

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

ProQuest Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI[®]

**DISORDERED EATING, ADHERENCE TO THE SUPERWOMAN IDEAL,
AND GENDER SOCIALIZATION
IN COEDUCATIONAL AND SINGLE SEX SCHOOL ENVIRONMENTS**

by

JANELL MENSINGER 

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The Graduate School and University Center, The City University of New York

2003

UMI Number: 3083692

Copyright 2003 by
Mensing, Janell Lynn

All rights reserved.

UMI[®]

UMI Microform 3083692

Copyright 2003 by ProQuest Information and Learning Company.

All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

© 2003

JANELL LYNN MENSINGER

All Rights Reserved

Approval Page

This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

April 30, 2003

Date



Chair of Examining Committee

May 4, 2003

Date



Executive Officer

David Rindskopf, Ph.D.Susan Saegert, Ph.D.Tracey Revenson, Ph.D.Deanne Bonifazi, Ph.D.

Supervisory Committee

THE CITY UNIVERSITY OF NEW YORK

Abstract

DISORDERED EATING, ADHERENCE TO THE SUPERWOMAN IDEAL,
AND GENDER SOCIALIZATION
IN COEDUCATIONAL AND SINGLE SEX SCHOOL ENVIRONMENTS

by

Janell Mensinger

Advisor: Professor Setha Low

According to Bronfenbrenner's bioecological paradigm, human development occurs as an ongoing process between the biologically determined yet malleable individuals and their immediate social contexts. Contexts are embedded in systematically larger social structures exerting forces that interact reciprocally with the individuals behaving within them. Using this theoretical framework, the gendered social climates of 11 schools are examined as potential predictors of disordered eating patterns among 866 female students. The School Gender Socialization Scale (SGSS) is adopted to quantify dominant social norms experienced by female students with respect to the fulfillment of a variety of gender related roles. Six underlying dimensions of the SGSS are combined to create an index of the female students' perceived level of conflicting gender role prescriptions within their school's social environment. This research posits that a school

where unusually high standards are felt with respect to appearance, dating, academics, and traditional as well as nontraditional female behaviors—all taking place within a climate that is replete with gender prejudiced stereotypes, is most likely to evidence eating problems among its female students. In order to accommodate the nested structure of the data, Hierarchical Linear Modeling (HLM) is the method of analysis employed. Conflicting gender role norms at a school are modeled as a predictor of the extent to which female students report engaging in disordered eating. Results suggest that schools encouraging conflicting gender role norms are associated with greater eating problems among the female students. A multilevel mediation mechanism is proposed whereby the pathway through which school gender norms impact eating problems is explained by an individual's tendency to adhere to the Superwoman ideal. Several decades of research suggests that adolescents who idealize Western culture's notion of the Superwoman—characterized by her unyielding autonomy, incredibly high standards for achievement, and an ultra-thin body, are at greater risk for an eating disorder. The mediation mechanism is supported: schools rated higher on conflicting gender role norms lead to greater numbers of students adhering to Western culture's Superwoman ideal. In turn, adolescents idealizing the Superwoman are more likely to struggle with disordered eating. Implications regarding eating disorder prevention efforts in school systems are discussed.

TABLE OF CONTENTS

	Page
Chapter 1 – Introduction	1
• Society’s Prescriptions for Adolescent Gender Roles.....	4
Chapter 2 – Review of the Literature	7
• Disordered Eating in Single Sex & Coeducational Contexts	10
• Gender Role Socialization & Single Sex vs. Coeducation.....	14
• Feminists Theories of Disordered Eating	16
• Preliminary Research.....	26
• Summary of Literature Review	31
Chapter 3 – Research Design and Methodology.....	34
• Statistical Methods	36
• Sample	40
• Procedures.....	47
• Instruments	49
◦ School Gender Socialization Scale	49
◦ Gender Identity and Beliefs	52
◦ Superwoman Scale	54
◦ Eating Attitudes Test	56
◦ Role Concerns	57
◦ Contour Drawing Rating Scale	58
• Coding and Scoring	59
• School Gender Socialization Scale Factor Structure.....	60
• Superwoman Scale: Establishment of Construct Validity	64
• Research Questions.....	74
Chapter 4 – Results.....	76
• Summary of Key Findings.....	76
• Definitions of Key Variables.....	81
◦ Level 1 Variables.....	81
◦ Level 2 Variables	86
• Research Question One	90
• Research Question Two.....	99
• Research Question Three.....	102

• Research Question Four.....	104
• Research Question Five.....	107
• Research Question Six.....	111
Chapter 5 – Discussion	122
• Gender Socialization in Schools.....	124
• Adherence to the Superwoman Ideal in Schools.....	131
• Disordered Eating in Schools	134
• School-level Risk Factors.....	136
• School-level Protective Factors.....	144
• Individual-level Variables.....	152
• Individual Perceptions of Gender Socialization Factors and Disordered Eating	165
Chapter 6 – Conclusion	171
• Shortcomings in Research.....	171
• Concluding Remarks	175
Appendices	185
• Appendix A.....	185-187
• Appendix B.....	188-200
• Appendix C.....	201
• Appendix D.....	202-203
• Appendix E.....	204-205
• Appendix F	206
• Appendix G.....	207-208
• Appendix H.....	209-211
• Appendix I	212
• Appendix J	213-214
• Appendix K.....	215-219
References	220

List of Tables

● Table 1: Demographic Characteristics of Participating Schools	42
● Table 2: SGSS Descriptives by School and Gender Composition	63
● Table 3: Descriptives for Superwoman and Role Concerns	65
● Table 4: Intercorrelations between Superwoman and Role Concerns	66
● Table 5: Regression predicting Superwoman by Role Concerns.....	68
● Table 6: Descriptives and Intercorrelations between Superwoman and Gender Identity and Beliefs Questions.....	71
● Table 7: Regression predicting Superwoman by Gender Identity and Beliefs Questions	73
● Table 8: Descriptions of Level 1 Variables.....	84
● Table 9: Intercorrelations for Level 1 Variables.....	85
● Table 10: Intercorrelations for Level 2 Variables.....	89
● Table 11: Variance Components for SGSS subscales and Z-Total SGSS scores (Question 1)	92
● Table 12: School Characteristics Predicting Gender Socialization in Schools (Question 1)	98
● Table 13: School Gender Climate Predicting Disordered Eating in Schools (Question 2)	101
● Table 14: School Gender Climate Predicting Adherence to the Superwoman Ideal in Schools (Question 3).....	104
● Table 15: Mediation Mechanism between Conflicting Gender Norms and Disordered Eating (Question 4).....	106
● Table 16: School Climate as Predictor of Disordered Eating (Question 5).....	110
● Table 17: Regression Analysis Summary of Individual-Level Model Predicting Disordered Eating (Question 6)	112
● Table 18: Raw and Adjusted Means by School on Disordered Eating.....	120

List of Figures

● Figure 1: Multilevel Mediation Model.....	78
● Figure 2: Nontraditional by Traditional Interaction.....	116
● Figure 3: Superwoman by Value of Thinness Interaction	119
● Figure 4: Adjusted Means by School on Disordered Eating.....	121

CHAPTER ONE

Introduction

In the 1970's, while environmental psychology was still in its infancy as a sub-discipline in psychology, Rudolf Moos conducted research and wrote extensively about the nature of human psychological environments. His report in *American Psychologist* of evidence suggesting that characteristics of the environment could actually account for more variance in human behavior than individual personality traits and demographic background data, brought the notion of an ecological perspective on human behavior to the forefront of psychology (Moos, 1973).

During this same time period and with equal appreciation for the indisputable relevance of the environment, developmental psychologist Urie Bronfenbrenner was establishing an ecological model of human development of his own that conceptualized human behavior as a process whereby the person interacts with their environment on multiple levels (1977, 1979). More specifically he defined the ecology of human development as:

...the scientific study of the progressive, mutual accommodation, throughout the life span, between a growing human organism and the changing immediate environments in which it lives, as the process is affected by relations obtaining within and between these immediate settings as well as the larger social contexts both formal and informal, in which the settings are embedded (p. 514, 1977).

Bronfenbrenner demanded that in order to study human development we must move beyond the observation of one or two people in an artificially contrived space such as the experimental laboratory and instead examine the authentic interactions of social systems with multiple persons existing within their nested behavior settings. The majority of research being generated within the field of psychology at that point in time was so focused on scientific rigor they completely sacrificed the very important element of *relevance to human experiences* within human behavior settings. While Bronfenbrenner was not interested in the more radical approaches such as existentialism that replaced formal observation and analysis with intimate and wholly personalized transactions, he sought a scientifically viable method where the researcher observed and measured subjects' behaviors in their natural environments (1977).

The current research in essence, models Bronfenbrenner's ecology of human development in that it takes a systemic approach to understanding patterns of eating behaviors in adolescent females. The object of an ecological experiment is to discover or identify the properties of the systems and then in turn the processes that affect the behavior of the individuals living within those systems. It is most important to understand that the relationships are reciprocal in nature: the environment affects the psychology of the individual, and the individual in turn equally affects the characteristics of the environment in which he or she behaves.

The specific behavior setting on which this project will focus is that of the educational environment. In accordance with Bronfenbrenner's theory, the design of the research must include multiple settings or contexts. Thus with school environments as the unit of analysis, the present study examines disordered eating patterns, attachment to

the Superwoman ideal, and the gender role socialization experienced by adolescent females attending multiple independent single sex and coeducational schools in the New York and Philadelphia Metropolitan Areas.

Bronfenbrenner's more recent bioecological paradigm focuses on what he terms proximal processes or enduring patterns, which essentially drive human development (1995). In this paradigm, individuals are recognized as being embedded in a system of evolving phenomena containing biologically determined traits. These traits, or individual differences are expressed according to the ongoing social processes in the person's immediately influential environments like the home, school, or workplace. As Crago et al. suggest researchers in the field of eating disorders need to examine proximal processes to understand how they can foster healthy psychological functioning (2001). Keeping with this tradition, in this dissertation I propose to model ecological transactions in the form of proximal processes occurring between an adolescent female and her school environment, in particular those that impact an individual's tendencies to engage in disordered eating behaviors.

Research that is situated in a Bronfenbrennerian framework typically asks the question of "how" as opposed to "why". It concentrates on uncovering the pathways of influence that operate between an individual and his or her environment. Accordingly, I hope to communicate *how* or through what mechanism schools with particular social climates interact with the individuals behaving within them and in turn affect the personal standards set for the individuals, especially with respect to fulfilling gender related roles in life. The ultimate goal is then to build a multilevel model examining how the experienced transactions occurring in one's social climate, such as her school, influence

the psychological makeup impacting an individual's attitudes and behaviors around eating.

Society's Prescriptions for Adolescent Gender Roles

An individual's sexuality becomes more pronounced in adolescence than during any other human developmental stage. While boys entering puberty often witness their bodies changing in accordance with the cultural ideal of a masculine form, girls experience changes in their body that progressively take them further from the ultra-thin depiction of female beauty propagated by the mass media. Consequently, girls are inevitably put at risk for developing severe body dissatisfaction as they sexually mature.

Also, in Western cultures as one matures, autonomy and independence become increasingly valued, especially among European Americans (Basow & Rubin, 1999). Theorists from the feminist psychodynamic school (e.g., Nancy Chodorow, 1978) posit that since children are often raised primarily by a female figure, boys and girls experience different processes of developing a sense of self. Once again, in congruence with dominant social values, a boy usually experiences himself as different from his mother or primary caretaker, and hence develops a sense of self that is more distinct or independent from others. Conversely, a girl typically experiences herself as similar to her mother, and often develops a more embedded sense of being, or self-in-relation to others (Chodorow, 1990).

Adding to these difficulties, adolescents experience an intensification of gender role prescriptions. Although there has undoubtedly been an increase in gender role flexibility over the past 30 years, messages remain, at best, conflicting in regards to the opportunities presently accorded to women on one hand, and the practical expectations of

women still prevailing on the other (Garfinkel & Dorian, 2001). That is today, aside from the possibilities for establishing a successful professional career as a woman, in many ways, the role of caretaker or becoming a mother still remains paramount to the feminine character. Despite all of this, widening parameters in terms of alternatives for women have been coupled with an ever increasingly narrower amount of physical space women are allotted in terms of their body size. Hence studying spatial practices regarding the socialization of women is very relevant to understanding feminine embodiment, subjectivity, and the development of disturbed eating (Shipton, 1999).

Gender role expectations are not the only conflicting messages young women confront; messages about female sexuality are also contradictory (Basow & Rubin, 1999). The media encourages girls to be sexual; teen magazines give tips on how to arouse the interest of their male peers. Yet, *sexually active* females risk being considered a “slut”. That is, while young women are encouraged to be *objects* of desire, they are not given the right to have their own *subjective* desire (Durham, 1998). In a society driven by capitalist systems of value idealizing and subsisting via the mass production of commodities—or objects of desire, women’s bodies are symbolically and literally marketed as culturally regulated material commodities shaped by the desires of the patriarchal external world.

In sum, for girls, adolescence is a period characterized by copious social contradictions, and its significance has come to be referred to by some feminist researchers as a developmental “crossroads” (e.g., Brown & Gilligan, 1992). It is during this critical stage, as young women are put under immense pressure not to just look a

restricted definition of beautiful, but to also be popular, ambitious, and intelligent, that disordered eating and body image disturbances have become commonplace, putting increasingly large numbers of adolescent girls at risk for the development of full blown clinical syndromes – anorexia and/or bulimia nervosa. The crucial question at hand is — are these conflicting messages more pronounced in certain kinds of school environments? That is, do school contexts essentially matter with respect to the social processes contributing to the development of disordered eating in adolescent females? As Duncan and Raudenbush posited in their 1999 article assessing methodological issues in ecological research, contexts such as schools “can be said to matter if differences among social contexts are found to be important in explaining individual differences in achieving ends most of us value—mental health, literacy, intellectual growth, educational attainment, occupational status, and the like” (p.29). The foremost concern here is, more specifically, how does the gender composition of a school determine the nature of the gender role socialization occurring there and hence the social contradictions experienced by adolescent females? Finally, do certain measurable aspects of the school’s gendered social climate relate to the prevalence of individuals adhering to undo pressures to achieve in multiple roles and hence be put at greater risk for an eating disorder?

CHAPTER TWO

Review of the Literature

In the decades following the tragic death of singer and songwriter Karen Carpenter in 1983, research on clinical eating disorders grew tremendously. This is evidenced in the number of citations found using the search term anorexia or bulimia nervosa in the PsychINFO database. The time period from 1980 to 1984 indicated only 238 citations for bulimia and 783 for anorexia. For the 1985 through 1989 time period, those figures increased to 1594 and 1946, respectively. By the end of the 1990's, the figures more than doubled again (Striegel-Moore & Smolak, 2001). In addition, *The International Journal of Eating Disorders*, which began in 1981, is no longer the only peer reviewed scholarly journal dedicated solely to reporting work on eating disorders. The founding of a second journal, *Eating Disorders: A Journal of Treatment and Prevention* in 1993, and very recently a third, *Eating Behaviors: A New International Journal*, in 2001, is another testament to the growing importance of this issue in the field of psychology.

Although eating disorders have received increased research attention in the literature over the past twenty years, one area remaining particularly barren is the relationship between a school's social environment and eating concerns among its students. Despite Johnson and Robert's assertion in their book *Beyond Appearance: A New Look at Adolescent Girls*, that any investigation involving the development of young women would be remiss *not* to take into account the impact of the school environment,

too few studies actually turn to the secondary school as a social context in which eating disorders might be proliferating (1999).

Recent research by Jones et al. (2001) on the prevalence rates of disordered eating behaviors among adolescent females in several middle and high school populations in Canada (total N = 1739) revealed that 14% of the participants scored above the recommended cutoff for eating disorders on the Eating Attitudes Test (Garner & Garfinkel, 1979). Even more disturbing was that over 27% of the young women reported engaging in disordered eating behaviors on the Diagnostic Survey for Eating Disorders (Jones et al., 2001).

A large-scale recent epidemiological study of adolescent eating behaviors and psychosocial, behavioral, and socio-environmental factors (total N = 81,247) surveyed 97% of the public school students in Minnesota. They used the Minnesota Student Survey, which was developed in 1989 jointly by the Minnesota Department of Health and Human Services and the Minnesota Department of Children, Families and Learning (Croll, et al. 2002). Results indicated that 56% of the female ninth graders and 57% of the female seniors (sophomores and juniors were not sampled) were engaging in disordered eating patterns. With prevalence rates at these alarming levels, researchers and clinicians have urged policy makers to move away from dealing with eating disorders using the traditional medical treatment models and begin treating the problem from a public health perspective where primary prevention is implemented at the level of the community and schools (Jones et al., 2001).

Education researchers such as Susan Black are calling our attention to the results of recent survey studies such as those mentioned above (2002). In her article published

in the American School Board Journal titled “Starving in Silence: Eating disorders take a heavy toll on students academically as well as physically,” Black highlights the fact that the most admired superstars in our high schools (that is, “the kids who make the honor roll every semester, and still find time to win sports trophies, play the lead in the school play, and volunteer at the local hospital...” p. 1) are liable to be hiding something. Black takes a journalistic approach urging educators and other school officials to remain well aware that although many of the “super-achieving kids” appear to have it all together, they may be secretly suffering from life-threatening eating disorders. She also quotes that although most young women in treatment say their eating problems began in middle or high school, a shocking 10% actually began developing their illness during elementary school. An account of one girl’s personal story, who was then receiving inpatient treatment for her bulimia, told Black that the motto at her middle school in an affluent Philadelphia suburb was the old cliché “You can never be too rich or too thin.” (p. 2.). This young girl admitted that striving for “the image of a perfect life” by taking advanced placement courses, ranking at the top of her class, playing on the varsity soccer team, although made her appear to be popular and “have it all”, caused her to eventually collapse underneath all of the pressure. Black warns educators of the complicated nature of these illnesses and the severe denial and shame that often accompanies them. Thus she advises all schools to employ several qualified multidisciplinary mental health experts who are specialists in the field of eating disorders to evaluate kids who are suspected to have problems. Early treatment yields the best prognosis with eating disorders; very seldom do they go away on their own.

In light of the epidemic proportions of eating problems found in the survey studies of secondary school-aged females cited above, it has never been more important to understand precisely how the dominant Western social structure (referred to as the exosystem by Bronfenbrenner) generates transactions occurring in microsystems (such as schools) that ultimately influence an individual's psychobiology. In turn, the present research purports to model psychological characteristics thought to predict patterns of behavior such as disordered eating. Again, the framework in which this is to be achieved is Bronfenbrenner's fundamental ecological theory of human development. By identifying relevant proximal processes in multiple school contexts and modeling the pathways by which they impact disordered eating attitudes, the goals put forth in the bioecological model will be met. The literature directly informing the conceptual underpinnings of this project will be reviewed next.

Disordered Eating in Coeducational and Single Sex Contexts

Due to a typical rising interest in more intimate and sexual relationships, researchers have found adolescence to be the period during which girls start worrying about their weight and how they appear to others, in particular boys (e.g., Gilligan et al., 1990). Research examining the social influences on body dissatisfaction and disturbed eating has suggested that subcultures created by friendships and peer environments such as the school, can enhance or diminish the importance of appearance and weight related concerns (Paxton, 1996). An earlier study revealed that 25% of a sample of adolescent girls believed that they would receive more requests to date if they were thinner (Paxton et al., 1991). In the same vein, work by other researchers (e.g., Nichtor & Vuckovic,

1994; Damhorst et al., 1988) has indicated that adolescent girls consider the most important component in attractiveness to boys is weight and figure size. In fact, Levine et al. (1994), and Smolak et al. (1993) found that the onset of dating was a significantly contributing factor in an individual's concern with her body image and/or her weight management behavior. Furthermore, a qualitative study on the changing gendered culture of a school that was in the process of transitioning from all girls to coeducational also reported many female students feeling anxiety and pressure to look good all of the time now that they were being schooled with boys (Brody et al., 1998). One student from the Brody et al. study even recommended a younger peer who was already struggling with depression and an eating disorder to find a single sex school in order to stay away from an environment that placed too much emphasis on appearance. In accord with the implications of the findings cited above, a study surveying a population of female college students found that girls living in a coed dormitory demonstrated significantly greater bulimic behavior than girls living in a single sex dorm (Berg, 1988).

