary to predictions, the results of the present study suggest that increased parental care and decreased parental overcontrol may not protect against the development of eating disturbances in preadolescent girls. Although limited data is available regarding the relationship between perceived quality of parental relationships and disordered eating among preadolescents, the current findings are inconsistent with those obtained in older samples. Previous findings suggest that parental support protects against disordered eating in high-risk adolescents (McVey et al., 2002; Neumark-Sztainer et al., 2000), and have demonstrated a link between poor perceived parenting quality and disordered eating among adolescents and young adult women (e.g., Bulik et al., 2000; Haudek et al., 1999; Romans et al., 2001).

It is also possible that parental support failed to emerge as a potential protective factor because parental qualities are not directly related to disordered eating outcomes. For example, several studies suggest that parental care/overprotection and general family dysfunction are indirectly related to disordered eating through their impact on child characteristics such as emotional autonomy and self-efficacy (Lattimore & Butterworth,

1999; Strong & Huon, 1998). Moreover, Vincent and McCabe (2000) found that family support was a less important predictor of adolescent disordered eating than perceived family pressures for thinness, and perceived parenting quality did not significantly differentiate participants with anorexia from controls in the Castro et al. (2000) investigation.

Peer support. The current results do not support the potentially protective influence of peer support against the development of eating disturbances in preadolescent girls. Current findings are inconsistent with the previous reports of an inverse relationship between peer support and disordered eating in adolescents and young adults (e.g., Mueller et al., 1995; Rorty et al., 1999). The current results do not appear to be attributable to measurement issues because the measure of perceived peer support employed in the present study, the Child and Adolescent Social Support Scale, demonstrated strong internal consistency. Moreover, previous research supports the reliability and validity of this measure for preadolescents and adolescents (Malecki et al., 2000). Several previous investigations have questioned the strength of the relationship between peer support and disordered eating. For example, Ghaderi and Scott (1999) found perceived parental support to be significantly associated with eating pathology in young adult women, whereas perceived peer support was not. In addition, Vincent and McCabe (2000) discovered peer pressure for thinness was a stronger predictor of disordered eating than the quality of peer relationships.

Explanation of Significant findings

Self-Esteem

Current findings strongly supported self-esteem as a potential protective factor against disordered eating in preadolescents. This finding is consistent with previous research showing that self-esteem and disordered eating are inversely related among samples of preadolescent and adolescent girls (Edmunds & Hill, 1999; French et al., 2001; Shisslak et al., 1998; Taylor et al., 1998). The results of longitudinal studies suggest that self-esteem deficits precede the onset of eating disturbances (e.g., Button et al., 1996) and that self-esteem may be a causal risk/protective factor.

Maladaptive Coping

Current findings provide moderate support for maladaptive coping as a potential risk factor for disordered eating in preadolescents. Current findings are congruent with the Troop and Treasure (1997) results indicating maladaptive coping during childhood may be associated with increased eating disturbance during adulthood. Current findings are also consistent with previous research indicating that avoidant coping is positively associated with disordered eating among young adult women (e.g., Denisoff & Endler, 2000; Mayhew & Edelmann, 1989). The present findings partially converge with results of the Showers and Larson (1999) investigation. Similar to their results, current findings suggest maladaptive coping differentiates women with poor eating outcomes from those with good eating outcomes. However, unlike their findings, risk-level was not significantly associated with disordered eating in the present study.

Media Pressure for Thinness

Current findings strongly supported increased perceived media pressure for thinness as a potential risk factor. This is consistent with the results of an investigation by Stice and Agras (1998), who found that decreased thin-ideal internalization prospectively predicted cessation of adolescent disordered eating behaviour. Moreover, the results of the current study support the notion that involvement in subcultures promoting a healthier alternative to the thin-ideal (i.e., body as an agent rather than an aesthetic object) may be protective (Rodin et al., 1992; Zucker et al., 1999). The current findings also converge with the results of previous studies indicating that increased internalization of the thin-ideal is associated with increased disordered eating among preadolescent (e.g. Taylor et al., 1998) and adolescent girls (e.g., Levine et al., 1994, Stice et al., 1998; Thompson & Stice, 2001).

Peer Pressure for Thinness

Current findings support increased perceived peer pressure for thinness as a potential risk factor. This is consistent with the results of previous studies indicating that increased peer pressure for thinness is positively associated with disordered eating among preadolescent (Taylor et al., 1998), and adolescent girls (e.g., Lieberman et al., 2001; Paxton et al., 1999; Shisslak et al., 1998, Taylor et al., 1998; Vincent & McCabe, 2000). Current findings also appear to converge with previous research highlighting the protective role of peer modelling on developmental outcomes (e.g., Jessor et al., 1998; Voyandoff & Donnelly, 1999).

Parental Pressure for Thinness

Current findings suggest parental pressure for thinness is a risk factor for disordered eating in preadolescent girls. The adverse impact of direct parental pressure for thinness on the eating attitudes and behaviours of both preadolescent and adolescent girls has been well documented in previous studies (e.g., Levine, et al., 1994; Smolak, et al., 1999; Taylor et al., 1998; Thelen & Cormier, 1995; Wertheim et al., 1999).

Relative Importance of Significant Variables

Multiple regression findings provided information about the relative importance of potential risk/protective factors. Results suggesting that self-esteem is one of the strongest predictors of disordered eating are consistent with previous cross-sectional (Shisslak et al., 1998; Taylor et al., 1998) and longitudinal research (Stice et al., 2002). Perceived peer pressure for thinness and internalization of the thin-ideal have previously been identified as two of the most important predictors of disordered eating (e.g., Shisslak et al., 1998; Stice et al., 1998; Stice & Agras, 1998; Stice et al., 2002; Taylor et al., 1998). Current findings are consistent with those of Vincent and McCabe (2000) who found perceived social pressure for thinness to be a more important predictor of adolescent disordered eating than the quality of social relationships. The results of the present regression analyses suggest that parental pressure for thinness may be a less important predictor of disordered eating than other sources (i.e., media and peers). However, this finding may be confounded by measurement difficulties. Specifically, the measure used to assess parental pressure for thinness produced a very narrow range of scores, which likely decreased its power in regression analyses.

Implications of Overall Findings

Theoretical

Although the results of the present investigation identified several potential eating disorder risk/protective factors, they cannot be considered causal until they have been established as preceding the onset of eating disturbances (Kazdin et al., 1997). Considerable empirical evidence exists that self-esteem and internalization of media pressure for thinness are causal risk/protective factors among adolescents (e.g., Stice et al., 2002; Thompson & Stice, 2001). There is a paucity of longitudinal research regarding the relationship between coping and disordered eating. The current findings support the contention that eating disorder risk/protective factors are likely to be both general and specific (Crago et al., 2001). This is consistent with the dual pathway etiological model of eating pathology (Stice, 2001). Both self-esteem and coping have been previously supported as important risk/protective factors for general childhood psychopathology (e.g., Cowen et al., 1997; Masten et al. 1999). Perceived sociocultural pressure for thinness likely represents a specific risk/protective factor.