While the results of these studies would argue for greater prevalence of disordered eating and body image disturbance in coeducational secondary schools, other research suggests otherwise. Striegel-Moore et al., (1991) attempted to establish a relationship between school milieu and disordered eating. In addition to questions regarding attitudes toward appearance at the school, the authors applied five subscales of Moos's University Residence Environment Scale, adapted for use with secondary school environments (1979). They hypothesized that schools rated as encouraging women to engage in traditional feminine behaviors such as passivity, and having an emphasis on appearance and romantic relationships would tend to cultivate increased eating disorders among their

student body. Since participants were incoming college freshmen being surveyed about the high school from which they recently graduated, single sex versus coeducational schools were not directly compared in this study. The nature of their hypothesis however, can be extended to the single sex versus coeducational question given the characteristics of the school milieus they were seeking to study. Familiarity with the earlier work of these researchers (Streigel-Moore et al., 1986) warrants making the assumption that they would have expected disordered eating patterns to be more prevalent in coeducational as opposed to single sex environments. Their predictions however were not supported and their research seeking a relationship between schools and disordered eating was discontinued.

A similar question was not approached in the literature again until a report published in 1996. In this study, Dyer and Tiggemann explored the impact of school environments on eating and body concerns in two Australian private high schools, one all female and one coeducational. They discovered that subjects from the coeducational school had significantly higher BMI's (Body Mass Index) than their single sex peers. However, there were no corresponding differences between subjects' ratings of their current figure size using Fallon and Rozin's Figure Rating Scale (1985). That is, girls from the single sex school perceived themselves to be the same size as their coeducational peers when in reality they were significantly thinner. In addition, single sex participants selected a slimmer "ideal self" than their coeducational counterparts. They also nominated a thinner figure as representing what they perceive is most attractive to boys. When the Eating Disorder Inventory (Garner et al., 1983) was broken down to include only the subscales that measure eating behaviors and body dissatisfaction (as

opposed to subscales measuring psychological traits like perfectionism, maturity fears, and interpersonal distrust), secondary analysis of this data revealed that participants from the all-female context demonstrated greater eating disorder symptomatology than their peers attending a coeducational school (Mensing, 2001). Furthermore, an interaction effect between school type and BMI indicated that heavier girls in the single sex environment struggled with their body size to a greater degree than their equally as heavy peers in the coeducational school. The secondary analysis of the Dyer and Tiggemann data also revealed an apparent homogeneity factor in the single sex school, suggesting that greater flexibility in terms of an ideal body size exists within an environment where boys are present.

The counterintuitive nature of the Dyer and Tiggemann data calls for more research on eating behaviors and body image disturbances in school environments, particularly comparing students from single sex and coeducational schools. Before embarking upon such a project however, and in order to gain a more thorough understanding of the interpersonal dynamics occurring within all female contexts, I turned to the large body of literature on benefits and drawbacks of single sex education (for a review see AAUW, 1998; or Schmurak, 1998). Initially, concentrating on the research involving exposure to sexism, gender-role stereotyping, and the development of feminist attitudes in single sex versus coeducational schools, appeared unhelpful—as it is replete with studies that contradict one another. However, eventually this literature began to reveal possible reasons for both the contradictions among the studies themselves and perhaps even the increased prevalence of disordered eating among women from single sex schools.

Gender Role Socialization and Single Sex versus Coeducation

Close scrutiny of Valerie Lee's work in particular led me to focus not on the presence or absence of sexism, feminism, and gender-role stereotyping in single sex and coeducational environments, but rather on the presence of conflicting messages existing within the school's gendered culture. In 1992, with hopes to explain some of their earlier work that found an array of academic and gender-related benefits for girls attending single sex schools (1986), Lee and Marks decided to conduct a study investigating why certain families choose to send their daughters to all-female as opposed to coeducational schools. Two separate and distinct rationales describing reasons that parents wanted their daughters educated in a single sex environment emerged from their data. Some families, typically those who are newer to the notion of education at an independent as opposed to a public school, tend to view single sex schooling as being a potentially empowering experience for their daughter—that is, a place to get *away* from gender stereotyping and sexism. The hope of these parents is that by sending their daughter to a single sex school they can be assured that she is in an academically focused environment that is less socially distracting, and hence she will be more likely to gain the skills and confidence it takes to “surmount gender discrimination and stratification in the larger social arena” or exosystem (p. 226). While this may be the more common, or at least well-known, reason behind educating girls in single sex schools, another faction of families, motivated by a more traditional system of values, that they too want passed on to their daughters in school, also represent these same independent schools. These parents are often among the elitist upper class families with a long line of ancestors who have attended once very exclusive single sex institutions. Lee and Marks' work

determined that the greater financial clout of the elitist families unfortunately had the power to dictate certain gender related policies implemented in the schools they continue to endow. Whether or not it is a conscious effort, schools, with their policies and practices as well as their “collective understandings about what constitutes teaching and learning, communicate normative behaviors about gender” (Brody et al. 1998, p. 2). Consequently, the gender role socialization occurring in these educational contexts is likely to be quite confusing to young women who are trying to establish a sense of self and goals for the future.

Two years later Lee et al. published another article, this time qualitatively examining the prevalence of female gender prejudice in single sex and coeducational independent schools (1994). Their study investigating the processes of engenderment occurring in over 20 institutions asserted that schools are particularly important in teaching gendered values since they act as the “primary sites of socialization for adolescents” (p. 93). To their surprise, the research exposed a disconcerting preponderance of sexism and gender role stereotyping in the all female contexts. Even in schools where feminist pedagogy was an explicit part of the curriculum, girls were still socialized traditionally—often being coddled and encouraged to maintain deferential child-like behaviors by some of their teachers.

Research by Candace Heyward (1995) on the changing “gender regime” of an independent Canadian school for girls at which she taught, further substantiates the phenomenon initially reported by Lee and Marks (1992). Heyward’s critical analysis of her school’s definition of acceptable femininity draws our attention to the very heart of conflicting gender role prescriptions faced by adolescent women today. While she fully

believed in the new gender regime, which was beginning to teach girls to incorporate competitiveness, self-initiative and confidence into their identities, her concern was that there was no corresponding alleviation of the current and future expectations of young women remaining from the old gender regime. These girls were still directed to act and look like “young ladies”, marry into a family of sufficient means with traditional values, and raise high society children.

It is these subtle social rules communicated systemically by the school environment that we purport to model in this project. They are the “proximal processes” about which Bronfenbrenner theorizes as having marked effects on impressionable adolescents seeking guidance as they mature into the complex world defining female adulthood.

Feminist Theories of Eating Disorders

Momentarily setting aside the concept of conflicting messages within schools, we turn to some literature on the etiology of eating disorders. Thirty years ago, Hilda Bruch, pioneer clinician and researcher in the field of eating disorders, interpreted her anorectic patients’ behavior as a blatant rejection of the feminine role (1973). Quite significantly, over the decades since the Women’s Movement, other feminist researchers in the field of body image and eating disorders have speculated about the problematic nature of the opposing forces between accepting one’s developing curves [which have been conceptualized as symbolically representing the caring and interrelatedness inherent in a “feminine” identity, (Gilligan, 1982)] or abiding by the more recent liberated, “masculine” conception of womanhood which involves the ultra-thin, self-made female with exceptionally high standards for achievement (Palazzoli 1974; Orbach, 1978, 1986;

Steiner-Adair, 1986; Barnett, 1986). Just as these feminist researchers feared, young women today are distressed over literally wanting to “have it all”. They are idealizing a fictitious “Superwoman” and consequently setting highly unrealistic goals for themselves as they mature—the most dangerous of which being a super thin body. Widely read publications like Naomi Wolf’s *Beauty Myth* (1991), as reflected in the following passage, have brought these issues to the forefront of popular feminist scholarship:

Young women have been doubly weakened: Raised to compete like men in rigid male-model institutions, they must also maintain to the last detail an impeccable femininity. Gender roles, for this generation of women, did not harmonize so much as double: Young women today are expected to act like “real men” and look like “real women.” Fathers transferred to daughters the expectations of achievement once reserved for sons; but the burden to be a beauty, inherited from the mothers, was not lightened in response. (p. 211)

A passionate discussion around the source of the modern epidemic of female eating disorders throughout *The Beauty Myth* stands as a testimony to the psychological repercussions faced by young women maturing in a culture promoting conflicting gender role prescriptions.

According to Catherine Steiner-Adair, the major question that adolescent females must ask of themselves as they become adults is “how can she join the culture at large and still value the female parts of herself that society, in its definition of adulthood, teaches her to devalue?” (p. 154). In 1986 Steiner-Adair published a classic study

through the use of in-depth interviews of 32 teenage girls attending an independent school in New York. The two-hour semi-structured interview covered issues such as: socio-cultural images of women in the media, what it means to be a successful woman today, what does society value about women today, etc. There was no discussion of eating disorders with the participants. Three weeks later however, the participants were asked to fill out the Eating Attitudes Test (Garner & Garfinkel, 1979).

Two revealing themes emerged from the conversations Steinar-Adair had with these young women. Twenty of the girls whom she labeled “Wise Women” were able to accurately perceive society’s idealization of the independent and autonomous woman, and they linked these values to cultural expectations of thinness for women. However, they were successful at challenging the unrealistic ideal and claiming their own image of female adulthood that incorporated a value of relationships and the interdependency of people. The remaining twelve teens on the other hand, had difficulty expressing the relatively new (at the time of the research) societal expectations of autonomy for women. Despite their perhaps confused perceptions that culture values women who are more traditional and display female attributes such as caring and sensitivity, these teens were very animated in their descriptions of the cultural icon of the Superwoman. Furthermore, they personally identified with and wholly idealized the image of the Superwoman. They maintained a strong attachment to the Superwoman’s figure—an ultra-thin physique they interpreted as a superior-like mastery of one’s body. They conveyed a need to uphold extreme self-control, which included a denial of both rich and nourishing foods as well as relationships. Eleven of the twelve teens speaking the language of the Superwoman (Steiner-Adair’s alternative label for the teens) as opposed to the Wise

Woman, had scores above the symptomatic range for eating disorders (and the twelfth was very close). None of the Wise Women reported symptomatology characteristic of eating disordered individuals on the Eating Attitudes Test. While the Wise Women envisioned connectedness to self and others as central to their female adulthood, Superwomen lacked this integral part of their femininity in their idealized adult image. They *had* the perfect lover, but most importantly, did not *need* him. Relationships were more akin to accomplishments in the mind of the Superwoman. It is clear that she seeks to *exceed* the norm in all avenues of her life.

Although Steinar-Adair wasn't the first to conceptualize the crises of female adolescence in such a way (Susie Orbach had written quite extensively on the topic in her 1978 and 1986 books on women and issues around food), hers was the first that took systematically collected data to explicitly create typologies of how young women resolved or failed to resolve the crisis. In this work, Steiner-Adair cogently proposed an eating disorder as the inability to simultaneously allow oneself both relational needs, which are symbolically associated with the female body, and the culturally valued autonomous role associated with power and masculinity. Her work especially resonates when cast alongside the psychodynamic and family systems theories of eating pathology. Both of these schools of thought conceptualize eating disorders as a mere failure to attain autonomy, Steiner-Adair suggests "it is equally possible that eating disorders have erupted in our culture due to an unrealistic and unhealthy overemphasis on autonomy in female adulthood" (1989, p. 155). Seventeen years later we are still studying her seminal writings on the Wise Woman in hopes to learn how to foster this success story in all young woman during a time that too often becomes a developmental impasse.

During the following decade there were numerous studies that attempted to quantitatively capture what Steiner-Adair had eloquently described from her interviews with 32 teens attending the Emma Willard School. Among them was an article written by Timko, Striegel-Moore, Silberstein, and Rodin (1987). Theirs was a study of the relationship between femininity, masculinity, and disordered eating. Using Spence and Helmreich's Personal Attributes Questionnaire (PAQ) (1978), Timko et al.'s research provided evidence of apparent conflicting gender role attitudes in women with eating problems. Their data found that the importance of socially desirable masculine traits *paired with* the importance of appearance—a feminine trait, were significant predictors of disordered eating. Timko et al.'s results also indicated that women reporting a greater number of roles as central to their identity displayed more disordered eating than those defining themselves by fewer roles. Furthermore, those individuals identifying with a greater number of roles in general, were significantly more likely to rate masculine traits as important. Their research recommended further examination of the implications of the multiple and often conflicting gender roles placed on modern women.

At the same time, Brett Silverstein and his colleagues were working on similar research that considered role concerns, gender identity conflict and symptoms of eating problems. One study in particular was quite complex in that they found different predictors for particular symptoms of eating problems (Silverstein & Perdue, 1988). Reports of purging were predicted by the importance of slimness and professional success variables, while dieting and bingeing were predicted by the importance of attractiveness variable. Also, the more underweight the respondent the greater the importance placed both on intelligence *and* popularity. A similar study found that

college women rating nontraditional roles (intelligence and professional success) as extremely important but not traditional roles (being a wife or homemaker) were significantly more likely to report bingeing and purging (Silverstein, Carpman, Perlick, & Perdue, 1990). This research also reported a significant link between gender identity conflict and binge/purge behavior patterns.

Thorton, Leo, and Alberg (1991) tried to replicate and add to the implications of the Timko et al. findings by performing a similar study that utilized the Self-Roles Inventory (SRI) (Linville, 1985) in addition to Spence and Helmreich's PAQ (1978) to study gender roles and adherence to the Superwoman ideal. Their article reports a complex moderator effect in that women subscribing to the Superwoman ideal (i.e., many roles according to the SRI) who characterize themselves by either masculine or feminine traits are more likely to engage in disordered eating patterns than androgynous women (i.e., those who are high in both masculinity and femininity) and undifferentiated women (i.e., those who are low in both masculinity and femininity) as measured by the Drive for Thinness and Bulimia subscales of the EDI (Garner & Olmsted, 1984). Androgynous and undifferentiated Superwomen on the other hand are at less risk for disordered eating according to their data. The finding with respect to androgynous women works in accord with Steiner-Adair's theory in that Wise Women have learned how to resolve the conflict of gender roles by allowing themselves to have relational needs while still asserting themselves as independent women. Women characterized by either masculinity or femininity, on the other hand have apparently not resolved the conflict, and this is indicated by a lack of balance in the roles and traits to which they most subscribe. While Thorton et al's research lends support for the Superwoman hypothesis, the finding that

undifferentiated women are also protected from eating problems adds a dimension warranting further investigation.

Crago, Yates, Fleischer, Segerstrom, and Gray (1996) also used Linville's Self-Roles Inventory (1985) to measure the Superwoman construct. Their study of an adolescent female population attending two different high schools (one for gifted students and the other for average students) was an attempt to replicate Thorton et al. and Timko et al.'s findings. Although young women adhering to "many roles" (i.e., those rating at least 11 of the 18 as important) had higher EAT scores than their peers adhering to "few roles" (i.e., those rating 7 or less of the 18 roles as important), unfortunately the difference was not statistically significant. Furthermore, there was no correlation between EAT scores and number of roles considered important to one's sense of self on the SRI. Contrary to predictions, they also found the girls from the academically competitive high school to have on average lower EAT scores than the girls from the average high school. However, given that there were only a total of 69 subjects between the two schools and participation was completely voluntary requiring parental consent, it could be that the groups were not representative samples of the schools. In terms of their null findings with respect to the Superwoman, besides the limitations due to the small sample size, the authors recognized that the relationship between the Superwoman construct and eating disorders is likely to be more complex than the mere number of roles important to self-concept.

Given the growth of the theoretical perspective put forth with the notion of the Superwoman and disordered eating, in 1994, eating disorder experts, Murnen, Smolak, and Levine embarked upon a project to develop a scale to measure the Superwoman

construct¹. Although the scale had acceptable internal consistency ($\alpha = .83$) and test-retest reliability ($r = .80$), the authors did not spend the necessary time to make the revisions requested by the manuscript's reviewers. As a result the measure never reached publication status. Nevertheless, Hart and Kenny (1997) adopted the unpublished scale for their research on adherence to the Superwoman ideal and the tendency to engage in disordered eating patterns in college women. Their study supported the now widespread theory with significant relationships found between scores on the Superwoman Scale and the Drive for Thinness, Bulimia, Perfectionism, Interoceptive Awareness, and Impulse Regulation subscales from Garner and Olmsted's Eating Disorder Inventory (1984).

In 1995, Silverstein and Perlick added further reinforcement to the validity of the Superwoman theory and eating disorders. In their book *The Cost of Competence*, they convincingly argue that especially during historical times of changing gender roles, intelligent adolescent women with nontraditional aspirations often faced emotional dilemmas as they tried to develop an identity. The typical result of these emotional dilemmas was a sense of gender ambivalence, that is, "feeling split between their femininity and the aspects of themselves defined by academic, professional, and political achievement, which are often labeled, even today, as 'masculine'" (p. 7). Silverstein and Perlick give provocative descriptions of famous women throughout history who reportedly had difficult experiences dealing with the roles they were expected to fulfill as women. This internal conflict often led to devaluing the very aspects of themselves that defined their femininity. As a result, in Silverstein and Perlick's words, "disordered

¹ A Superwoman Scale was deemed necessary because Linville's Self-Role Inventory had no reliability or validity statistics associated with it, nor did it address the true essence of the Superwoman construct.

eating is just one of the costs of competence paid by talented women who strive to succeed” (p.10).

Despite the abundance of theoretical and some empirical literature on the Superwoman construct, no other researchers have attempted to revive Murnen et al.’s Superwoman Scale. Consequently, although the theoretical perspective remains popular to this day, no reliable and valid quantitative measure exists for a construct that has been developed over several decades of theorizing.

The present research posits that the notions of the Superwoman ideal, gender ambivalence, and conflicting gender role prescriptions are some of the core underlying dilemmas for individuals suffering from eating disorders². More specifically, individuals who demonstrate perfectionistic attitudes particularly regarding their need to uphold multiple roles, due partly to being subjected to conflicting gender role prescriptions, are more likely to exhibit disordered eating behaviors. In addition, following Silverstein and Perlick’s perspective on the Superwoman theory, those who display ambivalence about their female gender identity as a result of the conflicting expectations placed on them will be more likely to develop psychopathology such as an eating disorder.

The clinical and empirical evidence supporting that eating disordered individuals tend to be more perfectionist and achievement oriented than normal control populations is so established in the field that one of the subscales of the well-known Eating Disorder Inventory (Garner & Olmsted, 1984) measures an individuals’ perfectionist tendencies—placing it as a core psychological feature for this patient population. Woodside et al.’s recent publication recognizing perfectionism as a generational personality trait that tends

² This statement is meant to reflect the issues prevailing in the specific population of individuals that will be participating in the present research – that is, young women attending Independent Schools in the New York City and Philadelphia Metropolitan regions.

to cluster in the families of eating disorders patients reinforces the important role it plays in the development of eating pathology (2002). In fact research has moved beyond establishing a relationship between perfectionism and eating problems to decomposing the specific kind of achievement that is exhibited as a form of psychopathology in individuals with eating problems (Ashby, 1998; Burckle et al., 1999; Hewitt et al., 1995; Streigel-Moore et al., 1990; Mitzman et al., 1994). In addition, Srinivasagam et al. did a study of long-term recovered anorexics and found that their scores were significantly higher than a control population on several indicators of perfectionism (1995).

Furthermore, a recent longitudinal study of 157 girls recruited from New York City private schools found perfectionism to prospectively predict the onset of young-adult (as opposed to high school onset) anorexic syndrome (Tyrka et al., 2002). Data for the Tyrka et al. were initially collected when the girls were ages 12 – 16, again 2 years later at ages 14 – 18, and a third time at ages 20 – 24, and the retention rate from Time 1 to Time 3 was 61%. They applied the Structured Clinical Interview for DSM-III-R (SCID) (Spitzer, Williams, Gibson, & First, 1989) to assess the lifetime history of an eating disorder at Time 3. Stepwise logistic regression analysis were conducted using variables measured during Time 1 and/or Time 2 to predict the occurrence of disorders that developed in young adulthood. Although the select nature of the participants involved in this study (girls from New York City private schools) limits conclusions being made about other community groups, they are particularly relevant here because it is the very population to be utilized in the present study.

Continual verifications like these give even more plausibility to the assertions made by clinicians such as Bruch and Casper who have implicated perfectionism or

similar personality traits as causal factors in eating disorders, anorexia in particular (1973; 1983). The copious evidence in the literature according perfectionism a precipitating factor in clinical eating disorders, reinforces the current need to begin modeling the specific processes by which adherence to perfectionist standards are formed in adolescent social contexts like the school environment. Since the Superwoman theory relies on the notion of conflicting gender roles as the inherent socio-cultural predicament in which young women find themselves today, I will turn next to research employing naturalistic observation of adolescent social contexts (schools in particular) and focus group discussions with young women about their feelings regarding gender role issues, specifically in their school environments.