Masten (2001) explains that risk/protective factors theoretically operate according to main effect and interactional models. Current findings supported the main effect model, and failed to support the interactional model. The lack of interactive effects in the present study is consistent with the observed paucity of such effects in the childhood psychopathology resilience literature (Masten, 2001). Previous researchers have speculated that environmental variables exert direct and/or indirect influences on disordered eating outcomes (e.g., Strong & Huon, 1998; Lattimore & Butterworth, 1999). Social support is a variable that may indirectly effect disordered eating outcomes, and its

effect may be mediated by such child characteristics as self-esteem and coping (Head & Williamson, 1990). Regression findings provided preliminary support for the notion that social support exerts an indirect influence on disordered eating.

Empirical

Designs. The current study employed both person-focussed and variable-focussed designs in order to identify potential risk/protective factors for disordered eating among preadolescent girls. As Masten (2001) notes, the person-focussed design provides important information about factors differentiating groups of participants with different risk/outcome profiles. Although the present attempt was not very successful, the person-focussed model has the potential to provide information about factors differentiating participants at various positions along the disordered eating continuum (i.e., those who are at risk for disordered eating but not yet exhibiting disordered eating behaviour from those demonstrating such behaviour). The application of the person-focussed approach to eating disorder research is in its infancy, and is limited by the previously mentioned conceptual and measurement issues. The variable-focussed design was useful in establishing the relative importance of various potential risk/protective factors. Both designs yielded similar results regarding potential key risk/protective factors.

Measures. One of the challenges encountered in the present study was finding measures designed specifically for use with preadolescent samples. In cases where such measures were not available, those developed for use with adolescent samples were employed. The Emotional Autonomy Scale was normed on a sample of young adolescents, and demonstrated poor reliability in the present study. However, current internal consistencies were comparable to those obtained with the normative sample. The

Brief Current version of the Parental Bonding Instrument was developed to assess adolescent perceptions of parental care and parental overcontrol. Subscales assessing parental overcontrol demonstrated poor reliability with the present sample, whereas parental care subscales demonstrated acceptable reliability. Internal consistencies with the present sample were significantly lower than those reported by Klimidis et al. (1992b).

Those measures designed specifically for use with preadolescents typically performed better within the current sample. For example, the McKnight Risk Factor Survey subscales employed in the present study demonstrated good internal consistency. However, several measures designed for use with preadolescents demonstrated poor reliability. Specifically, internal consistencies for the Children's Attributional Style Questionnaire – Revised and the Assistance Seeking subscale of the Coping Strategies for Children and Youth were low. They were significantly lower than those reported by the scale developers (Brodzinsky et al., 1992; Thompson et al., 1998).

Clinical

Current findings suggest that self-esteem, perceived social pressures for thinness, and maladaptive coping are potential risk/protective factors for the development of eating disturbances among preadolescent girls. These possible intervention targets operate at both personal and sociocultural levels. Thus, it is important to develop prevention programs that target risk and protective processes involving multiple systems (Crago et al., 2001). This strategy also reflects a current direction in general childhood psychopathology prevention:

> If multiple processes influence developmental pathways, it is not reasonable to expect interventions targeting a single influence to have much impact.

> Interventions are likely to be increasingly multifaceted and longitudinal; targeting multiple risk and protective processes involving multiple developmental systems... and shifting focus strategically as the leverage for change shifts with development (Masten, 1999, p.292).

There is growing awareness among eating disorder prevention researchers of the importance of targeting both general and specific risk/protective factors (Crago et al., 2001). Self-esteem, maladaptive coping, and sociocultural pressures for thinness are particularly appropriate for inclusion in such programs because they are modifiable (Phelps et al., 1999). Shisslak and Crago (2001) note that prevention programs including self-esteem and coping skill components tend to be effective in promoting positive changes in eating attitudes and behaviours. They emphasize the importance of studying the process of self-esteem building, because of its potential value in preventing eating pathology and other comorbid disorders. The current findings reinforce the importance of continuing to include modules designed to help participants resist sociocultural pressures for thinness, and to modify peer and family attitudes about weight and shape (Levine & Piran, 2001).

Limitations and Future Directions

Classification System

The present study is limited due to multiple difficulties applying the person-focussed classification model to the study of eating disturbances. It is possible that the present attempt was premature, and that future attempts should await advances in measurement development, and non-symptom risk factor identification. Promising non-symptom risk factors include a history of weight-related teasing, low self-esteem, and

elevated BMI. Additional research is also required regarding the conceptualization and measurement of "good" eating outcomes, because existing research has been pathology-oriented. Once this has been accomplished, researchers should further evaluate the utility of the person-focussed classification system applied to eating disturbances. However, they should ensure that they include an adequate validity check of classification system performance. They might follow the lead of previous researchers, such as Showers and Larson (1999), who evaluated their classification system according to group differences on independent measures of eating pathology.

Key Potential Risk and Protective Factors

Because of the paucity of research regarding potential risk/protective factors for eating disturbances among preadolescent females, a necessary step is to replicate the current findings regarding the role of self-esteem, maladaptive coping, and social pressures for thinness. Future research will need to determine whether self-esteem, maladaptive coping, and perceived social pressures for thinness are prospectively predictive of eating disturbances among preadolescent girls. There is also a need for researchers to develop measures of risk/protective dimensions appropriate for use with preadolescents. The McKnight Risk Factor Survey III (Shisslak et al., 1999) appears to be a promising instrument, but it has not yet been widely adopted by researchers. Once key risk and protective factors have been confirmed, their mechanisms of influence should be investigated, as well as the processes which shape them. Eating disorder resilience researchers should follow the progression of general childhood psychopathology resilience research:

> Basic research is needed on how assets and moderators 'work', and how these processes change as a function of development. Highly focussed short-term longitudinal designs may be useful in identifying likely processes, which could then be experimentally tested through intervention studies (Masten, 1999, p.293).

Additional research is required to determine why several of the hypotheses of the present study were unsupported. Of particular interest are variables such as emotional autonomy, attributional style, parental care and overprotection, and peer support. Variables excluded from the present study that warrant further investigation include self-efficacy, general family functioning, and membership in protective subcultures. Numerous questions remain unanswered regarding the relative importance of adaptive versus maladaptive coping in the development of eating disturbances. The direct influence of parental and peer support on disordered eating was not supported by current findings, but further research should determine whether these variables exert an indirect effect. Previous results suggest that parental support may be mediated by child characteristics such as self-esteem and emotional autonomy. Additional research is required to distinguish between general and specific eating disorder risk/protective factors. Ideally, these studies would be prospective in nature, and would be designed to evaluate predictors of eating pathology as well as other emotional and behavioural difficulties.