Preliminary Research

In preparation for the current quantitative survey study, exploratory qualitative research involving demographically similar Independent schools in New York City sought to examine the gendered cultures of single sex and coeducational environments (Mensing, 2000). Data collection involved open-ended focus groups with two sets of peers chosen from either a single sex or a coeducational institution³. A colleague referred me to a student from each type of school (neither of whom I had ever met) as a potential participant in the study. Both individuals agreed to participate in the research and were invited to bring a group of four to five peers to my apartment on a scheduled Saturday afternoon to informally chat about their lives at school.

³ Both Independent schools served children coming from middle to upper middle class families with an approximately 20% minority population. The biggest demographic difference between the schools was that the coeducational school had almost three times the number of students per grade than the all-female school (i.e., 120 students versus 44 students). The student-to-teacher ratio however was equal in both school environments (9:1).

After posing several planned questions about the gendered culture of their school, the conversations were largely initiated by the participants and in some ways echoed what had been discovered in the educational literature. For instance, when the girls from the single sex school arrived, the main contact person immediately apologized for only being able to recruit two other peers (she had planned to bring four others). Sounding overwhelmed and exasperated they explained how there was so much schoolwork (like long reports and projects) due that week they hardly had time to breathe. This group of girls gave me the sense that they needed a release from all of their pressures and stress and used the afternoon talking with me as an outlet. In fact while the allotted time frame for the discussion was to only be two hours, the three young women stayed for over four hours! Some of the issues they discussed with respect to their school involved a marked animosity of the overt feminist ideals imposed on them by their teachers and administration, especially now that they are in the upper school (this particular institution educated girls from K-12th grade). The anger apparently stemmed from the simultaneous presence of a “hidden curriculum” which, according to them, clearly dominated the overarching value system being promoted in their school. This was most poignantly illustrated in their descriptions of the “lady-like” socialization received at requisite school tea parties, which were hypocritically (in their opinion) juxtaposed with a strongly feminist and extremely competitive academic curriculum. They described the hidden curriculum as involving any policy to ensure that their students conducted themselves as refined, proper, and by definition – acquiescent “young ladies”, which caused the school’s constant advocacy of assertiveness and female empowerment to feel disingenuous. The social behaviors, particularly around the snack food served during the

focus group, reflected a very polite and unassuming upbringing (i.e., they ate very little in comparison to the coeducation group). Obviously with so few students' perceptions of their school's gendered social climate, very little real evidence exists from this individual focus group. Nevertheless, I cannot overlook the similarities between the account of the gendered culture of the all female school attended by my focus group participants and the descriptions offered by Lee and Marks' in their 1992 study investigating why families choose to send their daughter to a single sex school.

The dynamics of the discussion held with the four girls from the coeducational school differed dramatically from that held with the girls attending the all female school⁴. There was a demonstrated loyalty to their school that was obviously not evident in the single sex group. They described their school as "like a typical high school with cliques and gossip about who is wearing what clothes..." (Mensing, 2000, field notes). They saw the social climate as "supportive and liberal", to use their words exactly. Although my specific questions around gender related issues were initially met with hesitation, after taking a moment to think about what was being asked, they presented their viewpoint with marked conviction. As opposed to insulting remarks offered by the single sex group when asked about the gendered social climate of their school, the coeducational girls enthusiastically applauded the gendered nature of their educational environment. For instance, these young women reported being thrilled with the fact that teachers had less rigorous expectations of them than they had of their male peers. They thought that it was fabulous and to their benefit that they were able to "get away with more" than the boys when it came to completing assignments and answering subjective

⁴ The point person from the coeducational school had also anticipated bringing four peers with her, but she never gave an explanation for why only three others came with her to the focus group.

exam questions. Interestingly, they claimed that girls had an equal – if not greater voice in the classroom environment. In fact, they spoke quite unfavorably of feminism and no longer saw the need for continuing the “age-old argument of equal rights for women.” According to these four young women attending an Independent coeducational school, gender discrimination was an issue of the past, and further, “feminists are men-haters who simply want to be better than men” (Mensing, field notes, 2000).

While the single sex group spent a lot of time venting over all the pressures their school puts on them academically, it was difficult getting the girls from the coeducational school to speak about anything outside of their social cliques (referred to as the “A girls” and the “B girls”) at school. They eagerly described the energy the cliques spent vying for the attention of the boys – who evidently received utmost respect from their peers and teachers as well. It was quite clear that the presence of boys at their school constituted a highly valued element of their social experiences. They expressed enormous gratitude about being in a coeducational environment because of the “cattiness” that is often characteristic of girls’ social circles. Despite the excessive praise for their gendered situation at school, physical appearance and weight, particularly with reference to expectations from boys, were extremely sensitive topics in the coeducational group.

Although they were near completion of their sophomore year of high school, participants from the coeducational institution also demonstrated very little direction for their future in terms of career goals. However, they knew they wanted children and were clear that when this happened, they would stay home to raise the children. Whereas the single sex group, also completing their 10th grade year, not only had already chosen the

specific Ivy League Universities they planned to attend, but they had majors and graduate schools chosen as well!

Of course it would be imprudent to generalize the opinions and perceptions offered by these two small peer groups speaking on behalf of an entire school. It is very possible that the girls attending the single sex school were by nature very different than the group of peers from the coeducational environment causing the accounts I received to be skewed accordingly. Thus, in order to gain my own perspective of the environments, I also conducted participant observation of the schools. This was achieved by shadowing at least one member from each of the focus groups throughout her day at school. My observations were sometimes congruent with what I had learned from the prior discussions with the girls, and other times they were clearly not. Academic expectations were high in both environments (not only the single sex as implied during the focus groups). The girls with whom I spent time from the coeducational school happened to be coping with the scholastic pressures very differently from their single sex counterparts. Perhaps the difference is related to the distractions offered with the presence of boys in the coed environment. Or, perhaps they are merely differences entirely attributable to individual psychological characteristics. It is impossible to know with such little data.

Although disordered eating was not directly assessed in any phase of this qualitative project, it was clear that it existed in both the single sex and coeducational contexts. The most popular lunch entrée in both schools was a salad, and the topic of eating disorders was discussed by the girls in the single sex group with no prompting whatsoever on my part. Although the coed girls were more reticent with respect to

disordered eating rates among peers they admitted not wanting to eat in front of the boys for fear of appearing “piggish” or “out of control”.

Ultimately, the goal of this work was not to estimate eating problems in schools, it was rather to gain the insight needed to more accurately assess and somehow quantify the social transactions (i.e., proximal processes) occurring within school social climates that are relevant to behaviors like disordered eating. The observations yielded through the qualitative research were used as guidelines in building models to be tested in the present dissertation project.

Summary of Literature Review

As mentioned in the some previous literature discussed, while some of the research suggests a link between adherence to nontraditional gender roles and eating disorders (e.g., Bruch, 1978; Crisp, 1980; Steiner Adair, 1986, 1989; Timko et al., 1987; Silverstein & Perdue, 1988; Silverstein et al., 1990; Thorton et al., 1991; Murnen et al., 1994; Silverstein & Perlick, 1995; Smolak & Levine, 1996; Hart & Kenny, 1997), other research implicates adherence to traditional feminine roles as a risk factor for body dissatisfaction and disordered eating, especially bulimic behavior (e.g., Srikameswaran et al., 1984; Boskind-White & White, 1986; Cash et al., 1997; Martz et al., 1995; Mori et al., 1987; Pettinati et al., 1987; Jackson et al., 1988; Van Strein, 1989; Usmiani & Daniluk, 1997; Murnen & Smolak, 1998). Even if there were incontrovertible evidence that all female schools promote nontraditional gender roles while coeducational schools tend to engender more traditionally oriented females (which of course there is not based on the accounts and perspectives of seven adolescents), in light of the contradictory studies in the field of eating disorders, it would be still be difficult to predict which kind

of school environment is more likely to put adolescent girls at risk for eating problems. The preliminary qualitative research observing evidence of conflicting gender role prescriptions in the single sex school (i.e., feminist ideals and high levels of academic achievement being taught along side of a hidden curriculum), and more traditional attitudes and behaviors being displayed by my participants being schooled with boys, would seem to suggest that both environments are likely to be placing their female students at high risk for disordered eating. Tiggemann's latest data on this question is in accord with this notion (2001). It very well may be that while girls with eating problems are bound to exist in all schools—with or without the presence of boys, the specific motivations for achieving thinness may differ according to the gender composition of the environment. Before being able to make an educated assertion regarding the predictors of disordered eating in coeducational versus single sex contexts, we must first quantitatively assess the gendered climates of both kinds of environments. Once measured, distinctions will be sought. In turn, if significant differences in gender socialization are revealed, then research designed to understand the implications of those differences will follow.

There is no question that an inherent paradox exists within the very concept of an eating disorder. Self-starvation typically occurs amidst abundance. The anorexic is angry and has so much to say to the world, but she is stricken by silence so her body speaks for her⁵. In order to begin unraveling the enigma behind the perplexing and life threatening clinical syndromes such as anorexia and bulimia nervosa, we must focus more on the contradictions that prevail in the everyday lives of young women. As Susie

⁵ For examples of passionate words indicating this in the forms of essays or poems written by adolescents suffering from eating disorders see Shandler, 1999. For accounts of women suffering and/or recovering from anorexia evidencing the use of the body as communicator see Way, 1993.

Orbach described, her patient's relentless drive for thinness seemed to be both in response to a subtle desire for a hyper-feminine state at the same time as a literal hatred of femininity (1986). The symbolism behind such confused behavior involves an inability to resolve a desire to be everything—that is, independent and successful, as well as thin, beautiful, and nurturing. Interestingly the disease begets the very opposite from what the sufferer is seeking. Eventually her disorder leaves her dependent, defeated, sickly, and profoundly isolated.

It is unlikely that a widespread cultural transformation of the system of values working to exacerbate anorexia and bulimia nervosa is imminent or at least very realistically so. With the appropriate training of educators however, one environment in which conflicting messages can be monitored, and hence the rate of eating disorders possibly decreased, is that of the school.

In sum, with this dissertation research, I intend to explore and clarify the underlying social and psychological processes that are associated with eating problems within differentially gendered school environments. Briefly, some questions to be addressed are: Can a school's gendered social climate be quantitatively measured? Does the gender socialization occurring in a school determine both the degree to which adolescent females adhere to the Superwoman ideal and the degree to which she engages in disordered eating patterns? Does her perfectionist achievement in multiple roles (i.e., adherence to the Superwoman ideal) predict her tendency to engage in disordered eating patterns? And finally, given that the aforementioned relationships hold, is the mechanism through which a school's gendered social climate leads to increased disordered eating explained by adherence to the Superwoman ideal?

CHAPTER THREE

Research Design and Methodology

Prior to delving into the complexities of the research design and methodological issues involved in conducting the present study, I will summarize the sections to be covered in this chapter. A statement regarding the research design and the modality for data collection will be followed by a discussion of the statistical technique to be employed—hierarchical linear modeling (HLM)—in order to accommodate the nested structure of the data. In brief, HLM is the most recent statistical method for appropriately handling data sets where participants within clusters (hence the nestedness) cannot be assumed to be behaving independently (as traditional methods assume). Thus the possible similarities between individual attending the same schools in the data collected for this research will be factored into the statistical calculations performed.

The following section describes in detail the sample of eleven schools participating in the study. Table 1 provides a summary of all the schools' characteristics (p. 43). More specific information regarding the racial breakdown of the students participating and the categorical breakdowns for socioeconomic status (SES) in each school can be found in Appendix C.

The instruments used and/or created for the collection of these data are described in detail next. The newly devised School Gender Socialization Scale (SGSS) and the six subscales it involves (appearance concerns, dating concerns, academic concerns, gender prejudice, traditional gender socialization, and nontraditional gender socialization) are discussed. I explain that the summed total of each subscale's z-score represents the

variable referred to as conflicting gender role prescriptions or Z-Total SGSS. This variable and its component parts, measuring the gender socialization occurring in one's school environment, are central to the research questions to be addressed.

The second group of questions found in the survey packet (Appendix B, p. 195) is not a specific scale per se, but I refer to them as the gender identity and beliefs questions. Following the descriptions of the variables derived from the gender identity section is a discussion of the measure adapted to measure adherence to the Superwoman construct. The revised Superwoman Scale, which purports to measure perfectionist achievement in multiple roles, is thoroughly detailed. A description of the classic Eating Attitudes Test developed by Garner and Garfinkel (1979) follows.

Another group of questions inquiring directly about a participant's role concerns is discussed. This section of the survey is included for purposes of establishing construct validity on the Superwoman Scale. Finally, Thompson and Gray's 1995 Contour Drawing Rating Scale is presented as the method for assessing of body dissatisfaction.

Following the instruments section are the procedures used to conduct this research. Exactly how the schools were solicited and compensated for their participation in the study is elaborated with further documentation found in the Appendix B (p. 188-190).

After the description of precisely how the data were collected, you will find information regarding how they were coded, scored, and prepared for analyses. Given that the School Gender Socialization Scale (SGSS) involves a complex factor structure and has never been used in its present form for research purposes (i.e., outside of pilot work) a brief description of the factor analysis imposed on the data is provided (the

rotated pattern matrix and item breakdown for each subscale can be found in Appendix F and Appendix G, respectively). Table 2 (p. 63) provides standardized deviations from the mean of the total sample for each school on the gender socialization factors.

Next, the primary focus is on developing construct validity for the Superwoman Scale. In Table 3 and Table 4 (pp. 65 and 66) you will find descriptive statistics and intercorrelations among the Superwoman variable and the individual role concerns variables—the goal being to determine if the Superwoman variable is a good indicator of perfectionist achievement in multiple roles. Descriptives and intercorrelations are also provided between Superwoman scores and the gender identity and beliefs questions in order to explore if and how these individual difference variables relate to adherence to the Superwoman construct (See Table 6, p. 71).

With the stage all set and the variables in place, the closing section of this chapter will involve a delineation of the specific research questions to be addressed in Chapter Four.

Statistical methods

The present study is a non-experimental design utilizing a series of questionnaires to be analyzed within the framework of hierarchical linear models (also referred to as multilevel or mixed models). Two Bayesian statisticians, Lindley and Smith, originally introduced the term hierarchical linear model in 1972 when they developed a framework for handling the analysis of clustered data with complex error structures (Bryk & Raudenbush, 1992). Since there were not sufficient mathematical techniques for estimating these kinds of models in the early seventies, their contribution initially failed to flourish. Several years later, Dempster, Laird, and Rubin developed the needed

algorithm that eventually lead to a wider use of fitting models involving data with a nested or hierarchical structure (1977). The method however did not become mainstream until the 1990's, several years after statistical computing programs (e.g., HLM by Bryk, Raudenbush, Selzer, & Congdon, 1988, and ML2 by Rabash, Prosser, and Goldstein, 1989) were developed making the sophisticated techniques accessible to general researchers in the social sciences.

Given that the data collected for the present dissertation involve a sample of individuals attending a sample of schools, they are inherently nested in their structure. With data such as these, a decision must be made regarding the unit of analysis to be applied. There are several alternatives. First, we could merely ignore the clustering of individuals within schools and treat the data as if they involved a sample of entirely independent observations. However, by doing this and in turn employing the ordinary least squares (OLS) techniques typically used to estimate parameters in single level models, we are in essence violating the assumption of independent observations underlying general OLS linear models. This violation causes several problems statistically, including correlated error terms (i.e., residual variance) between the individuals in the groups. With correlated residual variance among the kids attending the same schools, the standard error estimates are biased. That is, they will be lower than they should be, giving you biased test statistics, which in turn, result in the increased probability of committing a Type I error (Krull & MacKinnon, 2001). A Type I error is committed when you reject the null hypothesis and it is actually true. Simply put—when you say there are differences when none in fact exist. In sum, in order for observations to be considered truly independent in the present study, we are ultimately assuming that the

environments in which these kids are being educated have no perceptible influences on their behavior. As discussed in Krull and MacKinnon (2001), this would mean that there are no “shared group experiences, reciprocal influences resulting from group interaction, or non-randomly distributed background variables” existing amongst kids attending the same school (p.250). That is, two kids who are classmates are no more likely to behave similarly than two kids chosen at random from a population of adolescents. This is unlikely and should not be assumed without testing. Also, given the contextually driven theory upon which this research is based, conducting the analyses entirely at the level of the individual would be contradicting the very tenets of this dissertation.

A second alternative to dealing with clustered data would be to conduct the analyses at the level of the school (Krull & MacKinnon, 1999, 2001). This would involve merely averaging over all of the kids sampled within each school so that each school becomes an independent observation in the analysis. There are many obvious disadvantages to conducting the analysis in such a way. First, the degrees of freedom reduces from equaling the number of individuals in the entire data set minus the number of variables in the model (in traditional single-level models), to the number of schools (or Level 2 units) minus the number of variables in the model, which in turn drastically reduces the power of the statistical test—particularly when there are so few Level 2 units. Second, it is not unusual for 90-95% of the variance in scores to exist within the individuals as opposed to between the schools. By aggregating all scores at the level of the school we are ignoring vast amounts of valuable information. So while our problem of correlated error terms would be solved, we would be attempting to make conclusions

about individuals based on aggregated data which has been found to be so erroneous in the past that it has earned its own term—the ecological fallacy (Pedhazur, 1982).

Hierarchical linear modeling meets the challenge of accommodating data sets that are nested in structure by allowing for the estimation of error terms at both the individual and group levels. Also, when using HLM, certain variables may be created either at the level of the individual or the level of the school, and others may be created at both levels. For example, the enrollment of students in grades 9-12 is a variable that exists *only* at the level of the school. A respondent's personal sense of gender ambivalence is an example of a variable that only operates at the individual level in the present study. Perceptions of conflicting gender role prescriptions at one's school on the other hand, is created at both levels. The school-level variable is an aggregated score of all of the individuals sampled within a specific school, while the individual-level variable is an indicator of a student's personal perceptions of conflicting gender role prescriptions at her school. Ultimately in this context, HLM allows me to appropriately address the research questions at hand, which among other things, involve testing whether disordered eating and adherence to the Superwoman ideal are only explainable by individual differences, *or* if certain school-level variables also account for significant variation in scores on these measures.

Overall, several goals are to be met with the proposed multilevel analyses. The present study will be testing for a random effect of school on perceived gender socialization, adherence to the Superwoman ideal, and disordered eating patterns. A "random effect" is simply the terminology used for an independent variable whose

categories or levels are selected at “random” from a population⁶. Since this research involves a sample of schools selected from a larger population to which we hope to generalize, we refer to it as a random, as opposed to a fixed, effect. Other categorical variables, such as race or gender, are fixed because research typically involves all possible “levels” or categories of these variables (whereas it would be impossible to involve all possible schools in a population). In the case of the present study, we are in fact only using females, but since we do not wish to generalize our finding to males, the effect remains fixed. In addition, a random effect also allows for its error variance (that is, the information surrounding the outcome variable for which we have not accounted) to be correlated with other predictor variables, which in a traditional model would be violating an underlying assumption.

It is also important to point out that the data collected for the present research are cross-sectional, and thus only represent a snapshot in time. However, to remain consistent with the bioecological model, the dynamic forces measured in this research are not conceptualized as static but rather continual processes that interact with the individual over time to produce behavior patterns that too will change as the person develops.

Sample

My sampling strategy involved collaboration with the H.E.E.D. (Helping to End Eating Disorders) Foundation, a non-profit organization found and directed by Dr. Ira Sacker to raise awareness about eating disorders through community outreach programming. As a Doctoral Candidate in Psychology conducting research for my

⁶ The word random is not to be considered literally. I am merely employing the technical term assigned to an effect of this kind in the context of OLS regression analysis.

dissertation, I approached 47 schools, the majority of which were Independent schools educating students from Kindergarten through 12th grade (See Appendix A for listing of all schools approached about participation in this research). Schools were chosen from a listing on the National Association of Independent Schools' Website. The websites of any school within a reasonable commute from the Philadelphia and New York Metropolitan Areas were examined for their appropriateness in the present research. Schools serving relatively similar demographic populations with a standard teaching philosophy were deemed as acceptable potential participants. The goal was to achieve two samples of female students, one attending an all-female school and the other attending a coeducational school. In order for the samples to be comparable (that is, less confounded by demographics), I strove for a relatively homogeneous group of schools.

All schools were contacted by telephone and were either faxed or mailed a packet of information that described the project and included the survey to be deployed during phase one (See Appendix B for information packet faxed/mailed to schools.) Baring the title "The H.E.E.D. Foundation's 2002 Independent School Prevention Project" I explained to a school's nurse, guidance counselor, health teacher, (or with whomever the operator put me in touch), that participation in our project would involve two phases. They were told that the first phase required a group of their upper school students (i.e., grades 9-12) to spend one class period completing a packet of questionnaires (see Appendix B). No stipulation was made regarding how many students would need to complete the surveys. I continued to explain to the faculty person that after reviewing the results from the sample of students who completed the survey, phase two would involve a presentation on eating disorders prevention and intervention strategies. The specific

content of the presentations would be determined both by the responses from the questionnaires as well as the school's own preferences for a program on eating disorders.

After spending several months recruiting, unfortunately my final list of participating institutions consisted of only eleven schools. That is, approximately 25% or 11 out of 47 agreed to participate the project. Table 1 delineates the characteristics of each school.

Table 1: Demographic Characteristics of Participating Schools

School ID Group N	Gender Composition	Type of School Grades Enrolled	# of Students Enrolled (Grades 9-12)	Proportion of Career Mothers	% Minority on Record	Socioeconomic Status (Parental Education)	Average Age of Students Sampled	Student-to-Teacher Ratio	Religious Affiliation
1 N=44	All female	Day K-12	171	.7500	.23	4.24	15.25	9	None
2 N=32	Coed	Day PK-12	242	.7031	.16	4.09	16.28	6	None
3 N=233	All female	Day 9-12	514	.5203	.11	3.11	16.16	12.2	Roman Catholic
4 N=30	Coed	Day K-12	449	.8167	.17	4.37	15.7	6.7	None
5 N=26	Coed	Day PK-12	120	.8269	.2	4.19	15.12	4.8	None
6 N=49	Coed	Day PK-12	212	.8556	.25	4.27	14.92	7.5	None
7 N=52	Coed	Day PK-12	415	.6837	.38	4.03	16.06	6.1	Non- Denom.
8 N=104	Coed	Board 9-12	461	.6127	.14	4.00	16.57	8.1	None
9 N=79	All female	Board 9-12	87	.5946	.17	3.79	16.47	4	None
10 N=91	Coed	Day 9-12	199	.6591	.21	3.80	15.54	8.3	Roman Catholic
11 N=126	All female	Day PK-12	139	.7400	.01	4.27	16.28	7.3	Non- Denom.

Each participating institution signed a letter of consent that they had agreed to adopt the program as a part of their educational curriculum. Since the students completed the surveys during class time, it was considered a classroom activity and hence did not require individual and parental consent forms. This method greatly improved the likelihood of gaining a representative sample of the students attending each school.

As Table 1 indicates, four of the schools are all female institutions (#1, #3, #9, #11) and seven of them are coeducational (#2, #4, #5, #6, #7, #8, #10). There is one single sex boarding school (#9) and one coeducational boarding school (#8), both of which are nonsectarian and located outside of the immediate Philadelphia and New York Metropolises. Both participating boarding schools educate students from grades 9 through 12. Of the remaining 9 schools, 2 others in the sample also only educate students from grades 9 through 12. Again, one is coeducational (#10) while the other is all female (#3), and they are both institutions affiliated with the Roman Catholic Church, thus keeping the sample relatively balanced. Of the Catholic schools, only the coeducational one (#10) is a member of the National Association for Independent Schools (NAIS). The all female Catholic school, on the other hand, is not an *official* “Independent” institution per se. However, a colleague from H.E.E.D. put me in touch with the school nurse at this all female Catholic parochial school, and she (the nurse) was immediately very enthusiastic about participating in the study. Because of the extreme difficulty in recruiting schools for this project—in particular single sex schools—the school was not refused because of its lack of “Independent” status. Also, since the population of students attending this school was not observed to be of a drastically

different socio-economic status than students attending a typical Independent school, it seemed justifiable to include them as a part of this research.

Of the remaining seven schools, two others (a single sex: #11, and a coeducational: #7) subscribe to a non-denominational, yet religion-based faith through the “Country-Day School” concept. The final five schools are all nonsectarian Independent day institutions located within Metropolitan New York. Four of these schools are coeducational (#2, #4, #5, #6) and one is all female (#1).

The schools range in size according to whether or not they only educate students from grades 9 through 12 of course. Enrollments for grades 9 through 12 specifically range from a low of 87 students (#9: the all female boarding school) to a high of 514 (#3: the all female Catholic parochial school) with an overall average of 272 students (counting males in the coeducational contexts). The student-to-teacher ratio ranges from a low of 4 students per every teacher (#9) to a high of 12.2 students per every teacher (#3), with an average of 7.611. There are no differences between the coeducational and single sex schools on enrollment levels or student-to-teacher ratio.

An average score for both parents’ education level was used as a proxy for socioeconomic status (SES). The following numeric categories were represented by the noted education:

- 1 – indicated the parent did not finish high school
- 2 – indicated the parent had a high school diploma
- 3 – indicated the parent had some college or technical school
- 4 – indicated the parent had a Bachelor’s Degree
- 5 – indicated the parent had a Graduate or Professional Degree.

If there was only one parent listed, that parent's highest education level was given as the proxy for that individual.

Notably, the SES scores within the schools did not pass Levene's test for homogeneity of variances among groups. This indicates that the socioeconomic status of participants attending certain schools vary to a much greater extent than participants attending other schools (Levene's Statistic, $t = 2.951$; $p = .001$). Appendix C offers a table showing the percentage breakdown of students falling within each category for every school, as well as the means and standard deviations for each school's overall parental education level (SES).

Another related school-level variable was derived from both the participants' mothers' education levels and their reported occupations. In order to gauge the kinds of role models the participants had with respect to their mothers' lifestyle, a variable labeled 'career mom' was created that separated the stay-at-home moms, from mothers who work but do not have a college degree, and mothers in professional careers requiring at least a bachelor's degree. Since stay-at-home moms (regardless of education level) were assigned a value of zero, working moms (without a college degree) were assigned a value of one half (.5), and career-track moms (with a professional job requiring at least a bachelor's degree) were assigned a value of one. Using this coding scheme, an average calculated for each school gives approximately the proportion of mothers with careers at that school. Schools with values closer to zero can be characterized as having more stay-at-home mothers as opposed to career-track mothers.

In addition, despite the attempt to collect a homogeneous sample, the estimated socioeconomic statuses and proportion of career mothers do indeed differ among the

schools ($F = 19.31, p = .000; F = 5.659; p = .000$, respectively). Although the differences between the overall mean for the single sex schools for SES (3.63, $SD = 1.098$) and proportion of career mothers (.613, $SD = .422$) and the coeducational school means for SES (4.04, $SD = .961$) and proportion of career mothers (.701, $SD = .402$) are statistically significant ($F = 32.776; p = .000; F = 9.516, p = .000$, respectively) at the individual-level in an ANOVA context, gender composition is not a significant Level 2 predictor of a school's average SES or proportion of career mothers in a multilevel or HLM context. Since the analyses will be conducted in an HLM context, meaning the variables will be used as school-level variables, there should not be a serious confounding effect based on SES or proportion of career mothers with respect to gender composition of the school. Nevertheless, SES and proportion of career mothers will be considered as important covariates at the level of the school.

Depending on the availability of free class periods to do the surveys, the grade levels and the total number of students from each school who completed the surveys also varied. Some schools were able to have several grades complete the surveys, while others could only manage to schedule a few classes. Thus the sample sizes from each school range from a low of 26 (school # 5) to a high of 233 (school #3). Overall the sample consists of 482 girls who attend a single sex school and 384 who attend a coeducational institution. The sample includes students ranging from grades 9 through 12 with a breakdown of: 145 9th graders, 281 10th graders, 256 11th graders, and 184 12th graders. The age of the sample ranges from 13 years to 20 years with an overall average of 16.01 years. The coeducational group's average age was 15.85 years and the single sex group's average age was 16.14 years, which again, is a statistically significant

difference ($t = 3.623$; $p = .000$), at the individual-level (i.e., in an ANOVA context *only*). Gender composition is not a significant Level 2 predictor of the average age of students sampled at the school in an HLM context, however it will be another variable considered in the analysis at the level of the school.

In terms of race, 76.99 % of the participants of this study identified themselves as White, 6.47% as Black, 6.01% as Asian, 5.55% as Hispanic, and another 4.97% identified themselves either as Mixed or a race that fell into the “Other” category. The percent of minority students sampled at each school varied from a low of 7% (school #4) to a high of 48% (school #7). In Appendix C you can find the racial breakdown of the students sampled at each school, and the proportion of minority students actually enrolled at the school according to public records. A school-level variable labeled ‘percent minority’ reflects the public record, while another set of school-level variables labeled percent Black, Asian, Hispanic, etc. represent the actual proportions of each racial category sampled in the individual schools. There are no differences based on race between the coeducational and single sex schools.

Procedures

Arrangements were made with the contact person at each school so that students would have one class period (averaging approximately 40 minutes) to complete the packet of surveys. Whenever possible, surveys were completed in the context of a health class (or something similar) since the topic was appropriate and relevant to the regular subject content of the class. At the beginning of the period I was introduced to the students as special guest who was a Doctoral Candidate in Psychology and a researcher

with the H.E.E.D. Foundation. While I distributed the survey packets, I briefly explained that they were participating in a research project about school environments, gender role concerns and eating disorders. Next, I read a statement that described the survey they were about to complete and gave specific instructions for how to complete it (See Appendix E for copies of the statements read).

Several schools did not have a suitable class for me to attend so alternative arrangements were made for the questionnaires to be completed. In these circumstances I utilized the weekly scheduled advisory period where typically students meet in small groups and have the opportunity to discuss issues concerning their academic progress or sometimes things of a more personal nature with an assigned faculty person. Often this becomes merely an unstructured free period where students do as they wish, provided that they stay in their assigned classrooms. This was an ideal time frame for the surveys to be implemented if a health class was not available. The same procedure described above was followed.

Phase two of the project took place at least three weeks following the completion of the questionnaires at the particular school⁷. A sufficient amount of time was needed to input the results from the surveys into a statistics program so that descriptive information about the group's gender role concerns, disordered eating patterns, and perception of their school's social climate could be provided for them when I returned. I also used the descriptive statistics to inform the specific content of the information I chose to cover during the presentation. Some of the presentations simply consisted of me returning to the same classes who had filled out the questionnaires a few weeks prior, where I led

⁷ Due to scheduling matters, this was not the case for one school. As mentioned in chapter six, problems arose in this particular situation.

class discussions around topics such as nutrition, eating disorders, the impact of the media, etc. Several schools on the other hand, who had a majority of their upper school students completing the surveys, opted to hold a large assembly program on eating disorders for their entire upper school. Typically, Dr. Sacker acted as the guest speaker for these programs. After making some introductory remarks regarding the current epidemic of eating disorders today, he usually had his assistant discuss her personal struggle with an eating disorder and how she overcame it. One school chose to have a lecture given by Dr. Sacker on a week night evening to a middle school parent's association meeting. The format of the presentation given was left entirely up to the school's discretion and was intended as compensation for participating in this project. The second phase was not used as a means to collect further quantitative or qualitative data.

Instruments

The cover page of the questionnaire packet requested basic demographic information on the participants such as their gender, age, parents' educations and occupations, religion, race/ethnicity, living arrangements, GPA, and extracurricular involvement (see Appendix B, p.191).

School Gender Socialization Scale

Following the rationale used by Striegel-Moore et al. (1991) in their study of eating disorders and school milieu, I created the School Gender Socialization Scale (SGSS), specifically for the present study to assess the gendered social climate of a school and hence proximal processes potentially influencing individual psychological

make-up. Initially, I planned to adopt several relevant subscales from Moos's University Resident Environment Scale (1979), as done in the Striegel-Moore et al. study (1991). As the items were updated to reflect more modern social issues based on recent discussions held with adolescents, the scale evolved from an adaptation of Moos's to a new measure in its own right. In addition, pilot data gathered to determine the appropriateness of the questions brought about further refinement of the underlying social climate features that I was interested in measuring within a school. Finally, at the time of data collection for the present study, the SGSS involved 48 items that differed entirely from Moos's original scale (See Appendix B, pp. 192-194). The concepts behind many of the items used for the School Gender Socialization Scale (SGSS) were derived from the BEM Sex Role Inventory (1974), and the Personality Attributes Questionnaire (Spence & Helmreich, 1978). These well-established gender role scales acted as guides for determining traits associated with the masculine and feminine gender roles.

Completion of the School Gender Socialization Scale involved participants indicating the extent to which they agreed with each statement on a scale from one to six (1 = strongly disagree, 6 = strongly agree). The 48-items of the SGSS were theoretically broken down into six separate dimensions or subscales (see Appendix D).

Items reflecting nontraditional femininity such as, "Most girls here pretty much act and think freely without too much regard for the opinions of others." and "Girls here are encouraged to take risks." comprise the *nontraditional gender socialization* subscale.

Traditional feminine gender role prescriptions including “Girls here are taught to have compassion when a peer is upset.” and “Girls here are discouraged from using harsh language.” comprise the *traditional gender socialization* subscale.

A third subscale named *academic concerns* was created to assess how important studies and being perceived as intelligent are to the girls at the school. Examples of the items from this subscale are “Most girls here work hard to get top grades.” and “Most girls at this school would consider themselves intelligent.”

The *gender prejudice* subscale was designed to evaluate the tendency for teachers to treat students in a gender specific manner at the school. Eight items such as, “It is common to be discouraged from or encouraged into taking certain classes here because of your gender.” or, “Teachers here sometimes seem to have less rigorous expectations of girls because of their gender.” comprised this subscale.

There are also items measuring the concerns around appearance perceived among the female students at the school. Statements such as “There is a lot of pressure at this school to be thin” and “Looking good is important to the girls at this school” comprise the *appearance concerns* subscale.

Statements designed to evaluate the importance of dating at the school make up the final dimension on the SGSS. Seven items such as, “Going out with guys is a recurring topic of conversation around here” or “Being popular with guys is important to girls at this school” comprised the *dating concerns* subscale.

Of most importance with respect to school gender socialization however is not the individual subscales, it is the summed total of the z-scores derived from each subscale. This variable, termed *conflicting gender role norms* (also referred to as *Z-Total SGSS*) is

an overall composite or synthetic variable of the degree to which the female students perceive pressures to achieve, perform, or behave in each of the underlying dimensions⁸.

Overall, the goals of the scale are to a) evaluate the components underlying the larger social/psychological construct of gender role socialization occurring in the school, and b) reveal the students' perceptions of social pressures within their school for girls to attain an established standard with regard to appearance, academic, and dating concerns, as well as gender role behaviors, and the overall gender prejudiced attitudes prevailing in the school.

Gender Identity and Beliefs

The next page of the survey inquires about gender identity, behaviors, and beliefs (See Appendix B, p. 195). The majority of these questions were borrowed from the section on gender attitudes in the questionnaire used for the ongoing longitudinal Eccles MAGIC study (Eccles, Maryland Adolescent Growth In Context, 1991-present).

In order to provide a sense of the gender ambivalence being experienced among the females, participants were first asked how they feel about their sexual identity with the question, "If you had a choice you would..." 1) definitely choose to be a girl, 2) probably choose to be a girl, 3) not sure, 4) probably choose to be a boy, or 5) definitely choose to be a boy. This particular question comprises the *gender ambivalence* variable. Higher scores would denote an individual who is ambivalent about being female.

⁸ Keep in mind that the items on the SGSS were created to reflect social transactions or proximal processes between the *female* students in a particular school environment that may influence tendencies to engage in disordered eating. The data collected from the boys, who were also asked to rate the degree to which they feel the statements are true or untrue with respect to the social climate for the girls at their school has been set aside for the present analysis.

The next question asks the participant to rate how much they agree with the statement: “Other people see me as feminine.” Response categories exist on a four-point likert scale where one indicates they strongly disagree, and four indicate they strongly agree. This variable is named *feminine appearance*. Higher scores on the feminine appearance variable would denote an individual who feels that others perceive her as feminine.

Items three and four tap into the level of importance that the participant places on displaying femininity with her behaviors. These questions: “How important is it to you that you do things that make you appear feminine?” and “How important is it to you that you avoid doing things that make you appear masculine?” are scored on a 5-point likert scale ranging from 1 = not at all important, to 5 = extremely important. The summed scores from the responses of these two items comprise the *hyper-femininity* variable. Higher scores on the hyper-femininity variable reflect an individual who is overly concerned with behaving in a manner that is perceived as feminine.

Items five through ten inquire about participants’ opinions around girls and boys working with babies, playing sports, and doing math and science. First the survey asks, “Who is better at working with babies (playing sports, or doing math and science), girls or boys?” The five response categories range from one, which reflects the belief that girls are a lot better, to five, reflecting the belief that boys are a lot better. Category three gives the respondent an opportunity to indicate that girls and boys are equally good at performing this particular role. Then the survey asks, “Who is it (working with babies, etc) more important for, girls or boys?” Again there are five response categories ranging from one, reflecting the belief that the role/activity is a lot more important for girls, to a

five, reflecting the belief that it is a lot more important for boys. The third category again being neutral, or that the role is equally important for both boys and girls. The responses pertaining to each gender role in question (i.e., working with babies, playing sports, and doing math and science) were summed to make three individual variables named *working with babies*, *playing sports*, and doing *math and science*. Higher scores on each of these variables indicate the belief that the role in question is both better performed by *and* more important for boys.

The final four items on this page inquire about the extent to which participants' agree with traditional gender-stereotyped statements, such as "It is usually better for everyone involved if the man is the 'breadwinner' outside of the home and the woman takes care of the home and family." These four statements, rated on a four-point likert scale—again, one indicating strong disagreement, to four indicating strong agreement, are totaled to comprise a variable named *traditional beliefs*. Higher scores on the traditional beliefs variable denote individuals who subscribe to very traditional stereotypes regarding gender roles.

Superwoman Scale (Revised for Teens)

The following questionnaire in the packet involved a modified version of a scale created by Murnin et al. (1994) designed to measure adherence to the Superwoman ideal or perfectionistic achievement in multiple roles, as discussed in the literature review. Because the article describing the development of this scale (titled the Superwoman Scale or SWS, see Appendix J for the original items) remains an unpublished manuscript, few studies have actually adopted it for research purposes (Murnen et al., 1994). At this time,

no validity studies exist. While the original concept behind the SWS remains the same for the present study, that is, perfectionist achievement in multiple and often conflicting gender roles, the items were developed for a college student population and were not entirely appropriate for the present adolescent population. Thus a new revised scale titled the Superwoman Scale for Teens (SWS-T) was adapted for use with young people who are old enough to be considering future careers and the prospects of marriage and parenthood but who are still primarily concerned with activities and issues related to their lives at school. (See Appendix B; pp. 196-197, for a copy of the revised Superwoman Scale used for the present research.)

Feedback received during collection of pilot data led to changing the response categories of the SWS-T to a 6-point Likert scale ranging from strongly disagree = 1, to strongly agree = 6. According to a group of approximately one hundred 9th graders, this new system of responses was more easily understood than the original directions which requested subjects to rate how well each statement characterized them, from not at all = 1, to extremely well = 6. Some of the reversed scored items were also changed in order to achieve increased clarity.

An example of an item with which the Superwoman would strongly agree would be "In order to feel fulfilled someday, I would need to have it all (that is, a strong marriage, a prestigious career, and great kids)." Other items with which the Superwoman would be expected to easily identify are "My friends always turn to me when they need help with a problem or emotional support." and "I feel I must socialize on weekends even if I am tired." An individual adhering to the Superwoman construct finds no *specific* domain in which to be perfect; rather, she wants to be smart, attractive, worldly, popular,

healthy, independent, and nurturing to others in need. In the future, she sees herself with a great husband, wonderful children, and a successful plus highly rewarding career. She is the quintessential modern woman who “has it all.” This idealized Superwoman is precisely what our feminist researchers predicted might evolve from the progress gained in the women’s movement after the 1960’s. Participant’s responses to the items on this scale will be totaled and a variable named *Superwoman* will be used in the analysis.