Interrelationships between Risk/Protective Factors and Disordered Eating Outcomes

The potential risk/protective role of numerous child and environmental variables was assessed in the present study. Variables of interest were selected from Table 1. Table 1 includes variables across child, parental, peer, and societal domains. It incorporates a

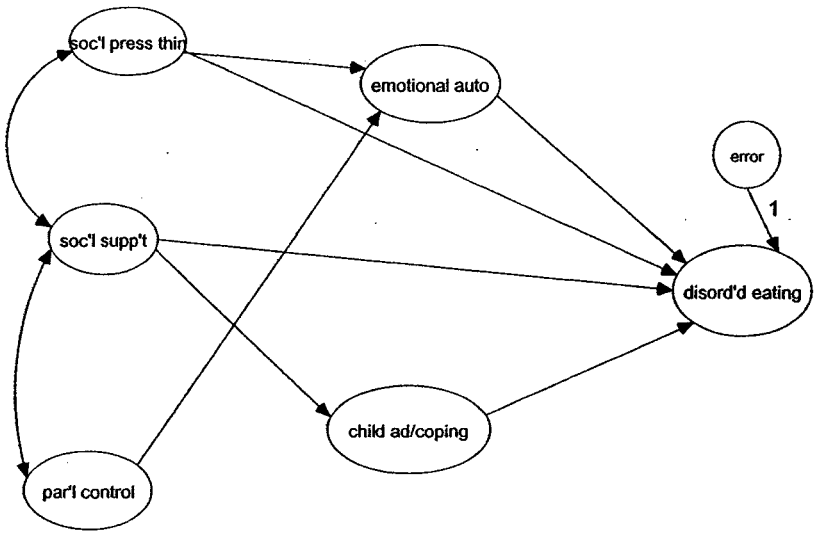
dual-pathway format, such that risk/protective factors are separated into "specific" and "nonspecific" streams. Personality characteristics, such as higher autonomy and higher self-esteem, were selected based on evidence suggesting they mediate the impact of social pressures for thinness. The important protective role of adaptive coping is also reflected in the table. Finally, environmental factors such as parental care/overcontrol and peer support, were chosen due to their potential role in shaping child protective characteristics.

These hypotheses regarding the interrelationships between child and environmental variables, and disordered eating outcomes, lend themselves to model testing. Developmental psychopathologists view model building as a key tool in "explaining clinical phenomena in a manner that provides insight into treatment and prevention" (Dishion & Patterson, 1999, p.502). Models to be tested are pragmatic, and malleable constructs are preferred in an effort to identify targets for intervention. Model building is an iterative process consisting of theory, field observation, construct definition, measurement development, construct validity, model testing, intervention trials, and so on (Dishion & Patterson, 1999). The model specified in Figure 1 represents a sample model to be tested in future investigations.

The model in Figure 1 makes predictions about the relationships between the following variables: social pressures for thinness, social support, parent support for autonomy, child adjustment/coping, child autonomy, and disordered eating. It hypothesizes that greater perceived social pressures for thinness predicts increased disordered eating, and that its influence is both direct and indirect (i.e., mediated by child autonomy). It predicts that increased perceived social support is associated with decreased disordered eating, and that its influence is both direct and indirect (i.e., mediated

Figure 1

Hypothesized Model regarding Interrelationships between Child, Environmental, and Disordered Eating Variables



by child adjustment/coping). Increased parental support for autonomy is predicted to be associated with decreased disordered eating, and child autonomy is expected to mediate this relationship. Increased child autonomy and adaptive child coping are hypothesized to directly influence decreased disordered eating.

Conclusions

Eating disorder researchers are beginning to realize that the developmental psychopathology and childhood resilience literatures represent important resources for those interested in eating disorder risk/protection (Rodin et al., 1992; Crago et al., 2001). The conceptualization of the present study was influenced by these literatures, and it successfully illuminated several potential risk/protective factors for the development of eating disturbances among preadolescent girls. Self-esteem, social pressures for thinness, and maladaptive coping emerged as potential risk/protective factors. Therefore, preadolescent girls who have higher self-esteem, are less likely to use avoidant coping strategies, and perceive less social pressures for thinness are more likely to have healthy eating attitudes and behaviour.

The current investigation represents a preliminary attempt at furthering our understanding of the factors shaping eating attitudes and behaviours among preadolescents. Once the role of individual risk/protective factors for this age-group has been established, it will be important to continue developing multivariate etiological models. Models identifying risk/protective factors mediating the impact of social pressures for thinness, and those that reflect the dual pathway theory, appear particularly promising.

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APPENDICES

Appendix A

Demographic Questionnaire

Instructions: Please do your best to answer the following questions as accurately as possible.

1. **INSTRUCTIONS:** Please do your best to answer the following questions as accurately as possible.

---

1. **Circle** the **MONTH** of your birthday.

January	February	March	April	May	June
July	August	September	October	November	December

2. On what **DAY** of the month is your birthday (please **circle** your answer)?

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

3. **Circle** the **YEAR** you were born. 1986 1987 1988 1989 1990 1991 1992

4. What grade are you in (please **circle**)? 4th 5th 6th

5. How old are you (please **circle**)? 7 8 9 10 11 12 13

6. Please put a **checkmark** next to the ONE group below which best describes what you consider yourself to be.

_____ White	_____ African Canadian/Black
_____ Latina/Hispanic	_____ Mexican/Mexican-Canadian
_____ Cambodian	_____ Filipino
_____ Korean	_____ Vietnamese
_____ Laotian	_____ Pacific Islander
_____ Native/First Nations	_____ Japanese/Japanese-Canadian
_____ Chinese/Chinese-Canadian	_____ Asian Indian
_____ Other (please specify _____)	

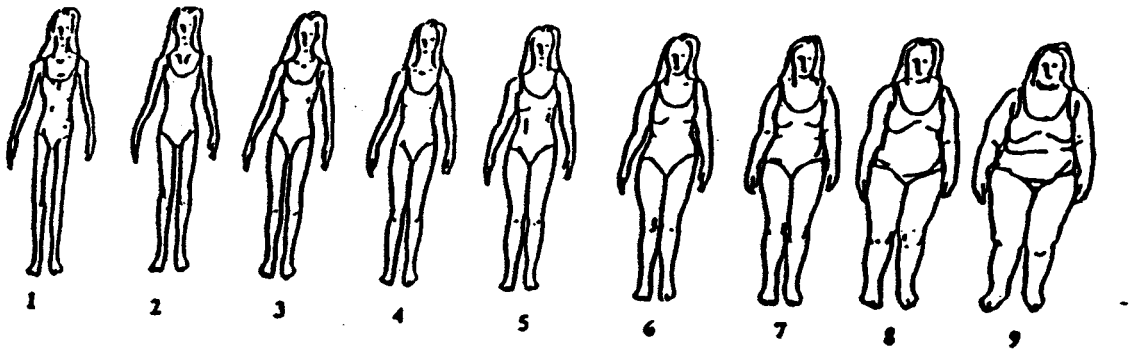
7. How tall are you? ___ feet ___ inches OR ___meters ___centimeters

8. How much do you weigh? _____ pounds OR _____ kilograms

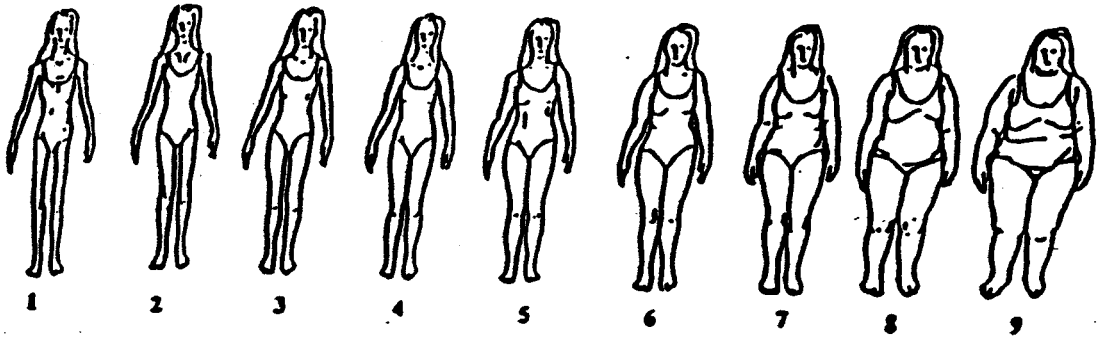
Appendix B

Body Rating Scale

Instructions: Please look at all nine figures below and circle the figure which best matches how you think you look now. Please look at the *whole* figure, and not just specific body parts like arms or legs.