Eating Attitudes Test

The primary dependent measure adopted for this study was the abbreviated Eating Attitudes Test (EAT-26) (Garner & Garfinkel, 1979) (See p. 198 Appendix B). The EAT-26 is a widely used screening instrument for eating disorders where both reliability ($\alpha = .92$) and validity have been established making it a popular measure for research purposes (Garner et al., 1982). Its factor structure involves three separate dimensions. The first, which is highly correlated with the overall EAT-26 ($r = .93$), is labeled “dieting” and reflects a pathological preoccupation with body size and the avoidance of fattening foods. The second factor “bulimia and food preoccupation” is positively related to a heavier body weight and symptoms of bingeing and purging. The third, labeled “oral control”, is positively related to anorexic-like behaviors and a low body weight. Respondents are asked to rate the frequency with which they either experience the mentioned feelings or have engaged in the stated behaviors. Response categories range from always to never and are presented in a 6-point Likert scale format (1=Never, 2=Rarely; 3=Sometimes, 4=Often, 5=Usually and 6=Always). The items are totaled so that a person indicating ‘Never’ for an item gets one point for that question, and a person

indicating ‘Always’ for an item gets six points for the question⁹. The scores can potentially range from a low of 26 to a high of 156. Low scores represent individuals who do not evidence disordered eating attitudes and behaviors, while high scores reflect individuals who have greater disordered eating attitudes and behaviors. The EAT-26 also requests participants to report their current height and weight, which will be converted into a total Body Mass Index (BMI) for use as a potential covariate. The variable representing total EAT scores is named *disordered eating* for the present study.

Role Concerns

Modeling yet expanding the method used by originally by Silverstein and Perdue (1988) and then Dyer and Tiggemann (1996), participants were asked to indicate on a 5-point Likert scale (1=Not at all, 2=Somewhat, 3=Moderately, 4=Very, and 5=Extremely), how important it is for them to fulfill a list of ten roles either in the present or at some point in their future (See Appendix B, p. 199). Some examples of the roles or characteristics mentioned here are thinness, attractiveness, parenthood, and intelligence. The summed total of each participant’s scores on the ten characteristics will be used to create a variable called *multiple role concerns*.

Next, participants are instructed to rank order a given list of five goals for the future (all items were extracted from the first list). The goals include: “being a good parent”, “having a strong marriage”, “obtaining an advanced degree”, “maintaining a

⁹ This is not the standard scoring method used for clinical populations where the threshold score for a potential diagnosis is considered 20. The traditional method of scoring assigns 0 points for the ‘sometimes’, ‘rarely’, and ‘never’ responses. One point is assigned to ‘often’, 2 points to ‘usually’ and 3 points to ‘always.’ In a non-clinical such as the present this scoring method tends to generate a restrained variance, thus the method described in the text was adopted.

youthful and physically fit appearance” and “achieving career success”. Initially, the directions ask them to prioritize the goals by writing the corresponding number, one being most important and five being least important, next to each goal. Below the list however, there is a boldfaced statement indicating that *if* they find it too difficult to rank order the goals, they may simply place the same number next to the goals they see as equally important¹⁰. This method is intended to reveal those who are struggling with wanting to fulfill multiple and possibly contradicting roles as they mature into adults. Respondents who are unable to rank order any of the goals for their future are given a score of one on a variable named ***role conflict***, and those who *are* able to rank order the goals are given a zero on this variable.

The role concerns questions, initially used by Silverstein and Perdue (1988) to determine the kinds of roles women with eating disorders tend to assume, were employed in the present study in order to establish construct validity of the Superwoman Scale. Strong correlations between these variables and adherence to the Superwoman ideal as measure by the SWS-T, will help determine if the revision of the original Superwoman Scale successfully identifies adolescents who experience role multiplicity and role conflict.

Contour Drawing Rating Scale

In order to understand the subjects’ body perceptions, and the degree to which participants are dissatisfied with their current body, the Contour Drawing Rating Scale (CDRS) (Thompson & Gray, 1995) was the final instrument administered (see Appendix

¹⁰ Those who marked a successful career and advanced degree as equally ranked, or being a good parent and spouse as equal, would not be considered as experiencing role conflict.

B, p. 200). The CDRS is one of the few body image scales with established reliability statistics (Thompson & Gray, 1995). It presents subjects with nine figure drawings of either men or women, depending on the sex of the subject, ranging from emaciated to obese. They are asked to rate on the scale from one to nine how they a) currently see themselves, how they b) would ideally like to appear, and c) what figure they associate with being most attractive to the other sex. A *body dissatisfaction* score was derived by subtracting the participant's nominated "ideal" body from her "current" body figure rating. That is, if they rate their current body as a five but would ideally like to be only a two, their score on the body dissatisfaction variable would be a positive three. If they rate their current body as a two but would ideally like to be a five, their body dissatisfaction score would be a negative three.

Coding and Scoring

All participants were assigned identification numbers that differentiated individuals from one another and also indicated which school they attended. Next, each respondent's survey was entered into an SPSS data file containing all of the responses used to create Level 1 (i.e., individual difference) variables. Items that were deliberately written in the opposing direction from the construct being measured were reverse coded prior to computing the scores for that scale. For example, the responses to item seven on the Superwoman scale, "Being popular at school is *not* important to me," were reverse coded so that a score of six would reflect a person who *is more* concerned with her popularity than a person having a score of one. All variables used in the analysis were

coded so that a higher score is indicative of a stronger perception of, identification with, or greater belief in the construct being evaluated.

Individual missing items on any of the three primary measures of interest in this research (i.e., SGSS, SWS-T, and EAT) were replaced by the subject's mean response on that particular scale. If the scale was missing more than 25% of its items, no means were used to replace missing data for that individual. For any of the other sections of the survey, such as the role concerns or gender belief questions, the CDRS and demographic sections, missing data were left as missing.

School Gender Socialization Scale Factor Structure

Principal Components Analyses (PCA) requesting six factors to be extracted using a varimax rotation were performed initially on the single sex and coeducational data separately¹¹. The rotations converged in eight and seven iterations, respectively. The similarity of the results deemed it unnecessary to separate the groups in order to determine the factor structure of the scale. Another Principal Components Analysis requesting 6 factors using a varimax rotation was run on the complete sample with an N = 857. This time however, 4 of the original 48 items were excluded from the analysis because of their inapplicability to single sex school environments. The factor solution for the total sample converged in eight iterations (See Appendix F for the rotated pattern matrix).

¹¹ A varimax rotation was chosen because it yields orthogonality between the factors. An orthogonal or uncorrelated factor structure would in turn avoid conceptual overlap among the individual constructs or subscales. Given the subscales were to be used to create a new latent variable 'conflicting gender norms,' having unique and more distinct factors will better serve this purpose.

The six factors derived from the results of the PCA slightly deviated from the original intended breakdown indicated in Appendix D. The names however, 1) nontraditional gender socialization, 2) traditional gender socialization, 3) academic concerns, 3) gender prejudice, 4) appearance concerns, and 5) dating concerns, were retained since they still reflected the underlying themes of each subscale (See Appendix G for the specific items that loaded under each factor and the Alpha level calculated for the six subscales).

In order to view the properties of the distributions for each of the School Gender Socialization subscales, histogram graphs were plotted. It can be seen in Appendix H that the distributions for all of the SGSS factors approach or meet the normality assumption, thus transforming them into standardized z-scores (to ultimately be summed as a total SGSS score) should not be problematic. To create z-scores every subject's score on a subscale was subtracted from the total sample mean. That value was then divided by the standard deviation of that subscale for the total sample. Each person's subscale z-scores were added so that a Z-Total SGSS score was obtained for every individual. Individual z-scores for every subscale and Z-Total SGSS scores were then aggregated at the school-level to be included in the Level 2 data file created for the multilevel analyses to be conducted for the first five research questions. I want to emphasize that the Level 2, or aggregated, subscale z-scores and Z-Total SGSS scores represent a collective school-level index of the degree to which a school is perpetuating certain gender role norms. While at the individual-level, the variable simply reflects how the respondent perceives her school with respect to the gender role norm in question. The individual-level SGSS scores will be used to answer question six where a comprehensive

individual-level model will be presented. Table 2 indicates the z-score means, standard deviations, and sample size for the six SGSS subscales and Z-Total SGSS scores for individuals attending each school. The final two rows of means represent the z-score averages of all individuals from either a single sex school or a coeducational school.

Table 2: Gender Socialization Factors by School and Gender Composition (Deviations from Total Sample Mean = 0; SD = 1)

SCHOOL ID		Appearance	Academic	Gender prejudice	Traditional	Dating	Nontraditional	Z-Total SGSS
1	Mean	-.1266	.5739	-.5207	.2618	-.1939	.5324	.5269
	N	43	43	43	43	43	43	43
	SD	.91970	.65746	.94065	.85442	.97700	.96536	2.45633
2	Mean	.8442	.0004	-.3092	-.8687	.3280	-.3651	-.3704
	N	32	32	32	32	32	32	32
	SD	.84589	1.01856	.80275	.90510	.81513	.86164	2.57945
3	Mean	.1219	-.5522	.4923	-.0626	.3188	-.0986	.2196
	N	229	229	229	229	229	229	229
	SD	.99827	.72330	.95504	.91334	1.01113	1.00051	3.20115
4	Mean	.2923	.3994	.3226	-.5850	.1664	-.1193	.4764
	N	30	30	30	30	30	30	30
	SD	.77219	.99597	1.08185	.85216	.79369	.90242	2.99475
5	Mean	-.6069	-.6764	-.3643	-.8849	-.6190	.0333	-3.1183
	N	26	26	26	26	26	26	26
	SD	.79829	.53761	.70938	.77157	.70093	.79631	2.01405
6	Mean	.2802	-.0512	.0452	-.7516	-.1490	-.2826	-.9089
	N	49	49	49	49	49	49	49
	SD	.87028	.90882	1.00627	.85547	.91886	.88998	2.65166
7	Mean	.4145	.3353	-.0741	-.2496	.1355	-.1174	.4442
	N	51	51	51	51	51	51	51
	SD	.82367	.75483	1.05331	.99767	.87533	.99804	2.24818
8	Mean	.4646	.6254	.2024	.3840	.3579	-.3427	1.6917
	N	104	104	104	104	104	104	104
	SD	.88789	.78357	.89979	.81111	.82604	.91796	2.84801
9	Mean	-.2896	-.9707	.1600	-.1658	-.7970	.3355	-1.7175
	N	78	77	77	77	77	77	77
	SD	.82285	.83787	.93242	1.07536	1.05806	1.02362	2.84191
10	Mean	-.0375	-.0869	-.3252	.0218	.1291	-.0642	-.3630
	N	91	91	91	91	91	91	91
	SD	.96828	.88790	.88548	.94267	.83799	.94515	2.82409
11	Mean	-.7973	.8830	-.6631	.7348	-.4102	.3965	.1436
	N	125	125	125	125	125	125	125
	SD	.85495	.78703	.76360	.79724	.93457	1.01129	2.63618
Single Sex	Mean	-.2101	-.1395	.0417	.1603	-.1012	.1597	-.0873
	N	475	474	474	474	474	474	474
	SD	1.00068	1.04078	1.03507	.97411	1.08475	1.03272	3.02017
Coed	Mean	.2605	.1727	-.0517	-.1984	.1253	-.1977	.1107
	N	383	383	383	383	383	383	383
	SD	.93702	.91950	.95364	.99726	.86913	.92161	2.95281

Superwoman Scale (Revised for Teens)—Establishment of Construct Validity

The Superwoman Scale originally created by Murnen et al. (1994) was understood by these researchers to be a uni-dimensional construct. I will maintain this conceptualization with the revised Superwoman Scale. The 27 items summed for the computation of the total Superwoman scores have good internal consistency with an overall Alpha of .82. Recall that adolescents adhering to the Superwoman construct do not find a single role in which to excel. They strive for perfection in multiple domains—be it intellectual skills, relationships, or fashion and more appearance related matters. It is also important to note that the Superwoman is motivated by a culturally mediated image of the ideal woman. The attainment of multiple roles is not for internal self-fulfillment but rather the external appearance of accomplishments and success. Most importantly, in her pursuit of perfection, the Superwoman loses a reflective relationship with herself and lacks truly meaningful connections to others.

The role concerns questions (Appendix B, p. 199) were included in the survey in order to begin establishing construct validity for the new Superwoman Scale; thus the relationships between these variables are examined. Table 3 indicates the means, standard deviations, and sample size for Superwoman scores, the 10 individual role concerns, multiple role concerns (the sum of the 10 role concerns variables), and role conflict (the presence or absence of difficulty in rank ordering 5 roles for the future). Table 4 presents the Pearson R's between Superwoman scores, each of the individual role concerns, role conflict, and multiple role concerns.

Upon examining the intercorrelations in Table 4 we can see that Superwoman scores are in fact highly correlated with multiple role concerns ($r = .635$; $p = .000$). This

indicates that the purpose of the Superwoman scale, that is to identify individuals who display perfectionist achievement in multiple roles, has been met with the revised rendition of the Superwoman scale created for the present research.

Table 3 - Total Sample Means and Standard Deviations for Superwoman Scores, Individual Role Concerns, Multiple Role Concerns, and Role Conflict

Outcome Variable	Mean	Std. Deviation	N
Superwoman score	114.1791	14.09593	853
Individual Role Concerns *			
*1 = not at all important, 5 = extremely important			
Importance of intelligence	4.23	.853	829
Importance of attractiveness	3.77	.939	829
Importance of independence	4.25	.842	826
Importance of being thin	3.31	1.13	824
Importance of having a lot of friends	3.74	1.013	828
Importance of being physically fit and athletic	3.72	1.005	827
Importance of getting an advanced degree	3.59	1.175	827
Importance of having a successful career	4.36	.814	824
Importance of getting married	3.81	1.134	824
Importance of becoming a parent	3.81	1.206	824
Role Conflict (yes = 1; no = 0)	.24	.425	811
Multiple Role Concerns (summed total of 10)	38.6133	5.6745	821

Table 4 - Intercorrelations of Superwoman Scores, Individual Role Concerns, Role Conflict, Multiple Role Concerns

	1. Superwoman	2. Intelligence	3. Attractiveness	4. Independence	5. Being Thin	6. Having Friends	7. Being Athletic	8. Advanced Degree	9. Successful Career	10. Getting Married	11. Becoming a Parent	12. Role Conflict	13. Multiple Role Concerns
1	-												
2	.394**	-											
3	.468**	.324**	-										
4	.336**	.489**	.257**	-									
5	.335**	.143**	.581**	.153**	-								
6	.378**	.141**	.379**	.133**	.384**	-							
7	.383**	.237**	.308**	.199**	.362**	.298**	-						
8	.307**	.414**	.103**	.248**	.10**	.072*	.183**	-					
9	.413**	.477**	.276**	.372**	.165**	.167**	.218**	.468**	-				
10	.355**	.096**	.339**	.03	.258**	.272**	.184**	.13**	.238**	-			
11	.283**	.043	.265**	-.007	.175**	.197**	.13**	.102**	.161**	.786**	-		
12	.052	.069*	.043	.021	.059	.056	.083*	.073*	.067	.06	.046	-	
13	.635**	.559**	.664**	.459**	.597**	.544**	.545**	.504**	.591**	.622**	.542**	.101*	-

* $p \leq .05$

** $p \leq .01$

Notably, there is no significant relationship between the presence or absence of role conflict (as measured by the respondent's inability to rank order the 5 goals listed on p. 199 of Appendix B) and Superwoman scores ($r = .052$; $p = .141$). This particular method of assessing role conflict however is quite crude and should be reconsidered as a continuous as opposed to a dichotomous variable in future research.

A regression analysis using backward elimination was run to determine how well the ten individual role concerns predicted Superwoman scores. Of the ten roles, only parenthood and thinness were eliminated from the final equation. While the importance of thinness appears to have no clear relationship whatsoever to Superwoman scores in this context ($t = -.108$; $p = .914$), parenthood on the other hand, operates in the predicted

direction ($t = 1.354$; $p = .176$). That is, as the importance of becoming a parent in the future increases, Superwoman scores have a slight tendency to increase as well. The lack of significance of the thinness variable in this particular equation however may have paradoxical implications regarding its importance in the overall analyses involving disordered eating that this study purports to address. Perhaps there are two kinds of Superwomen buried in this variable: those who value thinness and those who do not. If this were true, the effect for the value of being thin variable would be obscured.

The remaining eight role concerns predict 42.5% of the variance in overall Superwoman scores. As the importance of each role increases for an individual, her score on the Superwoman scale also tends to increase. Table 5 summarizes the results of the backward elimination regression.

Table 5: Regression Analysis Predicting Superwoman Scores with Importance of Individual Role Concerns

<u>Independent Variable</u>	<u>Unstandardized Beta</u>	<u>Std. Error</u>	<u>Standardized β</u>
Importance of intelligence	1.801	.574	.109 *
Importance of attractiveness	3.076	.483	.202 **
Importance of independence	1.747	.527	.104 **
Importance of having a lot of friends	2.225	.418	.159 **
Importance of being physically fit and athletic	2.131	.411	.151 **
Importance of getting an advanced degree	1.143	.377	.095 *
Importance of having a successful career	2.208	.586	.126 **
Importance of getting married	1.961	.367	.157 **
<i>R squared</i> = .425 <i>N</i> = 817 * $p \leq .01$ ** $p \leq .001$			

Although individual as well as multiple role concerns both significantly predict Superwoman scores, more variance may have been explained had there not been such a dramatic ceiling effect on many of the role concern variables. Histogram graphs are displayed in Appendix K for each role concern variable. The distributions of several of the variables, such as intelligence, independence, and career success are highly skewed. The majority of the participants gave the highest response available on the survey, which was a '5' indicating extreme importance of that role. Several participants even wrote in a response of '6' or '7' to further emphasize the great value they place on fulfilling these roles. In the future, the response categories for each role concern should probably be

rated on a scale from '1' to '10'. This method will hopefully better capture the variability within the issue of role concerns.

In order to further understand the psychological construct being assessed with the Superwoman scale, the gender identity and belief questions were also examined as predictors of Superwoman scores (p. 195, Appendix B). As described earlier, the 'gender ambivalence' variable was derived from the first question on the page. A score of one or two indicates that the individual would definitely or probably choose to be a girl, if given the option. Almost 75% of the participants gave a response of 1 or 2 on this question. Approximately 15% answered with a response of 3, indicating that they were not sure if they would choose to be a girl. Only 10% of the participants indicated that they would probably or definitely chose to be a boy if given the option.

The 'feminine appearance' variable was derived from the second question (reverse scored) and was also quite skewed. Here the participants were asked to rate on a four-point scale, where (after reverse scoring) a four indicated strong agreement and a one indicated strong disagreement regarding whether other people see them as feminine. Almost 85% of the sample reported agreement with the statement.

'Hyper-femininity', 'working with babies', 'playing sports' and, 'math and science' were computed by adding questions three and four, five and six, seven and eight, or nine and ten, respectively. Recall that those with higher scores on 'hyper-femininity' are concerned with behaving in a "feminine" manner while avoiding behaviors considered "masculine". Those with higher scores on 'working with babies', 'playing sports', and 'math and science' feel that boys are better at these activities and that it is more important for boys to engage in these activities. As can be seen in Table 6,

‘working with babies’—not surprisingly given that in our culture it is a widespread female gender role expectation—has the lowest mean in the group.

Finally, the ‘traditional beliefs’ variable is a compilation of responses on questions 11-14. After reverse scoring item 13, the sum of these responses give an index for the respondent’s level of traditional or “old fashion” beliefs with respect to raising families. The average score of 7.82 on this variable (range 4 –16) reveals that the majority of respondents are indeed expressing *less* traditional beliefs with respect to gender roles within the family context. Table 6 reports the means, standard deviations, and correlations among the gender identity and belief variables and Superwoman scores.

Table 6 - Means, Standard Deviations, and Intercorrelations (Pearson R's) of Superwoman Scores, and Gender Identity/Bellefs Variables

Variable Name	Mean (Range)	Std. Dev.	1	2	3	4	5	6	7	8
1. Superwoman Score	114.179 (56-158)	14.096	--							
2. Gender Ambivalence	1.86 (1-5)	1.083	-.155**	--						
3. Feminine Appearance	3.1749 (1-4)	.69659	.286**	-.26**	--					
4. Hyper-Femininity	5.4604 (2-10)	1.769	.329**	-.085*	.425**	--				
5. Working w/Babies	4.5378 (2-10)	1.678	-.076*	-.002	-.064	-.28**	--			
6. Playing Sports	6.758 (2-10)	1.119	.114**	.088*	.045	.097**	-.17**	--		
7. Math & Science	6.0771 (2-10)	1.726	.025	.052	.04	.012	.024	.214**	--	
8. Traditional Beliefs	7.8208 (4-16)	2.224	-.055	.089**	.05	.204**	-.17**	.172**	-.002	--

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

A backward elimination regression using the seven gender identity and belief questions to predict Superwoman scores was performed. The variables ‘working with babies’ and ‘math and science’ were both eliminated from the equation due to poor predictive power. The remaining five variables accounted for 16.6% of the variation in Superwoman scores. Those who are overly concerned with displaying feminine behaviors (i.e., the hyper-femininity variable) tend to have higher Superwoman scores. In addition, participants who rated themselves as *less* gender ambivalent tend to score higher on the Superwoman scale. Those adhering to *less* traditional/old fashion beliefs within the family context are also more likely to score higher on the Superwoman scale. Furthermore, respondents who indicated that others definitely perceive them as feminine (i.e., the feminine appearance variable) are more likely to score high on the Superwoman scale. Finally, those who believe that boys are better at sports and that sports are more important for boys are more likely to display characteristics of a Superwoman. Interestingly, this last relationship is somewhat contradictory to the negative relationship between traditional beliefs and Superwoman scores. Thus while it is apparent that Superwomans are feminine in their nature, it is not entirely clear whether they adhere to more or less traditional gender role beliefs. However, given that only 16.6% of the variance in Superwoman scores is accounted for by one’s gender identity and her beliefs surrounding gender roles, it would be premature to characterize them in these terms either way. Table 7 summarizes the results from the backward stepwise regression discussed.

Table 7: Regression Analysis Predicting Superwoman Scores from the Gender Identity and Beliefs Questions

Independent Variable Name:	<u>Unstandardized Beta</u>	<u>Std. Error</u>	<u>Standardized β</u>
Hyper-femininity	2.223	.292	.278 *
Gender Ambivalence	-1.144	.444	-.087 *
Traditional Beliefs	-.781	.212	-.124 **
Feminine Appearance	2.997	.747	.147 **
Playing Sports	4.434	.412	.115 **
<i>R squared</i> = .166 N = 806 * $p \leq .01$; ** $p \leq .001$			

Research Questions

- 1) *Are there observable differences in the gender socialization occurring in the schools sampled for this study? If there are, are those differences explainable by the gender composition of the school? That is, do single sex independent schools significantly differ from coeducational independent schools on the each of the gender socialization subscales and/or the overall measure of conflicting gender role prescriptions (Z-Total SGSS) developed for this study? In addition to and/or aside from gender composition, what other school level characteristics account for differences among the schools on the gender socialization factors?*

- 2) *Do the schools sampled in the present study have significant variation in the disordered eating patterns reported by their female students? That is, do average EAT scores differ among these eleven schools? If they do, does the gendered social climate of a school (i.e., gender composition, as well as the gender socialization measured by the SGSS) account for any of these differences?*

- 3) *Are there between-school differences in the Superwoman scores reported by the young women sampled for this study? If there are, does the gendered social climate of a school explain any of the between-school variation in Superwoman scores (i.e., gender composition, as well as the gender socialization measured by the SGSS)?*

- 4) *Is there a multilevel mediating mechanism occurring between school gender socialization and disordered eating attitudes? That is, does an individual's adherence to the Superwoman ideal explain any part of the relationship found between school gender socialization (that is, the promulgation of conflicting gender role prescriptions in particular) and disordered eating? If so, what is the point estimate of the indirect effect occurring between school gender socialization and disordered eating and is it significantly different from zero?*
- 5) *After accounting for the variation in disordered eating explained by adherence to the Superwoman ideal at Level 1, are there any other school- level characteristics that explain differences in disordered eating among the schools?*
- 6) *The final question to be addressed in this dissertation involves fitting an individual-level model that seeks to incorporate all of the important variables considered in the present research into an equation that maximizes the amount of variance explained in disordered eating patterns. Due to software limitations (i.e., the student version of the HLM program to be utilized for this project only allows one to test up to five effects simultaneously), there will be no Level 2 models fit for question six. Using SPSS version 11.0 however, does allow one to incorporate a random effect for school, which takes into account the potential clustering effect of these data.*

CHAPTER FOUR

Results

A brief summarization of the key findings yielded from the analyses is provided. Then descriptions of all the variables to be used in both sets of data (i.e., individual — Level 1, and school — Level 2) will follow. Bivariate correlation tables for each level of data are given, and significant correlations of relevance to the research questions are noted. Labeled sections involving the detailed analyses performed for each individual research question follows.

Summary of Key Findings

The underlying assumptions inherent in the multilevel mediating mechanism proposed are supported with the present data. That is, individuals adhering to the Superwoman ideal tend to report greater levels of disordered eating. Second, there is significant between-school variation in all of the gender socialization factors, disordered eating, and Superwoman scores. Given that each of the key constructs (i.e., gender socialization, disordered eating, and the idealization of the Superwoman) vary among the present sample of schools, multilevel analyses of their interrelationships are warranted.

In reference to question one, the gender composition of a school is a determinant of several but not all of the gender socialization factors to a more or lesser degree. A school's reported level of appearance concerns, dating concerns, and gender prejudice tend to be slightly higher in coeducational contexts¹². Both traditional and nontraditional

¹² Levels of gender prejudice reported at a school are only predicted by gender composition in the presence of school religiosity and average SES in the Level 2 equation.

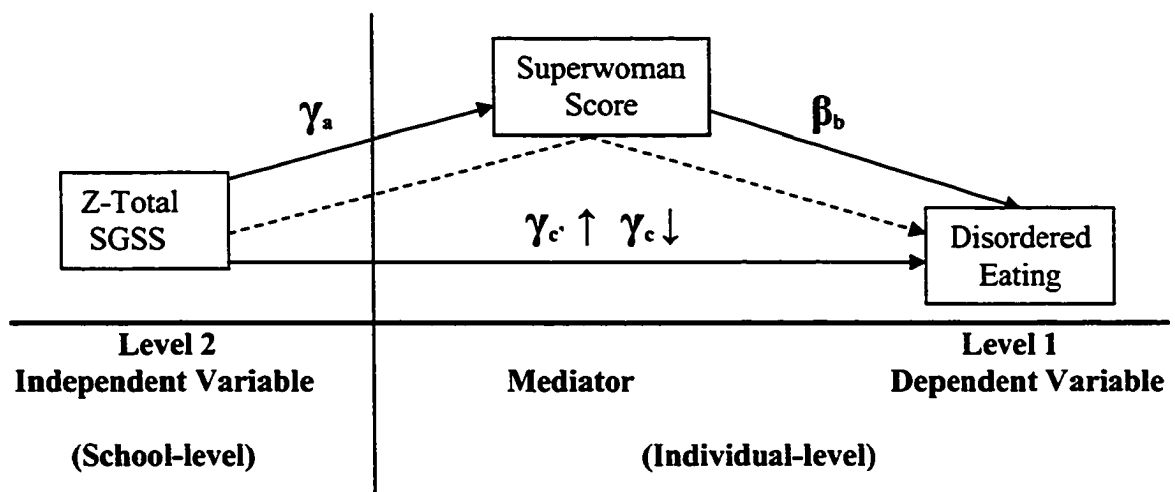
gender socialization on the other hand, tend to be reported to a greater degree in single sex contexts. Neither conflicting gender role prescriptions nor academic concerns vary as a function of whether the school is all female or coeducational.

In reference to question two, there are several gendered social climate features of a school that predict eating problems. Schools reporting a greater degree of conflicting gender role prescriptions are more likely to evidence disordered eating among their students. Schools where there are a great deal of appearance and dating concerns also tend to have higher than average levels of disordered eating among their students. Notably, these effects become particularly powerful in the presence of the gender composition variable in the Level 2 equation. In addition, while gender composition does not predict disordered eating outcomes univariately, single sex schools do tend to evidence more eating problems after parceling out the effects of either appearance concerns or nontraditional behaviors among peers. This indicates that the multicollinearity among the predictors (i.e., between gender composition and appearance concerns and gender composition and nontraditional behaviors) is likely causing suppressor effects.

In reference to question three, schools perpetuating greater conflicting gender role prescriptions clearly evidence more individuals adhering to the Superwoman ideal. Also, schools with more appearance, dating, and academic concerns tend to have higher than average Superwoman scores. Furthermore, coeducational institutions show slightly higher Superwoman scores than single sex schools show, after controlling for the effect of conflicting gender role prescriptions.

Question four directly tests for the presence of a mediating mechanism between conflicting gender role prescriptions at a school and disordered eating. The relationship found between school-level conflicting gender role prescriptions and the tendency to adhere to the superwoman ideal, as well as the relationship between disordered eating and the superwoman ideal, suggest that the link between conflicting gender roles and disordered eating may be at least in part explained by the relationship between adherence to the Superwoman ideal and disordered eating. A visual depiction of the proposed relationships to be modeled is provided below in Figure 1.

Figure 1: Multilevel Mediation Model



Results support the multilevel mediation hypothesis. That is, there is a significant indirect or mediated effect that links school-level conflicting gender role prescriptions to disordered eating via the relationship between Superwoman scores and disordered eating. Therefore the process accounting for the effect observed in question two (i.e., between school-level conflicting gender role prescriptions and disordered eating) is the following: a school's perpetuation of conflicting gender role prescriptions influence an individual's

tendency to adhere to the Superwoman ideal, and an individual's tendency to adhere to the Superwoman ideal in turn influences an individual's tendency to engage in disordered eating patterns.

The final question dealing with the multilevel models involves other school-level factors that account for disordered eating patterns after controlling for the individual's tendency to engage in the Superwoman ideal. Key findings here include a number of new variables not yet discussed as potential school-level risk or protective factors for disordered eating. For instance, gender prejudice at a school emerged as a risk factor. Schools where boys were implicitly seen as favorable had on average more eating problems. Another risk factor that emerged from the analyses conducted for question five was a school's size in terms of grades 9-12 enrollment. Larger schools (i.e., schools with more students enrolled) tend to show more problems with disordered eating among their students. Similarly, schools with a higher student-to-teacher ratio also tend to have higher than average eating problems among their students. Increased amounts of academic concerns at a school also appeared to be a risk factor for eating problems in certain contexts¹³. The strongest school-level predictor of eating problems was the ideal figure size nominated by the students. The thinner the figure endorsed, the more at-risk the school for disordered eating among its students.

Several very interesting protective factors also emerged from these analyses. Schools of higher than average SES (parental education) tend to be at less risk for having eating problems. In the same vein, schools where there are more mothers on a career track as opposed to being a full-time mom tend to have fewer problems with eating

¹³ Academic concerns becomes a risk factor for disordered eating when holding constant school religiosity and average SES in the Level 2 equation.

disorders among the students. Finally, religious schools, and schools with more African/Caribbean American students sampled also tend to be more protected from eating problems in certain contexts¹⁴.

Question six deals with these data entirely at the level of the individual allowing for a comprehensive multiple regression model that explains the maximum amount of individual-level variance in eating problems. In an attempt to cogently summarize the model, which involves a multitude of predictor variables including two interaction effects, I will mention each variable in the context of being either a risk or protective factor for disordered eating. Before proceeding however, attention should be drawn to the new meaning that the school gender socialization factors take on when they are considered at the individual-level. They are no longer collective effects aggregated at the level of the school. They are now an individual's *perceptions* of her school's social climate with respect to appearance, dating, academic concerns, etc. In addition, although the overall effect for school environment is factored into this model by including dummy variables for the schools, since some school environments are at greater risk while others provide protective environments, the school variable is not included in the summary below as a risk or protective factor.

The risk factors at the individual-level are the following, in order of the size of their effects: 1) body dissatisfaction, 2) adhering to the superwoman ideal—particularly when you place great value on thinness (this is an interaction effect), 3) being of Asian decent, 4) being highly concerned with behaving in ways that make you appear more

¹⁴ Schools with a greater percentage of Black students sampled are protected after controlling for average SES and school religiosity in the Level 2 equation. Religiosity is protective when holding constant SES and *either* Percentage of Black students sampled *or* Academic concerns at Level 2.

feminine (hyperfemininity), 5) perceiving a lot of appearance concerns among your peers at school, 6) experiencing conflict over prioritizing future roles in your life (role conflict), 7) experiencing ambivalence over being female (gender ambivalence), and finally 8) perceiving high levels of nontraditional gender role behaviors among peers *when few traditional behaviors are perceived* (interaction effect).

Several interesting protective factors also emerged in this model and will be presented in order of their significance (i.e., strongest effect to weakest effect): 1) perceiving a great deal of nontraditional gender role behaviors among your female peers at school *when many traditional behaviors are simultaneously perceived* (interaction effect), 2) perceiving a lot of concerns over dating among your female peers, and 3) being of African/Caribbean American decent (not statistically significant $p = .109$). Together, these risk and protective factors explain nearly 47% of the variation in disordered eating scores.

Definitions of Key Variables

Given the complexity of this research and the multiple levels of effects being tested, a brief description of the key variables used in the following analyses is warranted. Table 8 describes what a respondent reporting a high score on each individual-level variable would reflect, and Table 9 provides the bivariate intercorrelations between all individual-level variables.

Level 1 Variables

Although a large number of significant relationships exist among the Level 1 variables considered in Table 9, of most importance to the research questions considered in the present study is the correlation between Superwoman scores and disordered eating

scores ($r = .19$; $p = .000$). These data support the hypothesized relationship that an individual who adheres to the Superwoman ideal is more likely to engage in disordered eating.

Also of significance in Table 9 are the correlations indicating that gender composition of the school makes a difference. Since a single sex institution was coded as a one and a coeducational institution coded with a zero, a significant *negative* correlation suggests the coeducational schools have, on average, higher scores than the single sex school on whichever variable is in question. It is however important to keep in mind that the correlations involving the gender composition of a school are calculated at the individual-level, which as discussed in Chapter 3 produces downwardly biased standard error estimates. Thus significant correlations should only be considered as a guideline for further multilevel analysis. Of the significant correlations involving gender composition of a school are: school dating, appearance, and academic concerns, school nontraditional and traditional gender socialization, Superwoman scores, hyper-femininity, multiple role concerns, and although only marginally ($p = .069$), body dissatisfaction. Girls in the coeducational environments tend to perceive more dating, appearance, and academic concerns. They also have higher multiple role concerns and Superwoman scores. While girls in the single sex environments on the other hand tend to perceive more nontraditional and traditional gender role behaviors among their peers. They also have higher hyper-femininity scores and *slightly* greater dissatisfaction with their bodies.

Notice also that there are a number of relevant correlations involving the tendency to adhere to the Superwoman ideal and the gender socialization factors. Individuals adhering to the Superwoman construct tend to perceive less gender prejudiced attitudes at

school. Furthermore, higher Superwoman scores are associated with higher perceptions of school appearance, dating, and academic concerns. Greater perceptions of both traditional and nontraditional gender role behaviors among peers are also associated with higher Superwoman scores. The overall composite variable measuring conflicting gender role norms at school are directly related to Superwoman scores as well. Again these bivariate relationships are calculated at the individual-level and thus should only be used as guidelines for multilevel and multivariate analyses.

The final set of relevant bivariate correlations to keep in mind are variables that indicate an association with disordered eating attitudes. Increased perceptions of school dating and appearance concerns, perceptions of gender prejudice and conflicting gender role norms at school are all associated with higher EAT scores. The variables measuring ambivalence about being female and hyper-feminine behavior also both show direct correlations with disordered eating attitudes. Individual scores on multiple role concerns, and as mentioned earlier, Superwoman scores are positively associated with disordered eating. Lastly, body dissatisfaction scores and the degree to which one values being thin also vary in direct concordance with EAT scores.

Table 8 : DESCRIPTIONS OF LEVEL 1 VARIABLES

Variable Name:	High score on variable reflects:
1. <i>Appearance Concerns</i> (SGSS subscale)	Respondent who perceives a lot of concern with appearance and social acceptance in her school
2. <i>Academic Concerns</i> (SGSS subscale)	Respondent who perceives high levels of emphasis on academics and competitiveness in her school
3. <i>Gender Prejudice</i> (SGSS subscale)	Respondent who perceives administrative and/or teacher bias favoring the male gender in her school
4. <i>Traditional Gender Socialization</i> (SGSS subscale)	Respondent who perceives a lot of traditional gender role expectations being placed on girls in her school
5. <i>Dating Concerns</i> (SGSS subscale)	Respondent who perceives a high level of dating and heterosexual relationship concerns at her school
6. <i>Nontraditional Gender Socialization</i> (SGSS subscale)	Respondent who perceives a lot of non-traditional gender role behaviors occurring among the females at her school
7. <i>Conflicting Gender Role Norms</i> (Z-Total SGSS)	Respondent who perceives high levels of encouragement for attaining multiple/conflicting roles in her school
8. <i>Superwoman Score</i>	Respondent who holds perfectionist standards and is overly concerned with fulfilling multiple roles throughout life
9. <i>Gender Ambivalence</i>	Respondent who is uncertain about whether she would actually choose to be a woman, if given the choice
10. <i>Hyper-Femininity</i>	Respondent who is very concerned with behaving in a feminine manner and avoiding masculine behaviors
11. <i>Multiple Role Concerns</i>	Respondent who feels that all of the roles listed are extremely important for her to fulfill
12. <i>Role Conflict</i> (yes or no)	Respondent who was unable to differentiate which roles were more or less important than others
13. <i>Body Dissatisfaction</i>	Respondent whose ideal body is significantly thinner than her perceived current body
14. <i>Value of being Thin</i>	Respondent who rates thinness as an extremely important role to her
15. <i>Disordered Eating</i>	Respondent whose attitudes and behaviors are characteristic of individuals diagnosed with an eating disorder

Level 1 Variable Names Considered in Correlation Matrix for Table 9

- | | |
|--|--|
| 1 – Perceptions of Appearance Concerns among peers | 9 – Gender Ambivalence |
| 2 – Perceptions of Academic Concerns among peers | 10 – Hyper-femininity |
| 3 – Gender Prejudice perceived at school | 11 – Multiple Role Concerns |
| 4 – Perceptions of Traditional Gender Socialization at school | 12 – Role Conflict |
| 5 – Perceptions of Dating Concerns among peers | 13 – Body Dissatisfaction |
| 6 – Perceptions of Nontraditional Gender Socialization at school | 14 – Disordered Eating |
| 7 – Perceptions of Conflicting Gender Roles at school | 15 – Value of Thinness |
| 8 – Superwoman Scores | 16 – * Gender Composition of school (All female = 1, Coed = 0) |
- *not technically a Level 1 variable but included in Table in order to examine trends in data

Table 9 – Intercorrelations (Pearson R's) between Level 1 Variables and Gender Composition of a School

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	--															
2	.091**	--														
3	.192**	-.321**	--													
4	.05	.414**	-.272**	--												
5	.62**	.147**	.058	.156**	--											
6	.002	.252**	-.268	.271**	.078*	--										
7	.654**	.529**	.13**	.542**	.689**	.446**	--									
8	.274**	.279**	-.19**	.273**	.313**	.247**	.40**	--								
9	.124**	-.09**	.148**	-.062	.053	-.083*	.029	-.155**	--							
10	.168**	.012	.082*	.053	.224**	.027	.189**	.329**	-.085*	--						
11	.292**	.19**	-.053	.145**	.323**	.123**	.345**	.635**	-.115**	.366**	--					
12	.008	.08*	-.033	.087*	-.025	.027	.048	.052	-.032	.00	.101**	--				
13	.198**	-.015	.109**	.001	.121**	-.013	.135	.086*	.134**	.116**	.17**	-.043	--			
14	.273**	-.01	.135**	.013	.16**	-.054	.173**	.196**	.103**	.264**	.315**	.051	.444**	--		
15	.34**	.028	.101**	.033	.259**	-.001	.256**	.336**	.024	.356**	.597**	.06	.409**	.599**	--	
16	-.234**	-.155**	.046	.178**	-.113**	.178**	-.033	-.116**	-.041	.091**	-.087*	-.016	.063	.009	.044	--

* p < .05 ** p < .01

Level 2 Variables

A second set of variables, which are to be utilized in the multilevel analyses, was created to account for possible between-school differences. Most important in the Level 2 variables were of course the seven gender socialization factors (i.e., six subscales and one composite score representing an index of conflicting gender role norms). Each school's deviation from the total average scores on the SGSS subscales and Z-Total SGSS can be found in Table 2 (p. 63). The average ideal body figure nominated by the participants from each school (taken from the CDRS, Appendix B p. 200) was also a variable created for the Level 2 data set. A table indicating each school's average ideal figure size endorsed as well as the average disordered eating and Superwoman scores can be found in Appendix I (p. 212).