Instructions: Please look at all nine figures below and circle the figure which best matches how you would like to look. Please look at the whole figure, and not just specific body parts like arms or legs.



Appendix C

MRFS-III Overconcern with Weight and Shape Scale

Instructions: Carefully read each of the questions below, then **circle how often** you have had each experience.

1. In the past year, how often have you thought about having fat on your body?

Never	Sometimes	A Lot
1	2	3

2. In the past year, how often have you felt fat?

Never	Sometimes	A Lot
1	2	3

3. In the past year, how often have you thought about wanting to be thinner?

Never	Sometimes	A Lot
1	2	3

4. In the past year, how often have you worried about gaining 2 pounds?

Never	Sometimes	A Lot
1	2	3

5. In the past year, how much has your weight made a difference in how you feel about yourself?

Not at all	Some	A Lot
1	2	3

Appendix D

The Children's version of the Eating Attitudes Test

Instructions: Please circle the number which best applies to the statements below:

Never 1	**Rarely** 2	**Sometimes** 3	**Often** 4	**Very often** 5	**Always** 6

1. I am scared about being overweight.	1	2	3	4	5	6
2. I stay away from eating when I am hungry.	1	2	3	4	5	6
3. I think about food a lot of the time.	1	2	3	4	5	6
4. I have gone on eating binges where I feel I might not be able to stop.	1	2	3	4	5	6
5. I cut my food into small pieces.	1	2	3	4	5	6
6. I am aware of the energy (caloric) content in the foods I eat.	1	2	3	4	5	6
7. I try to stay away from foods such as breads, potatoes, and rice.	1	2	3	4	5	6
8. I feel that others would like me to eat more.	1	2	3	4	5	6
9. I vomit after I have eaten.	1	2	3	4	5	6
10. I feel very guilty after eating.	1	2	3	4	5	6
11. I think a lot about wanting to be thinner.	1	2	3	4	5	6
12. I think about burning up energy (calories) when I exercise.	1	2	3	4	5	6
13. Other people think I am too thin.	1	2	3	4	5	6
14. I think a lot about having fat on my body.	1	2	3	4	5	6
15. I take longer than others to eat my meals.	1	2	3	4	5	6

16. I stay away from foods with sugar in them.	1	2	3	4	5	6
17. I eat diet foods.	1	2	3	4	5	6
18. I think that food controls my life.	1	2	3	4	5	6
19. I can show self-control around food.	1	2	3	4	5	6
20. I feel that others pressure me to eat.	1	2	3	4	5	6
21. I give too much thought and time to food.	1	2	3	4	5	6
22. I feel uncomfortable after eating sweets.	1	2	3	4	5	6
23. I have been dieting.	1	2	3	4	5	6
24. I like my stomach to be empty.	1	2	3	4	5	6
25. I enjoy trying new rich foods.	1	2	3	4	5	6
26. I have the urge to vomit after eating.	1	2	3	4	5	6

Appendix E

MRFS-III Weight Control Behaviours Scale

Instructions: Carefully read each of the questions below, then **circle how often** you have had each experience.

1. In the past year, how often have you tried to lose weight?

Never	Sometimes	A Lot
1	2	3

2. In the past year, how often have you tried to lose weight by starving (not eating) for a day or more?

Never	Sometimes	A Lot
1	2	3

3. In the past year, how often have you tried to lose weight by cutting back on what you ate?

Never	Sometimes	A Lot
1	2	3

4. In the past year, how often have you tried to lose weight by skipping meals?

Never	Sometimes	A Lot
1	2	3

5. In the past year, how often have you tried to lose weight by exercising?

Never	Sometimes	A Lot
1	2	3

6. In the past year, how often have you tried to lose weight by eating less sweets or fatty foods?

Never	Sometimes	A Lot
1	2	3

Appendix F

Children's Depression Inventory – Sample Items[29]

Kids sometimes have different feelings and ideas. This questionnaire lists the feelings and ideas in groups. From each group of three sentences, pick one sentence that describes you *best* for the *past two weeks*. After you pick a sentence in the first group, go on to the next group. There is no right or wrong answer. Put a checkmark in the space next to your answer.

Remember, describe how you have been in the past 2 weeks....

#1
_____ I am sad once in a while.
_____ I am sad many times.
_____ I am sad all the time.

#2
_____ Nothing will ever work out for me.
_____ I am not sure if things will work out for me.
_____ Things will work out for me OK.

#4
_____ I have fun in many things.
_____ I have fun in some things.
_____ Nothing is fun at all.

#9
_____ I do not think about killing myself.
_____ I think about killing myself but I would not do it.
_____ I want to kill myself.

#12
_____ I like being with people.
_____ I do not like being with people many times.
_____ I do not want to be with people at all.

#17
_____ I am tired once in a while.
_____ I am tired many days.
_____ I am tired all the time.

---

[29] From "Children's Depression Inventory Manual" by M. Kovacs, 1992. Copyright 1992 by MultiHealth Systems, Inc. Reprinted with permission.

Appendix G

The Rosenberg Self-Esteem Inventory

Instructions: Please circle the letters which best apply to the following statements.

SD = Strongly Disagree D = Disagree A = Agree SA = Strongly Agree

1. On the whole, I am satisfied with myself.	SD	D	A	SA
2. At times, I think I am no good at all.	SD	D	A	SA
3. I feel that I have a number of good qualities.	SD	D	A	SA
4. I am able to do things as well as most other people.	SD	D	A	SA
5. I feel I do not have much to be proud of.	SD	D	A	SA
6. I certainly feel useless at times.	SD	D	A	SA
7. I feel that I'm a person of worth, at least equal to others.	SD	D	A	SA
8. I wish I could have more respect for myself.	SD	D	A	SA
9. All in all, I tend to feel that I am a failure.	SD	D	A	SA
10. I take a positive attitude toward myself.	SD	D	A	SA

Appendix H

Emotional Autonomy Scale

SD = Strongly Disagree D = Disagree A = Agree SA = Strongly Agree

Individuation Scale

1. There are some things about me that my parents don't know. SD D A SA

2. My parents know everything there is to know about me. SD D A SA

3. My parents would be surprised to know what I'm like when I'm not with them. SD D A SA

4. I wish my parents would understand who I really am. SD D A SA

Nondependency on Parents Scale

5. I go to my parents for help before trying to solve a problem myself. SD D A SA

6. It's better for kids to go to their best friend than to their parents for advice on some things. SD D A SA

7. When I've done something wrong, I depend on my parents to straighten things out for me. SD D A SA

8. If I was having a problem with one of my friends, I would discuss it with my mother or father before deciding what to do. SD D A SA

Appendix I

Children's Attributional Style Questionnaire-Revised

Instructions: Please circle the letter of the statement which best describes how you would probably think or feel if the events listed below happened to you.

1. You get an "A" on a test.
   A. I am smart.
   B. I am good in the subject the test was in.

2. Some kids that you know say that they do not like you.
   A. Once in a while people are mean to me.
   B. Once in a while I am mean to other people.

3. A good friend tells you that he hates you.
   A. My friend was in a bad mood that day.
   B. I wasn't nice to my friend that day.

4. A person steals money from you.
   A. That person is not honest.
   B. Many people are not honest.

5. Your parents tell you that something you make is very good.
   A. I am food at making some things.
   B. My parents like some things I make.

6. You break a glass.
   A. I am not careful enough.
   B. Sometimes I am not careful enough.

7. You do a project with a group of kids and it turns out badly.
   A. I don't work well with the people in that particular group.
   B. I never work well with groups.

8. You make a new friend.
   A. I am a nice person.
   B. The people that I meet are nice.

9. You have been getting along well with your family.
   A. I am usually easy to get along with when I am with my family.
   B. Once in a while I am easy to get along with when I am with my family.

10. You get a bad grade in school.
   A. I am not a good student.

B. Teachers give hard tests.

11. You walk into a door and you get a bloody nose.
    A. I wasn't looking where I was going.
    B. I have been careless lately.

12. You have a messy room.
    A. I did not clean my room that day,
    B. I usually do not clean my room.

13. Your mother makes you your favourite dinner.
    A. There are a few things that my mother will do to please me.
    B. My mother usually likes to please me.

14. A team that you are on loses a game.
    A. The team members don't help each other when they play together.
    B. That day the team members didn't help each other.

15. You do not get your chores done at home.
    A. I was lazy that day.
    B. Many days I am lazy.

16. You go to an amusement park and you have a good time.
    A. I usually enjoy myself at amusement parks.
    B. I usually enjoy myself in many activities.

17. You go to a friend's party and have fun.
    A. Your friend usually gives good parties.
    B. Your friend gave a good party that day.

18. You have a substitute teacher and she likes you.
    A. I was well behaved during class that day.
    B. I am almost always well behaved during class.

19. You make your friends happy.
    A. I am usually a fun person to be with.
    B. Sometimes I am a fun person to be with.

20. You put a hard puzzle together.
    A. I am good at putting puzzles together.
    B. I am good at doing many things.

21. You try out for a sports team and do not make it.
    A. I am not good at sports.
    B. The other kids who tried out are very good at sports.

22. You fail a test.
    A. All tests are hard.
    B. Only some tests are hard.

23. You hit a home run in a ball game.
    A. I swung the bat just right.
    B. The pitcher threw an easy pitch.

24. You do the best in your class on a paper.
    A. The other kids in my class did not work hard on their papers.
    B. I worked hard on the paper.

Appendix J

Coping Scale for Children and Youth

Instructions: All children and teenagers have some problems they find hard to deal with and that upset them or worry them. We are interested in finding out what you do when you try to deal with a hard problem. Think about some problem that has upset you or worried you *in the past few months*. It could be a problem with someone in your family, a problem with a friend, a school problem, or anything else. Briefly describe what the problem is in the space below.

_____

_____

_____

Listed below are some ways that children and teenagers try to deal with their problems. Please tell us how often each of these statements has been true for you when you tried to deal with the problem you described above.

Never	**Sometimes**	**Often**	**Very often**
0	**1**	**2**	**3**

Assistance Seeking Scale

1. I asked someone in my family for help with the problem. 0 1 2 3

2. I got advice from someone about what I should do. 0 1 2 3

3. I shared my feelings about the problem with another person. 0 1 2 3

4. I kept my feelings to myself. 0 1 2 3

Cognitive-Behavioural Problem Solving Scale

1. I thought about the problem and tried to figure out what I could do about it. 0 1 2 3

2. I took a chance and tried a new way to solve the problem. 0 1 2 3

3. I made a plan to solve the problem and then I followed the plan. 0 1 2 3

4. I went over in my head some of the things I could do about the problem. 0 1 2 3

5. I thought about the problem in a new way so that it didn't upset me 0 1 2 3

as much.

6. I leaned a new way of dealing with the problem.	0	1	2	3
7. I tried to figure out ho I felt about the problem.	0	1	2	3
8. I figured out what had to be done and then I did it.	0	1	2	3

Cognitive Avoidance

1. I tried not thinking about the problem.	0	1	2	3
2. I went on with things as if nothing was wrong.	0	1	2	3
3. I pretended the problem wasn't very important to me.	0	1	2	3
4. I knew I had lots of feelings about the problem, but I just didn't pay any attention to them.	0	1	2	3
5. I tried to get away from the problem for a while by doing other things.	0	1	2	3
6. I tried to pretend that the problem didn't happen.	0	1	2	3
8. I hoped that things would somehow work out so I didn't do anything.	0	1	2	3
9. I tried to pretend that my problem wasn't real.	0	1	2	3
10. I realized there was nothing I could do. I just waited for it to be over.	0	1	2	3
11. I put the problem out of my mind.	0	1	2	3

Behavioural Avoidance

1. I stayed away from things that reminded me about the problem.	0	1	2	3
2. I tried not to feel anything inside me. I wanted to feel numb.	0	1	2	3
3. I went to sleep so I wouldn't have to think about it.	0	1	2	3
4. When I was upset about the problem, I was mean to someone even though they didn't deserve it.	0	1	2	3

5. I tried not to be with anyone who reminded me of the problem.	0	1	2	3
6. I decided to stay away from people and be by myself.	0	1	2	3

Appendix K

MRFS-III Peer Influence Scale (MRFS-III PI)

Instructions: Carefully read each of the questions below, then **circle how often** you have had each experience.

1. In the past year, how often have your friends talked about wanting to lose weight?

Never	Sometimes	A Lot
1	2	3

2. In the past year, how important has it been to your friends that you be thin?

Not at all	Some	A Lot
1	2	3

3. In the past year, how important has it been to your friends that they be thin?

Not at all	Some	A Lot
1	2	3

4. In the past year, how often have you changed your eating when you were around girls/young women?

Never	Sometimes	A Lot
1	2	3

5. In the past year, how often have you changed your eating when you were around boys?

Never	Sometimes	A Lot
1	2	3

Appendix L

MRFS-III Parent Concern with Thinness Scale

Instructions: Carefully read each of the questions below, then **circle how often** you have had each experience.

1. In the past year, how important has it been to your mother that you be thin?

Not at all	Some	A Lot
1	2	3

2. In the past year, how important has it been to your father that you be thin?

Not at all	Some	A Lot
1	2	3

Appendix M

MRFS-III Media Modelling Scale

Instructions: Carefully read each of the questions below, then **circle how often** you have had each experience.