The remaining Level 2 variables involve more demographic as opposed to psychological or social issues. They include gender composition (1 = all female; 0 = coeducational), school size (raw score for grades 9-12 enrollment), the student-to-teacher ratio, religiosity (1 = yes, 0 = no), average SES (for definitions attached to each numeric category see Appendix C), racial composition of the students¹⁵, the average age of the students sampled at each school, and finally the proportion of career-track mothers in the schools. To review, information from the education levels of the respondents' mothers were combined with her reported occupation to create the 'career mom' variable. If the mother was a stay-at-home mom regardless of her education level she was given a score

¹⁵ The first racial indicator is the percent of minority students attending the school according to public record (percent minority). The second variable involves the percent of individuals sampled from each school who identified themselves as African/Caribbean American (percent Black). The variables indicating the percent sampled from each school for each of the other racial categories were therefore not related to any of the other variables and were not included in the correlation table on page 89.

of zero. If she worked but did not have a bachelor's degree she was assigned a score of one half (.5). If she had at least a bachelor's degree and was presently working, then a score of one was assigned. Average scores for each school were calculated and entered as a proportion in the Level 2 data file. These variables are clearly outlined in Table 1 (see p. 42). Table 10 provides the bivariate correlations among the Level 2 variables.

Several of the significant correlations found in Table 10 are relevant to the research questions at hand and will be mentioned. Most relevant to question one are the correlations between the gender socialization factors and gender composition of the school. According to simple bivariate correlations between the variables ($N=11$), scores on the appearance concerns subscale of the SGSS are higher in coeducational contexts, while scores on both the traditional and nontraditional gender socialization subscales are higher in single sex contexts¹⁶. The only significant correlation found with school-level disordered eating scores is that of the average ideal figure size endorsed by the girls sampled at the school. The thinner the figure idealized, the greater the average level of eating problems in the school. Also relevant to the present research questions are the significant direct relationships between school-level Superwoman scores and a school's appearance, dating, and academic concerns as well as overall conflicting gender role prescriptions.

Since I am testing for primarily school-level, as opposed to individual-level effects, Raudenbush, Bryk, and Congdon's (Version 5.04 Student) Hierarchical Linear Modeling Program was used to perform the analyses for questions one through five.

¹⁶ The bivariate correlations found in the Level 2 data set (Table 10, p. 89) clearly follow the trends noted in the bivariate individual-level correlations (See Table 9, p. 85). However, while dating and academic concerns were higher in coeducational schools at the aggregate level, the difference was not statistically significant, whereas at the level of the individual they were.

Before discussing the multilevel results, note that the limited sample size of only eleven schools would necessitate that the size of an effect for a school-level predictor variable be exceptionally large in order to be found significant and considered robust. In order to at least review the trends found in the small set of data sampled here, all of the results reported are those that are to be associated with datasets having robust standard errors. With only eleven Level 2 units however, these data do not meet that criterion, and thus the results must be interpreted cautiously. Since the present research questions dealing with school-level effects are exploratory in their nature, marginally significant results (i.e., $p \leq .15$) will also be reported. With that stated, it is obviously premature to attach any firm conclusions to the trends observed here. The forthcoming results should be interpreted merely as guidelines and direction for future work in this area.

Level 2 Variable Names Considered in Correlation Matrix for Table 10

- | | |
|---|---|
| 1 – Nontraditional Gender Socialization occurring at school | 10 – Average Disordered Eating scores at school |
| 2 – Appearance Concerns at school | 11 – Average Ideal Figure size nominated by girls at school |
| 3 – Dating Concerns at school | 12 – Average Age of students sampled at the school |
| 4 – Grades 9-12 Enrollment | 13 – Proportion of participants with Career Mothers |
| 5 – Gender Composition of school (All female = 1, Coed = 0) | 14 – Student-to-teacher ratio at school |
| 6 – Gender Prejudice perceived at school | 15 – Average Socioeconomic Status (Parental Education) |
| 7 – Academic Concerns at school | 16 – Religiosity of school (yes = 1, no = 0) |
| 8 – Conflicting Gender Role Prescriptions experienced at school | 17 – Traditional Gender Socialization occurring at school |
| 9 – Average Superwoman scores at school | 18 – Percentage of minority students enrolled at the school |
| | 19 – Proportion of Black students sampled at each school |

Table 10 – Intercorrelations (Pearson R's) for Level 2 Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	--																		
2	-.77***	--																	
3	-.69**	.79**	--																
4	-.56*	.60**	.80**	--															
5	.78***	-.53*	-.40	-.23	--														
6	-.47	.45	.36	.70**	-.08	--													
7	.05	.13	.39	.24	-.08	-.35	--												
8	-.17	.47	.72***	.67**	.04	.21	.75***	--											
9	-.19	.63*	.63**	.39	-.26	-.02	.54*	.71***	--										
10	.01	.37	.40	.34	.15	.29	.02	.37	.48	--									
11	-.02	-.40	-.46	-.34	-.29	-.10	-.04	-.43	-.56*	-.77***	--								
12	-.07	.19	.22	.32	.26	.26	.09	.42	.31	-.07	-.36	--							
13	.02	-.15	-.27	-.36	-.41	-.41	.26	-.32	-.20	-.24	.58*	-.73***	--						
14	-.07	.14	.57*	.53*	.31	.25	.23	.55	.09	.48	-.44	-.03	-.39	--					
15	.11	-.08	-.25	-.37	-.36	-.51	.52*	-.05	.14	-.22	.44	-.38	.86***	-.55*	--				
16	.10	-.21	.22	.22	.21	-.10	.14	.24	-.04	-.38	.04	.22	-.41	.43	-.47	--			
17	.51	-.37	.00	.04	.58*	-.22	.52*	.57*	.21	.03	-.20	.43	-.44	.40	-.16	.46	--		
18	-.22	.39	.09	.08	-.48	.06	-.10	-.09	.29	.03	.02	-.40	.22	-.25	.15	-.06	-.43	--	
19	.41	-.43	-.76***	-.53*	.17	-.25	-.37	-.60**	-.42	-.43	.28	-.17	.17	-.59*	.16	-.10	-.14	.43	--

* $p \leq .10$ ** $p \leq .05$ *** $p \leq .01$ N=11

Research Question One

Are there observable differences in the gender socialization occurring in the schools sampled for this study? If there are, are those differences explainable by the gender composition of the school? That is, do single sex independent schools significantly differ from coeducational independent schools on the each of the gender socialization subscales and/or the overall measure of conflicting gender role prescriptions (Z-Total SGSS) developed for this study? In addition to and/or aside from gender composition, what other school-level characteristics account for differences among the schools on the gender socialization factors?

The first part of the question was addressed by fitting an intercept-only model for each SGSS subscale as well as Z-Total SGSS scores. Examining the variance components within each model will reveal the proportion of variance in the outcome variable (in this case either an SGSS subscale or Z-Total SGSS score) that is attributable to school differences as opposed to individual differences. This statistic is referred to as *Rho* or the *Intraclass Correlation Coefficient (ICC)*. Since it is measured in proportions, *Rho* can equal anything between .00 and 1.00. A *Rho* of .06 says that 6% of the variance in the sample of scores is accounted for by differences between schools—the higher the value of *Rho*, the greater the within-school homogeneity for that particular variable.

The variation between the schools is referred to as *Tau*, and the variation existing among the entire sample of individuals is referred to as *Sigma squared*. A *Chi-square* test is applied to each *Tau* in order to determine whether or not the variation existing between schools for that particular outcome is significantly different from zero. If there is no variation between the schools to be explained regarding the gender socialization

factors measured by the SGSS, then doing an HLM analysis is unwarranted. If there are in fact differences between the schools' averages on each of the gender socialization factors and Z-Total SGSS scores, as suspected, then I will attempt to explain some of the differences between the schools —initially with the gender composition variable. Since this is considered a school-level variable, and it is entered into the equation at Level 2, we describe it as a multilevel model. If gender composition of the school is a good predictor of a school's average score on the SGSS subscale or Z-Total SGSS scores, the remaining between-school variance will have significantly decreased suggesting that single sex schools differ from coeducational schools on gender socialization factors.

The final part of the question (i.e., What other school-level characteristics account for differences among the schools on the gender socialization factors?) will be answered by substituting, or adding to the gender composition variable at Level 2, the other demographic school characteristics (see variables listed in Table 10, p.89).

Table 11 provides a summarization of the variance components from the seven intercept-only models fit using equations 1a and 1b.

$$\begin{array}{ll}
 \text{1a) Level 1 equation (individual): } Y_{ij} \text{ (SGSS)} = \beta_{0j} + e_{ij} & \text{Var}(e_{ij}) = \sigma^2 \\
 \text{1b) Level 2 equation (school): } \beta_{0j} \text{ (SGSS)} = \gamma + u_j & \text{Var}(u_j) = \tau
 \end{array}$$

Table 11 – Variance Components for SGSS subscales and Total Scores

Outcome (Y _{ij})	Tau τ	Chi Squared χ^2	Sigma Squared σ^2	Rho ρ
School Appearance Concerns	14.11018	198.18***	52.69007	.2112294
School Academic Concerns	13.70851	433.43***	24.88247	.3552257
School Gender Prejudice	2.8577	146.6***	16.9498	.1442732
School Traditional Gender Socialization	5.38959	222.89***	16.30076	.2484787
School Dating Concerns	3.96755	134.81***	22.98726	.1471926
School Nontraditional Gender Socialization	1.25001	65.39***	12.64903	.0899349
Z Total SGSS Score	1.36174	133.96***	7.90494	.1469501

*** $p < .000$

As can be seen in Table 11, the variation that exists between the schools is clearly significantly different from zero for each of the subscales and Z-Total SGSS scores as well. The ICCs for each factor (see final column in Table 11) indicate that anywhere from 9-36% of the variation in gender socialization actually exists between schools.

Thus analyzing these data in a multilevel context is indeed warranted.

Using equations 2a and 2b I tested whether or not gender composition is a good predictor of a school's appearance, academic, and dating concerns among females, the level of gender prejudice attitudes perceived, traditional as well as nontraditional gender socialization, and finally its overall perpetuation of conflicting gender roles norms.

2a) Level 1 Equation (individual): $Y_{ij} \text{ (SGSS)} = \beta_{0j} + e_{ij}$

2b) Level 2 Equation (school): $\beta_{0j} \text{ (SGSS)} = \gamma_{00} + \gamma_a \text{ (school variable)} + u_{0j}$

Exploratory analyses were conducted in order to ascertain if other school characteristics were successful predictors of gender socialization. Using equations of the same basic form as 2a and 2b, I replaced, or in some cases added to the gender composition variable at Level 2, the following list of school demographic characteristics: grades 9-12 enrollment, the average SES of the students sampled at the school, the student-to-teacher ratio, whether or not the school was affiliated with religion, the approximate percentage of minority students enrolled at the school on public record, the percentage of African/Caribbean American students sampled from each school, the average age of the students sampled from each school, the proportion of students with career-track mothers, and the average ideal figure size nominated by the students sampled. A model testing for an effect with each or some combination of these variables at Level 2 determined if any of the school characteristics mentioned help explain some of the between-school variance in the gender socialization factors. Table 12 summarizes the findings for research question one.

The following section discusses the significance or directional trends ($p \leq .15$) of the school-level predictors for each gender socialization factor individually.

A school's average score on appearance concerns was significantly impacted by gender composition ($t = -5.62, p = .000$). The ideal figure size nominated by the students sampled was added to gender composition at Level 2 and also was a good predictor of a school's score on the appearance concerns subscale ($t = -3.491, p = .009$). As one would expect, the girls attending the all female schools valued appearance less than their coeducational counterparts, and the thinner the figure size endorsed by the students, the greater the school's score on the concerns with appearance subscale. Independently at

Level 2, the size of a school also significantly impacted appearance concerns ($t = 3.151, p = .013$). The larger the number of students enrolled in grades 9-12, the greater the value placed on appearance. The percentage of African/Caribbean American students sampled at each school was the final marginally significant Level 2 predictor of scores on the appearance concerns subscale ($t = -1.797, p = .10$). Schools with more Black students in the sample tended to be less concerned with appearance.

A school's average level of academic concerns on the other hand was not affected by its gender composition. Several other school-level variables together did however predict variation between schools on the academic concerns factor. The strongest effect was that of SES (i.e., the average education level of the parents) ($t = 7.907, p = .000$). Schools with parents who are more educated clearly place higher expectations on their students academically. A school's student-to-teacher ratio was the next most significant predictor of academic concerns ($t = 3.93, p = .01$). Holding constant the other factors in the equation, schools with a higher student-to-teacher ratio tend to score higher on the academic concerns subscale. Whether or not the school was affiliated with religion followed in order of significance ($t = 2.639, p = .039$). After factoring out the effects of SES, student-to-teacher ratio, and school size, religious schools tend to place a greater emphasis on academics. Lastly, grades 9-12 enrollment was also a marginal predictor of academic concerns at a school ($t = 1.667, p = .146$). When controlling for the SES, student-to-teacher ratio, and religiosity, this statistic suggests that larger schools tend to be rated as having greater expectations for their female students with respect to academic excellence.

There are essentially no differences based on gender composition in terms of a school's average rating on the female gender prejudice subscale, *until* you adjust the means for the influences of SES and religiosity of a school. A marginal difference emerges whereby single sex schools have a slightly lower rating on the female gender prejudice subscale after partialing out the effects of SES and religion ($t = -1.731$, $p = .126$). A school's average SES (parental education) and whether or not it adopts a religious component both affect gender prejudice scores ($t = -3.724$, $p = .007$; $t = -2.595$, $p = .032$, respectively). Schools with students coming from more educated parents are generally perceived as less gender prejudiced. After controlling for the effects of SES (i.e., parental education), religious schools tend to have *lower* gender prejudice ratings. Independently, the size of a school also explains significant variation in perceptions of female gender prejudice ($t = 3.364$, $p = .009$). Larger schools tend to be rated as more gender prejudiced against females.

A school's average rating on the traditional gender socialization scale is predicted by its gender composition ($t = 2.378$, $p = .041$). Single sex schools tend to receive higher overall ratings on the traditional gender socialization subscale. Also of marginal significance, is the percentage of minority students enrolled at the school (i.e., on public record) ($t = -1.959$, $p = .081$). Less racially integrated schools tended to report higher than average scores on the traditional gender role socialization subscale. The student-to-teacher ratio is another marginally significant factor in predicting a schools' average rating of traditional gender socialization ($t = 1.887$, $p = .091$). Schools with a higher student-to-teacher ratio tend to be rated as more traditional with respect to female gender roles. Religious schools also tend to report more traditional gender socialization

occurring at their school ($t = 1.786, p = .107$). Lastly, schools with more career-oriented mothers tend to report fewer adherences to traditional gender roles ($t = -2.39, p = .041$).

As for the perceived levels of dating concerns displayed by girls at the school, gender composition and socioeconomic status were both important predictors together at Level 2 ($t = -2.509, p = .036$; $t = -2.715, p = .027$, respectively). This indicates that coeducational schools tend to score higher on the dating concerns subscale. After controlling for gender composition, schools with students from lower socioeconomic backgrounds generally rate their peers as more focused on dating. The number of students enrolled in grades 9 through 12 is another significant predictor of a school's average level of female dating concerns ($t = 5.298, p = .000$). Girls from larger schools tend to rate their peers as being more concerned with dating. The percentage of Black students sampled also influences a school's reported level of dating concerns ($t = -3.109, p = .013$). The more Black students at a school who participated in the research, the less dating concerns reported by that school. Lastly, schools where the students endorsed larger ideal figure sizes tended to be slightly less concerned with dating ($t = -3.595, p = .066$).

Gender composition and career mothers together at Level 2 predict a school's reported level of nontraditional gender role socialization ($t = 8.909, p = .000$; $t = 2.957, p = .019$ respectively). Thus, single sex schools with students having more career driven mothers for role models tend to be rated by their female students as higher in nontraditional gender role socialization. Another significant Level 2 predictor of a school's tendency to adhere to nontraditional gender roles is its size ($t = -2.976, p = .016$). Smaller schools report more nontraditional gender role socialization.

Finally, variation in Z-Total SGSS scores (i.e., the level of conflicting gender role norms perceived at the school) was not explained by a school's gender composition. Contrary to the underlying hypothesis discussed in chapter two, single sex and coeducational schools in this sample do not differ in their reports of the promulgation of conflicting gender role prescriptions. School size (i.e., grades 9-12 enrollment) on the other hand does explain significant variation in a school's overall rating of conflicting gender role norms ($t = 2.58$ $p = .03$). Larger schools tend to be rated as higher on the overall promotion of conflicting gender role prescriptions. The student-to-teacher ratio is a marginally significant Level 2 predictor of Z-Total SGSS scores ($t = 2.029$, $p = .073$). Schools with more students per every teacher report greater levels of conflicting gender role prescriptions. Also of marginal significance when entered simultaneously into the equation as school-level predictors are the percentage of Black students sampled and the ideal figure size endorsed by the students at each school ($t = -1.993$, $p = .081$; $t = -1.844$, $p = .102$, respectively). After controlling for average ideal figure size, schools with more Black participants tend to report less conflicting gender role prescriptions. In turn, after controlling for percentage of Black students sampled at a school, schools where thinner figures are endorsed tend to report more conflicting gender role prescriptions. Table 12 summarizes the findings for research question one.

Table 12 - Summarization of School Characteristics Predicting SGSS Subscales and Z-Total SGSS Scores (Question 1)

Level 2 Predictor Variables	Dependent Variables						
	Appearance Concerns	Academic Concerns	Gender Prejudice Attitudes	Traditional Gender Socialization	Dating Concerns	Nontraditional Gender Socialization	Conflicting Gender Role Norms
<u>School Characteristics</u>							
Gender Composition	*****S-		*S-	***I+	***S-	*****S+	
Enrollment (9-12)	***I+	*S+	***I+		*****I+	***I-	***I+
Parents' Ave. Education Level		*****S+	*****S-		***S-		
Student -Teacher Ratio		****S+		**I+			**I+
Religiosity (yes or no)		***S+	***S-	*I+			
Percent Minority on Record				**I-			
Percent Black Sampled	*I-				***I-		**S-
Proportion of Career Mothers				***I-		***S+	
Ideal Figure Size Endorsed	*****S-				**I-		**S-

* $p \leq .15$, ** $p \leq .10$, *** $p \leq .05$, **** $p \leq .01$, ***** $p \leq .001$

I = predicts individually

S = predicts simultaneously with other variables indicated

+ = positive predictor: Single Sex = 1;

- = negative predictor: Coed = 0, therefore any negative predictor indicates the scores are higher in a coed context

Research Question Two

Do the schools sampled in the present study have significant variation in the disordered eating patterns reported by their female students? That is, do average EAT scores differ among these eleven schools? If they do, does the gendered social climate of a school (i.e., gender composition, as well as the gender socialization measured by the SGSS) account for any of these differences?

Question two will be approached in the same manner as question one. An intercept only model must be fit in order to determine the variance components in disordered eating scores. If the between-school variation is in fact greater than zero, then I will fit a model that considers whether any of the school gender socialization factors and/or the gender composition predict a school's average level of disordered eating. Equations 3a and 3b were utilized to derive the variance components (i.e., sigma squared σ^2 , the variation among the individuals within schools and tau τ , the variation existing between-schools).

$$\text{3a) Level 1 equation (individual): } Y_{ij} \text{ (EAT)} = \beta_{0j} + e_{ij} \quad \text{Var}(e_{ij}) = \sigma^2$$

$$\text{3b) Level 2 equation (school): } \beta_{0j} \text{ (EAT)} = \gamma + u_j \quad \text{Var}(u_j) = \tau$$

The multi-level analysis of the models 3a and 3b revealed that there is significant

between-school variation for which we must account ($\tau=13.19553$, $\sigma^2= 418.99845$,

$\chi^2 = 30.41$, $p = .001$). The *Intraclass Correlation Coefficient* indicates that the proportion of total variance in disordered eating scores that exists between schools is approximately 3% ($\rho = .03$). This information warrants that we move forward with answering question two.

Using the template of equations 4a and 4b a series of multilevel models were fit where disordered eating scores were set as the outcome variable at Level 1 (there were no individual-level predictors). Then gender composition, each SGSS subscale, and Z-Total SGSS were tested as Level 2 predictors of a school's average level of disordered eating (β_{0j}).