1. In the past year, how often have photographs/pictures of thin girls/women made you wish that you were thin?

Never	Sometimes	A Lot
1	2	3

2. In the past year, how often have you tried to look like the girls or women you see on television, or in magazines?

Never	Sometimes	A Lot
1	2	3

Appendix N

Brief Current version of the Parental Bonding Instrument

Instructions: Please rate how well each item describes the adult you consider to be your MOTHER by circling the number that best applies.

	Almost Never	**Sometimes**	**Usually**
1. My mother appears to understand my problems and worries.	1	2	3
2. My mother can make me feel better when I am upset.	1	2	3
3. My mother seems emotionally cold to me.	1	2	3
4. My mother does not help me as much as I need.	1	2	3
5. My mother tries to control everything I do.	1	2	3
6. My mother tends to baby me, and tries to protect me from everything.	1	2	3
7. My mother likes me to make my own decisions.	1	2	3
8. My mother gives me as much freedom as I want.	1	2	3

Instructions: Please rate how well each item describes the person you consider to be your FATHER by circling the number that best applies.

	Almost Never	**Sometimes**	**Usually**
1.My father appears to understand my problems and worries.	1	2	3
2. My father can make me feel better when I am upset.	1	2	3
3. My father seems emotionally cold to me.	1	2	3
4. My father does not help me as much as I need.	1	2	3
5. My father tries to control everything I do.	1	2	3

6. My father tends to baby me, and tries to protect me from everything.	1	2	3
7. My father likes me to make my own decisions.	1	2	3
8. My father gives me as much freedom as I want.	1	2	3

Appendix O

Child and Adolescent Social Support Scale – Close Friend Subscale

INSTRUCTIONS: Please respond to the following sentences about types of help or support you might get from your close friend. For each sentence **circle the number** describing **how often** you receive that type of support.

1. My friend understands my feelings.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

2. My friend makes me feel better when I mess up.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

3. My friend helps me solve my problems.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

4. My friend shows me how to do new things.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

5. My friend sticks up for me when others don't.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

6. My friend spends time with me when I'm lonely.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

7. My friend helps me when I need it.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

8. My friend asks if I need help.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

9. My friend tells me he or she likes what I do.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

10. My friend accepts me when I make a mistake.

Never	Almost Never	Sometimes	Most of the time	Almost Always	Always
1	2	3	4	5	6

Appendix P

Sample School Board Information Letter and Consent Form

Mr. Richard Dittman
Research Coordinator
Windsor-Essex Catholic District School Board
1485 Janette St., Windsor, ON

Dear Mr. Dittman,

I am writing this letter to provide you with information regarding my dissertation research, and to ask your permission to recruit students from the Windsor-Essex Catholic District School Board to participate in my study. I am also requesting permission to have willing participants complete my package of questionnaires on school premises, possibly during class time.

My study is titled "Protective factors against the development of eating disturbances in preadolescent girls". This means that I am trying to identify factors which differentiate at-risk girls who maintain relatively healthy eating behaviours from those who are showing signs of eating disorders. This research study is currently under review by the Ethics Committee of the Psychology Department at the University of Windsor. I will inform you of their decision as soon as I receive word.

I am recruiting *girls from grades 4-6*. In order to have sufficient statistical power, I will need a minimum of *250 participants*. With your permission, I would send information/consent letters home to the guardians of students who meet these criteria in each participating school. I would then ask students who obtain parental consent, and who themselves agree to participate, to complete the questionnaires at school. I anticipate the administration of the questionnaires taking approximately *1 hour on one occasion*. I am hoping to *begin data collection in April*.

I realize that instructional time is extremely valuable. I would not ask permission to use such time to collect data if I did not feel the results of this research have the potential to make a significant contribution to our understanding of the phenomena of resilience in general, and eating disorder treatment and prevention more specifically. I am also aware that school administrators sometimes find it difficult to justify the time and effort invested by students and/or teachers in research projects such as this. Potential *benefits* to students and school personnel from participation in my study include:

- educational value to student inherent in being a research participant
- educational opportunity for students and staff resulting from attending a workshop conducted by myself and/or community speakers on eating disorders and related issues (e.g., body image, media awareness)

- educational opportunity to school personnel by reviewing a summary of my research findings and related publications once available
- research profile of school board enhanced by mention in publications

Potential *costs* to students and school personnel from participation in this study include:

- approximately 1 hour away from curriculum
- provision of physical space (e.g., classroom) to administer questionnaires
- arrangements made for those students who will not be participating
- homeroom teacher collecting returned guardian consent forms

In addition to this letter, I have included a summary of the rationale for my study, a copy of the procedures section of my dissertation which addresses issues of confidentiality and debriefing, and copies of all materials (i.e., questionnaires, consent forms). Please feel free to contact me with any questions or concerns. You may contact me during the day Tuesday through Friday at work (973-7012), or Mondays and evenings at home (256-4877).

Thanks for considering my request. I look forward to hearing from you.

Sincerely,

S. Jane Walsh, M.A.
Child Clinical Psychology Graduate Student

Consent Form

Title of Study: Protective Factors Against the Development of Eating Disturbances in Preadolescent Girls

Researcher: Jane Walsh, M.A. University of Windsor Ph.D. student in Child Clinical Psychology

Dear Research Coordinator,

Please review and sign both copies of this consent form. Keep one for your records and return the other to me at the following address:

Jane Walsh
Graduate student, Child Clinical Psychology
Psychology Dept., University of Windsor
Windsor, ON
N9B 3P4

Please put a checkmark beside the appropriate statement:

_____ I have read and I understand the information letter. I give my consent for Ms. Jane Walsh to recruit participants from Windsor-Essex Catholic District School Board schools, and to conduct data collection on school premises.

_____ I do not wish the students in the Windsor-Essex Catholic District School Board to participate in this study.

School Board: _____

Research Coordinator's Name (please print): _____

Signature: _____ Date: _____

Appendix Q

Principal Information Letter and Consent Form

Dear principal,

I am a Ph.D. student in Child Clinical Psychology at the University of Windsor. I am writing this letter to provide you with information regarding my dissertation research, and to ask your permission to recruit participants for my study from your school. My study is titled "Protective factors against the development of eating disturbances in preadolescent girls". This means that I am trying to identify factors which differentiate those girls who maintain relatively healthy eating behaviours from those who are showing signs of eating disorders. This research study has been approved by the _____ (School Board Research Review Committee), and the Ethics Committee of the Psychology Department at the University of Windsor.

I am recruiting girls from grades 4-6. I am asking your permission to send information/consent letters home to the guardians of students who meet these criteria. I am also asking permission to have students who obtain parental consent, and who themselves agree to participate, complete the questionnaires at school. I anticipate the questionnaires taking approximately 1 hour to complete. I am hoping to begin data collection in April.

I realize that instructional time is extremely valuable. I would not ask permission to use such time to collect data if I did not feel the results of this research have the potential to make a significant contribution to our understanding of the phenomena of resilience in general, and eating disorder treatment and prevention more specifically. I am also aware that school administrators sometimes find it difficult to justify the time and effort invested by students and/or teachers in research projects such as this. In addition to the educational value inherent in being a research participant, I would be willing to present a student and/or staff workshop on eating disorders and related issues (e.g., body image, media awareness). Upon completion of my dissertation, I would ensure a summary of the results is forwarded to interested school personnel.

I would be happy to meet with you to provide you with more information regarding my study, and to discuss any questions or concerns you may have. You may contact me during the day Tuesday through Friday at work (973-7012), or Mondays and evenings at home (256-4877).

Thanks for considering my request. I look forward to hearing from you.

Sincerely,

S. Jane Walsh, M.A., Child Clinical Psychology Graduate Student

Consent Form

Title of Study: Protective Factors Against the Development of Eating Disturbances in Preadolescent Girls

Researcher: Jane Walsh, M.A. University of Windsor Ph.D. student in Child Clinical Psychology

Dear principal,

Please review and sign both copies of this consent form. Keep one for your records and return the other to me at the following address:

Jane Walsh
Graduate student, Child Clinical Psychology
Psychology Dept., University of Windsor
Windsor, ON
N9B 3P4

Please put a checkmark beside the appropriate statement:

_____ I have read and I understand the information letter. I give my consent for Ms. Jane Walsh to recruit participants from my school, and to conduct data collection on the premises.

_____ I do not wish the students at my school to participate in this study.

School: _____

Principal Name (please print): _____

Principal Signature: _____ Date: _____

Appendix R

Guardian Information Letter and Consent Form

TO: Guardians of girls in grades 4-6
FROM: Jane Walsh (researcher and Ph.D. student in Child Clinical Psychology)
RE: Opportunity for your daughter to participate in research study

Dear Parent:

I am a Ph.D. student in Child Clinical Psychology at the University of Windsor. I am writing this letter to provide you with information regarding a research study I am conducting, and to ask your permission for your daughter to participate. My study is titled "Protective factors against the development of eating disturbances in preadolescent girls". This means that I am trying to identify factors which differentiate those girls who maintain relatively healthy eating behaviours from those who are showing signs of eating disorders. I believe that the results of this study will be helpful in improving eating disorder prevention and treatment programs.

This research study has been approved by _____ (School Principal), the _____ (School Board Research Review Committee), and the Ethics Committee of the Psychology Department at the University of Windsor. If you agree to your daughter's participation, she will be asked whether she is willing to participate. If yes, she will complete a package of questionnaires concerning her feelings about herself, as well as her relationships with family and friends. The questionnaires will be completed at school, and will take approximately 1 hour.

Your daughter's participation is completely voluntary, and there will be no penalty if you or your daughter decide she will not be participating. Your daughter may withdraw at any time during the course of the study or refuse to answer any questions. Your daughter's responses will be kept confidential (i.e., only the researcher and no school personnel will have access to the questionnaires). In accordance with ethical and legal guidelines, confidentiality would only be broken if your child indicated that she was at risk of harm to herself or others, or if she reported an incident of child abuse. When analyzing and discussing the results, group scores will be used rather than scores of individual participants.

Should you wish to obtain further information regarding the present study, I would be happy to answer any questions you might have. My work phone number is (519) 973-7012. My research supervisor, Dr. Cheryl Thomas, can be reached at (519) 253-4232 ext. 2253. If you have any concerns about this study, you may also contact the Chairperson of the University of Windsor Psychology Department Ethics Committee, Dr. Stewart Page, at (519) 253-4232 ext. 2243. A summary of the results will be sent to school personnel once the study is complete. Interested parents should contact the school in the Fall, 2001 to obtain a copy of the findings.

If you currently have concerns about your daughter's eating or body image, the following community agencies may be able to provide further information and/or assistance:
Bulimia Anorexia Nervosa Association (BANA) 969-2112
Regional Children's Centre 257-5215

Sincerely,
S. Jane Walsh, M.A., University of Windsor graduate student
Please review and sign the attached consent forms. Regardless of whether you wish your daughter to participate, keep one for your personal records and return the other to your daughter's teacher.

Consent Form

Title of Study: Protective Factors Against the Development of Eating Disturbances in Preadolescent Girls

Researcher: Jane Walsh, M.A. University of Windsor Ph.D. student in Child Clinical Psychology

Please put a checkmark beside the appropriate statement:

_____ I have read and I understand the information letter. I give my consent for my daughter to participate in this study.

_____ I do not wish for my daughter to participate in this study.

Daughter's Name (please print): _____

Guardian Name (please print): _____

Guardian Signature: _____ Date: _____

Appendix S

Child Assent Form

Participant Consent Form

My name is Jane Walsh, and I am a student at the University of Windsor. I would like for you to participate in my research study about the differences between girls who are very worried about their weight and eating, and girls who are not worried about their weight and eating. The results of this study may help us develop better ways to help girls who feel badly about their bodies, and those who have eating disorders.

Your parent or guardian has already given his or her permission for you to participate in this study. It is now your turn to decide if you would like to take part. If you agree to participate, you will be asked to spend approximately one hour filling out questionnaires about your feelings towards yourself, your body, dieting, as well as your feelings about your family and friends.

Your participation in this study is entirely your choice. There will be no penalty if you decide not to participate. If you chose to participate, you may stop filling out questionnaires at any point during the study. You may refuse to answer any questions, although it is important to try and answer as many questions as possible. Your questionnaire responses will be kept confidential, which means I will be the only one to see your answers. The only time I would share your responses with someone else would be if I was concerned about you being at risk of harming yourself or someone else, or if you reported child abuse. When discussing the results after the study is completed, only the average scores of the group versus individual scores will be presented.

If you would like more information about this study, I would be happy to answer your questions in the classroom after everyone is finished. You may also contact me by phone at 973-7012.

Please put a checkmark beside the appropriate statement:

_____ I have read and I understand the above information. I give my consent to participate in this study.

_____ I do not wish to participate in this study.

Name (please print): _____

Signature: _____ Date: _____

Appendix T

Instructions to Participants

Each of you should have a questionnaire packet and 2 copies of a Participant Consent Form. Lets start by reading the Participant Consent Forms together. Please decide whether you would like to participate in my study. Sign and date both copies of the consent form. Keep one copy for yourself, and return the other to me. Those of you who have chosen not to participate, please find something to work on quietly at your desk. Everyone else please open your questionnaire packets. Please listen carefully to a few guidelines before you begin.

- Do not write your name anywhere on any of the questionnaires so that your answers will stay anonymous.
- Read the instructions for each questionnaire carefully, and refer back to the key at the top of the page if you get confused.
- Answer the questionnaires honestly, and remember that this is not a test therefore there are no right or wrong answers.
- Try your best not to accidentally skip any questions.
- Pencil or pen is fine, just mark your answers clearly.
- When you have finished, please bring your questionnaires up to me.

If you have any questions, please raise your hand and I will assist you ASAP.

Before we begin, I would like to give you an example of a question to illustrate a common problem people have when filling our these kinds of questionnaires.

Ex. I like the way my hair looks. 1 = Never 2 = Sometimes 3 = Always

What if you feel like none of the possible answers fits exactly? No problem, just try to figure out which fits best.

Any questions?

Appendix U

Debriefing Handout

Participant and Parent Feedback Sheet

Title of Study: Protective Factors Against the Development of Eating Disturbances in Preadolescent Girls

Researcher: Jane Walsh, M.A. University of Windsor Ph.D. student in Child Clinical Psychology

Thanks so much for participating in my study. As indicated from the title, the purpose of my study is to identify those factors which seem to "protect" some girls against developing eating disorders. In other words, when all girls are exposed to similar messages from the media about the importance of being thin, why do some go on to develop eating disorders, while others maintain relatively healthy eating behaviour? I believe if we can learn about why this latter group is resilient, we can put this knowledge towards improving our existing eating disorder prevention and treatment strategies.

I plan to divide my sample into girls who don't like their bodies but are not engaging in extreme dieting practices (e.g., fasting, vomiting after meals), to those who don't like their bodies and who are using these extreme dieting methods. I will compare the scores of each group on measures of child characteristics (e.g., self-confidence, coping styles), perceived parental and peer attitudes towards thinness, and the child's feelings about their relationships with family and friends.

Thanks again for your time, and for your assistance with my research project. If you are worried about your own eating or body image, or that of a friend, the following agencies may be able to provide further information and/or assistance:

Bulimia Anorexia Nervosa Association (BANA) 969-2112
Regional Children's Centre 257-5215

Appendix V - Correlational analyses

Table V1

Correlations between Demographic Variables and Group Criteria Variables (N = 378)

Variables	Age	Grade	BMI	Body dissat'n (BRS)	Body dissat'n (MRFS OWS)	Disord'd eating (MRFS WCB)	Disord'd eating (ChEAT)	Psych distress (CDI)
Age	1.00	0.86**	0.08	0.03	0.08	0.08	-0.05	-0.03
Grade		1.00	0.07	0.02	0.11*	0.11*	-0.04	-0.01
BMI			1.00	0.39**	0.36**	0.38**	0.18**	0.17**
Body dissat'n (BRS)				1.00	0.60**	0.57**	0.43**	0.30**
Body dissat'n (MRFS OWS)					1.00	0.78**	0.67**	0.53**
Disord'd eating (MRFS WCB)						1.00	0.59**	0.42**
Disord'd eating (ChEAT)							1.00	0.53**
Psych distress (CDI)								1.00

* p<.05 (2-tailed), ** p<.01 (2-tailed)

Table V2

Correlations between Demographic Variables and Child Characteristics (N = 378)

Variables	Age	Grade	BMI	Self-esteem (RSE)	Emot'l autonomy (EAS)	Positive attribu'n (CASQR)	Adapt cope-assist (CSCY AS)	Adapt cope-cog-beh (CSCY CBPS)	Malad. cope- cog avoid (CSCY CA)	Malad. cope- beh avoid (CSCY BA)
Age	1.00	0.86**	0.08	0.08	0.14**	0.07	0.04	0.08	0.10	-0.02
Grade		1.00	0.07	0.04	0.12*	0.02	0.03	0.08	0.06	-0.05
BMI			1.00	-0.12*	-0.06	-0.05	0.03	-0.02	0.04	0.08
RSE				1.00	-0.24**	0.55**	0.06	0.19**	-0.31**	-0.40**
EAS					1.00	-0.25**	-0.19**	-0.16**	0.14**	0.16**
CASQR						1.00	0.14**	0.27**	-0.22**	-0.35**
CSCY AS							1.00	0.51**	0.11*	0.10
CSCY CBPS								1.00	0.03	0.08
CSCY CA									1.00	0.54**
CSCY BA										1.00

* p<.05 (2-tailed), ** p<.01 (2-tailed)

Table V3

Correlations between Demographic Variables and Environmental Influences (N = 378)

Variables	Age	Grade	BMI	MRFS PCT	MRFS PI	MRFS MM	PBI MCS	PBI MSA	PBI FCS	PBI FSA	CASSS
Age	1.00	0.86**	0.08	-0.08	0.16**	0.05	-0.07	0.06	-0.09	-0.01	0.05
Grade		1.00	0.07	-0.04	0.17**	0.07	-0.08	-0.07	-0.07	-0.00	0.02
BMI			1.00	0.17**	0.16**	0.29**	0.03	0.00	0.07	-0.01	-0.02
MRFS PCT				1.00	0.34**	0.35**	0.20**	0.22**	0.10*	0.14**	-0.16**
MRFS PI					1.00	0.58**	0.03	0.06	0.01	0.04	-0.12*
MRFS MM						1.00	-0.02	0.13*	0.02	0.11*	-0.18**
PBI MCS							1.00	0.21**	0.39**	0.09	0.12*
PBI MSA								1.00	0.16**	0.57**	0.05
PBI FCS									1.00	0.17**	0.09
PBI FSA										1.00	0.08
CASSS											1.00

* $p<.05$ (2-tailed), ** $p<.01$ (2-tailed)

Table V4

Correlations between Child and Environmental Characteristics (N = 378)

Variables	RSE	EAS	CASQR	CSCY AS	CSCY CBPS	CSCY CA	CSCY BA	MRFS PCT	MRFS PI	MRFS MM	PBI MCS	PBI MSA	PBI FCS	PBI FSA	CASSS
RSE	1.00	-.24**	.55**	.06	.19**	-.31**	-.40**	-.35**	-.43**	-.53**	.02	-.16**	-.02	-.01	0.35**
EAS		1.00	-.25**	-.19**	-.16**	.14**	.16**	-.05	.14**	.24**	-.19**	.04	-.17**	.07	-.18**
CASQR			1.00	0.14**	0.27**	-.22**	-.35**	-.23**	-.22**	-.27**	.10*	-.11*	.02	-.06	.34**
CSCY AS				1.00	.51**	.11*	.10	.05	.05	-.02	.13*	.02	.09	-.01	.19**
CSCY CBPS					1.00	.03	.08	.03	.04	-.05	.14**	.05	.12*	.05	.24**
CSCY CA						1.00	.54**	.13*	.34**	.34**	-.03	.12*	-.05	.11*	-.12*
CSCY BA							1.00	.20**	.33**	.30**	.06	.24**	.02	.15**	-.15**
MRFS PCT								1.00	.34**	.35**	.20**	.22**	.10*	.14**	-.16**
MRFS PI									1.00	.58**	.03	.06	.01	.04	-.12*
MRFS MM										1.00	-.02	.13*	.02	.11*	-.18**
PBI MCS											1.00	.21**	.39**	.09	.12*
PBI MSA												1.00	.16**	.57**	.05
PBI FCS													1.00	.17**	.09
PBI FSA														1.00	.08
CASSS															1.00

* p<.05 (2-tailed), ** p<.01 (2-tailed)

VITA AUCTORIS

S. Jane Walsh was born in the thriving metropolis of Beaver Harbour, New Brunswick on August 13, 1973. She obtained her Honours BA in Psychology from Saint Francis Xavier University in Antigonish, Nova Scotia in 1995. She obtained her M.A. (1997) and Ph.D. (2002) in Clinical Psychology from the University of Windsor, Windsor, Ontario. She is currently practicing as a Resident in Psychology at the Worker's Rehabilitation Centre in Saint John, New Brunswick.