4a) Level 1 Equation (individual): $Y_{ij}(\text{EAT}) = \beta_{0j} + e_{ij}$

4b) Level 2 Equation (school): $\beta_{0j}(\text{EAT}) = \gamma_{00} + \gamma(\text{Gender Climate}) + u_{0j}$

Results yielded several significant or marginally significant effects that are summarized in Table 13. As a school's rating on the composite variable, conflicting gender role norms, increases (i.e., Z-Total SGSS), average scores on the Eating Attitudes Test also tend to increase ($t = 2.123, p = .062$). In addition, a school's rated levels of appearance and dating concerns both marginally predict disordered eating patterns at a school ($t = 1.64, p = .135$; $t = 1.834, p = .099$, respectively). Independently, schools with greater concerns regarding appearance and dating tend to have higher disordered eating scores. A school's rated level of gender prejudice, as well as traditional and nontraditional gender role socialization do not independently predict disordered eating in this context (i.e., without an individual-level predictor variable.) Gender composition is also not significant when entered into the equation independently at Level 2. However, after factoring out the effect of school appearance concerns, a marginally significant relationship emerges between gender composition and disordered eating (gender composition $t = 2.125, p = .066$). All female schools tend to have higher EAT scores than coeducational schools. Notably, the effect of appearance concerns also becomes stronger in the presence of the gender composition variable ($t = 2.587, p = .032$).

Furthermore, the negative effect of school dating concerns on disordered eating also becomes more significant with gender composition in the equation at level 2 (dating: $t = 5.562052, p = .011$; gender composition: $t = 1.281, p = .236$). In sum, of all the gendered social climate variables, conflicting gender role prescriptions is the best independent predictor of disordered eating at a school—that is, when considering no other factors. Single sex environments reveal a slightly greater risk after controlling for a school's rated level of appearance concerns. The patterns of relationships found for question two suggests the possibility that gender composition is playing the role of a suppressor variable.

Table 13: School Gender Climate as Predictor of EAT Scores (Question 2)

Level 1 Dependent Variable: Individual EAT score

Level 2 Dependent Variable: School Average EAT score

LEVEL 2	
PREDICTOR VARIABLES	GAMMA (SE)
Conflicting Gender Roles	$\gamma_c = 1.080605 (.508952) **$
Appearance Concerns	$\gamma = 3.617838 (2.379196) *$
Dating Concerns	$\gamma = 4.10716 (2.239754) **$
Gender Composition &	$\gamma = 4.346847 (2.045172) **$
Appearance Concerns	$\gamma = 6.60169 (2.551809) ***$
Gender Composition &	$\gamma = 4.346847 (2.045172)$
Dating Concerns	$\gamma = 5.562052 (1.665315) ****$
* $p \leq .15$ ** $p \leq .10$ *** $p \leq .05$ **** $p \leq .01$ ***** $p \leq .001$	

Research Question Three

Are there between-school differences in the Superwoman scores reported by the young women sampled for this study? If there are, does the gendered social climate of a school explain any of the school-level variation in Superwoman scores (i.e., gender composition, as well as the gender socialization measured by the SGSS)?

Once again first we must verify whether or not there is any between-school variation to explain with respect to Superwoman scores. This will be done again by fitting an intercept only model using the same format as used for the equations in the first two research questions.

5a) Level 1 equation (individual): $Y_{ij}(\text{Superwoman}) = \beta_{0j} + e_{ij}$ $\text{Var}(e_{ij}) = \sigma^2$

5b) Level 2 equation (school): $\beta_{0j}(\text{Superwoman}) = \gamma + u_j$ $\text{Var}(u_j) = \tau$

The multilevel analysis of the models above revealed that there is significant between-school variation for which we must account ($\tau=6.44$, $\sigma^2=176.99$, $\chi^2 = 34.061$, $p = .001$). The proportion of total variance in Superwoman scores existing between the schools is approximately 3.5% ($\rho = .035$).

In order to determine whether or not a school's gendered social climate affects its female students' tendencies to adhere to the Superwoman ideal, a series of multilevel models were fit (see equation below). As can be seen, Superwoman scores were the outcome variable at Level 1 (there were no individual-level predictors) and gender composition and/or the gender socialization factors were tested as Level 2 predictors of a school's overall average score on the Superwoman scale (β_{0j}).

6a) Level 1 Equation (individual): $Y_{ij} (\text{Superwoman}) = \beta_{0j} + e_{ij}$

6b) Level 2 Equation (school): $\beta_{0j} (\text{Superwoman}) = \gamma_{00} + \gamma (\text{Gender Climate}) + u_{0j}$

Results (shown in Table 14) found that a school's rated level of conflicting gender role prescriptions was indeed a solid predictor of a school's average Superwoman score ($t = 6.831; p = .000$). In addition, once again school dating and appearance concerns also were revealed independently as important variables in determining a school's average Superwoman score ($t = 2.513, p = .033; t = 4.193, p = .003$, respectively). The greater the school's rated levels of dating or appearance concerns, the more likely it is to have students with higher than average Superwoman scores. A school's rated level of academic competitiveness also has marginal predictive power of Superwoman scores ($t = 1.544, p = .134$). Schools where the female students are very academically competitive with one another tend to cultivate kids with higher than average scores on the Superwoman Scale.

While gender composition alone is not quite a significant Level 2 predictor of Superwoman scores, when holding constant conflicting gender role prescriptions at Level 2 (which is still significant with a $p = .003$), gender composition becomes marginally significant ($t = -1.799, p = .109$). Coeducational institutions are slightly more likely to score higher on the Superwoman scale after controlling for rated levels of conflicting gender role prescriptions (recall that in the bivariate individual-level correlations it was significant, see Table 9, p. 85).

Table 14: School Gender Climate as Predictor of Superwoman Scores (Question 3)

Level 1 Dependent Variable: Individual Superwoman Score
Level 2 Dependent Variable: School Average Superwoman Score

LEVEL 2	
PREDICTOR VARIABLES	GAMMA (SE)
Conflicting Gender Roles	$\gamma_a = 1.781095 (.260729) \text{ *****}$
Appearance Concerns	$\gamma = 4.14903 (.989456) \text{ ****}$
Dating Concerns	$\gamma = 4.666881 (1.857437) \text{ ***}$
Academic Concerns	$\gamma = 2.558812 (1.556317) \text{ *}$
Gender Composition &	$\gamma = -2.2984 (1.277261) \text{ **}$
Conflicting Gender Roles	$\gamma = 1.702004 (.406929) \text{ *****}$
* $p \leq .15$ ** $p \leq .10$ *** $p \leq .05$ **** $p \leq .01$ ***** $p \leq .001$	

Research Question Four

Is there a *multilevel* mediating mechanism occurring between school gender socialization and disordered eating attitudes? That is, does an individual's adherence to the Superwoman ideal explain any part of the relationship found between school gender socialization (that is, the promulgation of conflicting gender role prescriptions in particular) and disordered eating? If so, what is the point estimate of the indirect effect occurring between school gender socialization and disordered eating and is it significantly different from zero?

As seen in Figure 1 (p.78), there are a number of prerequisite relationships to be ascertained before testing the significance of any mediation model. First, with regard to the multilevel aspect of the mediation test, we determined in question one that each of the gender socialization factors do indeed vary between schools. If they had not, the remaining multilevel questions would be moot points. In question two, we determined

that schools perpetuating more conflicting gender role prescriptions according to the female students sampled, tend to have higher than average scores on the Eating Attitudes Test (this relationship is represented by path γ_c in Figure 1, the value of the coefficient is found in Table 13, p. 101). Hence, Z-Total SGSS or conflicting gender role norms at school (the independent variable), predicts disordered eating (the dependent variable) without the presence of the mediator in the equation. In question three, we determined that a school's average Superwoman score indeed varies as a function of the degree to which the female students experience conflicting gender role norms (this relationship is represented by path γ_a in Figure 1, the value of the coefficient is found in Table 14, p. 104). This means that the independent variable (Z-Total SGSS) predicts the potential mediator (Superwoman scores). Under the present conditions, as described in Krull and MacKinnon (2001), a multilevel mediation mechanism is potentially operating between a school's perpetuation of conflicting gender role norms and disordered eating attitudes among the students. The final test used to ascertain the presence of mediation via Superwoman scores involves fitting a multilevel model predicting disordered eating that includes both the independent variable at Level 2 and the mediator at Level 1 (see equations 7a and 7b).

$$7a) \text{ Level 1 Equation (individual): } Y_{ij} (\text{EAT}) = \beta_{0j} + \beta_b (\text{Superwoman}) + e_{ij}$$

$$7b) \text{ Level 2 Equation (school): } \beta_{0j} (\text{EAT}) = \gamma_{00} + \gamma_c (\text{Z Total SGSS}) + u_{0j}$$

If the relationship between a school's conflicting gender role prescriptions and disordered eating is being at all mediated via Superwoman scores, then the *Gamma c* coefficient (γ_c) estimated in question two (see Table 13, p. 101) will be significantly lower than the *Gamma c prime* coefficient ($\gamma_{c'}$) estimated in equation 7b. Multilevel

analyses of equations 7a and 7b yielded the following results. While the parameter estimate *Beta b* [$\beta_b = .279702(.053508)$] for the mediator (Superwoman scores) maintains significance ($t = 5.227, p = .000$), *Gamma c prime* [$\gamma_c = .697282(.509172)$], which is associated with the independent variable—conflicting gender roles, falls in its level of significance ($t = 1.1369, p = .204$) suggesting that the mechanism through which conflicting gender roles is operating is adherence to the Superwoman construct. The actual size of the indirect effect between conflicting gender role prescriptions and disordered eating is calculated by taking the product of *Beta b* (β_b) and *Gamma a* (γ_a) (see Table 15 for a summary of the results for the mediation model). Using the first order Taylor series, a standard error estimate was derived for the mediation effect (as seen in Krull and MacKinnon, 1999), allowing for an approximate test of statistical significance¹⁷. Results suggest that the indirect/mediated effect between a school's perpetuation of conflicting gender role prescriptions and disordered eating via Superwoman scores is significantly different from zero ($t = 5.126; p = .000$).

Table 15: Mediation Mechanism Between School Gender Socialization and Disordered Eating via Superwoman Scores (Question 4)

Level 1 Dependent Variable: Individual EAT score	
Level 2 Dependent Variable: School Average EAT score	
Independent Variable being mediated by Superwoman scores	Mediation/Indirect effect $\gamma_a \beta_b$ (SE)
Conflicting Gender Role Prescriptions at School	.4981758 (.0971807) *****
***** $p < .001$	

¹⁷ The formula for a standard error of an indirect or mediated effect is:
SE = square root of ($s_a^2 b^2 + s_b^2 a^2$)

Research Question Five

After accounting for the variation in disordered eating explained by adherence to the superwoman ideal at Level 1, on an exploratory basis, are there any other school-level characteristics that explain differences in disordered eating among the schools?

Unlike some of the previously reported results that specifically addressed central research questions underlying the present study, the findings reported for question five are noted merely for the interesting trends discovered within these data. In a variety of different models—all of which involve Superwoman scores predicting disordered eating at Level 1, several school characteristics, some demographic and others gender socialization factors, emerged as Level 2 predictors of disordered eating patterns and deserve mention. For instance, in the context of nontraditional gender socialization scores at Level 2 ($t = -1.495, p = .173$) and Superwoman scores at Level 1 ($t = 5.56; p = .000$), the gender composition of a school becomes a solid predictor of disordered eating. In other words, when we partial out the shared variance between nontraditional behaviors and gender composition, this model suggests that girls attending single sex schools are at greater risk for having disordered eating attitudes ($t = 4.338; p = .003$).

The influences of gender composition, appearance, and dating concerns on disordered eating also become slightly more vivid with Superwoman scores at Level 1 (note that question two discussed these findings in the context of no Level 1 predictors). Both appearance concerns and gender composition are solid predictors in this model ($t = 3.869, p = .006; t = 3.825, p = .006$, respectively). Again, single sex schools are at greater risk when holding appearance concerns constant. School dating concerns

($t = 3.361$; $p = .001$) are also a more powerful risk factor for eating problems in the context of Superwoman scores at Level 1 and gender composition at Level 2 ($t = 1.389$, $p = .165$). Here too, single sex schools are at a slightly greater risk but only after controlling for dating concerns. These patterns also suggest the presence of suppressor effects due to the multicollinearity among the predictor variables. However, in these instances it is difficult now to know what is suppressing what. In the first case (i.e., nontraditional and gender composition as Level 2 predictors) we have gender composition as the stronger effect, while in the second case (i.e., appearance concerns and gender composition as Level 2 predictors), both have equally strong effects; whereas in the third case (i.e., dating concerns and gender composition as Level 2 predictors), dating is the stronger effect. These outcome suggest respectively that a) nontraditional behaviors is the suppressor of gender composition, b) the variables are suppressing one another, and c) gender composition is the suppressor of dating concerns.

For clarification, all of the school-level effects to be reported in this paragraph were modeled individually at Level 2, and all still had Superwoman scores entered as a Level 1 predictor of disordered eating (as do all of the results discussed for question five). Attitudes of gender prejudice at the level of the school emerge as a risk factor for disordered eating ($t = 3.298$, $p = .01$). The more boys are favored at the school, the higher disordered eating scores tend to be. Schools with a higher average SES tend to have *less* eating problems ($t = -3.246$, $p = .011$). In the same vein, schools with a higher proportion of career-track mothers tend to have less disordered eating ($t = -3.376$, $p = .009$). Conversely, and possibly reflecting the same line of relationships given the bivariate correlations presented in Table 10, independently, larger schools ($t = 2.509$,

$p = .033$) and schools with a higher student-to-teacher ratio ($t = 3.294, p = .01$) tend to have higher than average disordered eating scores. Lastly, the most powerful school predictor entered alone at Level 2 is the average ideal figure size nominated by the girls sampled at the school ($t = -5.229; p = .000$). Not surprisingly, the thinner the average ideal body endorsed, the greater the eating problems at a school.

The final school-level effects to be reported for question five involve sets of variables entered simultaneously at Level 2. A school's religiosity ($t = -4.931, p = .001$), average SES ($t = -7.904, p = .000$), and its concern with competitiveness and academics ($t = 2.59, p = .036$) are simultaneous predictors of eating problems. This suggests that after controlling for SES and academic concerns, religious schools tend to have lesser problems with disordered eating. Further, after holding constant SES and religion, schools with more emphasis on academic competitiveness tend to have greater problems with disordered eating. SES remains a protective factor in this context—as it was when mentioned above as an independent predictor of school eating problems.

Religiosity, SES, and the percentage of African/Caribbean American students sampled at a school are also simultaneous predictors of school-level disordered eating ($t = -5.797, p = .000; t = -8.466, p = .000; t = -2.418, p = .046$, respectively). After controlling for SES and religion, which both clearly remain protective in this context as well, the greater the number of African/Caribbean American students sampled at a particular school, the lower the disordered eating problems reported among the female students sampled. See Table 16 for a summarization of the findings reported for question five.

Table 16: School Climate as Predictor of EAT Scores (Question 5)**Level 1 Dependent Variable: Individual EAT Score****Level 1 Predictor Variable: Superwoman Score****Level 2 Dependent Variable: School Average EAT Score**

LEVEL 2 (SCHOOL) PREDICTOR VARIABLES	GAMMA (SE)
Ave. Ideal Figure Size Endorsed	$\gamma = -13.90707 (2.659647) \text{ *****}$
Ave. SES (Parental Education)	$\gamma = -5.456469 (1.680782) \text{ *****}$
Proportion of Career Moms	$\gamma = -21.88788 (6.482587) \text{ *****}$
Grades 9-12 Enrollment	$\gamma = .014025 (.00559) \text{ ***}$
Student-to-teacher Ratio	$\gamma = .802557 (.243614) \text{ *****}$
Gender Prejudice	$\gamma = 6.862362 (2.080906) \text{ *****}$
Dating Concerns	$\gamma = 4.666881 (1.857437) \text{ ***}$
Percent of Black students sampled	$\gamma = -7.29311 (.86141) \text{ ***}$
Religiosity	$\gamma = -5.295241 (.913512) \text{ *****}$
Ave. SES (Parental Education)	$\gamma = -7.29311 (.86141) \text{ *****}$
Academic Concerns	$\gamma = 3.425586 (1.322429) \text{ ***}$
Religiosity	$\gamma = -6.898545 (1.398964) \text{ *****}$
Ave. SES (Parental Education)	$\gamma = -12.424415 (1.571979) \text{ *****}$
Gender Composition	$\gamma = 4.868534 (1.122209) \text{ *****}$
Nontraditional Gender Socialization	$\gamma = -8.376322 (5.601121)$
Gender Composition	$\gamma = 5.635964 (1.47334) \text{ *****}$
Appearance Concerns	$\gamma = 8.89807 (2.299728) \text{ *****}$
Gender Composition	$\gamma = 2.113549 (1.522161)$
Dating Concerns	$\gamma = 6.5386582 (1.94558) \text{ *****}$
$* p \leq .15$ $** p \leq .10$ $*** p \leq .05$ $**** p \leq .01$ $***** p \leq .001$	

Table 17: Regression Analysis Summary for Predicting Disordered Eating (Question 6)

Source (Independent Variable)	Beta	Std Error	β	P value
<i>Body Dissatisfaction</i>	3.540	.446	.229	.000
<i>Asian (White as reference group)</i>	6.398	2.337	.076	.007
<i>Hispanic (White as reference group)</i>	-2.369	2.404	-.027	.325
<i>Other (White as reference group)</i>	2.242	2.703	.023	.407
<i>Black (White as reference group)</i>	-3.790	2.364	-.046	.109
<i>Gender Ambivalence</i>	1.066	.545	.055	.051
<i>Role Conflict</i>	2.647	1.338	.054	.048
<i>Hyperfemininity</i>	.908	.371	.076	.015
<i>Peer Dating Concerns</i>	-.298	.149	-.075	.046
<i>Peer Appearance Concerns</i>	.229	.100	.089	.023
<i>Nontraditional Socialization of Peers</i>	-.36	.165	-.065	.029
<i>Traditional Socialization of Peers</i>	.05607	.15	.012	.708
<i>Traditional X Nontraditional Interaction</i>	-.06224	.030	-.058	.037
<i>Adherence to the Superwoman Ideal</i>	-.07651	.061	-.052	.21
<i>Importance of Thinness</i>	.863	1.924	.047	.654
<i>Superwoman X Thinness Interaction</i>	.01007	.002	.464	.000
<i>School # 2 (school 1 as reference)</i>	-9.706	3.784	-.094	.011
<i>School # 3 (school 1 as reference)</i>	-4.550	2.699	-.095	.092
<i>School # 4 (school 1 as reference)</i>	-5.115	3.830	-.047	.654
<i>School # 5 (school 1 as reference)</i>	2.273	3.992	.019	.569
<i>School # 6 (school 1 as reference)</i>	-6.552	3.427	-.073	.056
<i>School # 7 (school 1 as reference)</i>	-10.718	3.402	-.120	.002
<i>School # 8 (school 1 as reference)</i>	-5.790	2.940	-.095	.049
<i>School # 9 (school 1 as reference)</i>	-6.500	3.020	-.092	.032
<i>School # 10 (school 1 as reference)</i>	-1.981	3.107	-.027	.524
<i>School # 11 (school 1 as reference)</i>	-6.773	2.823	-.119	.017
<i>R squared = .471</i>		<i>N = 767</i>		

Research Question Six

The final question to be addressed in this dissertation involves fitting an individual-level model that seeks to incorporate all of the important variables considered in the present research into an equation that maximizes the amount of variance explained in disordered eating patterns. Due to software limitations (i.e., the student version of the HLM program utilized for this project only allows one to test up to five effects simultaneously), there will be no Level 2 models fit for question six. A summary of the Multiple Regression Analysis performed using SPSS version 11 is shown in Table 17.

Before addressing the results for question six, I want to reiterate that this analysis was performed at the individual-level, thus the model presented did not take into consideration any school-level effects. The differences among schools with respect to disordered eating were entered into the equation as dummy variables using school one as the reference group – hence it is not shown in the equation. A set of dummy variables also indicate that there is an effect for race in the model. Since Whites are used as the racial reference group, they are not shown in the model either. Also recognize that the school gender socialization factors take on a slightly different meaning for this question since it was analyzed at the individual-level. They are to be interpreted as an individual's perceptions of her school's gendered social climate as opposed to a collective rating of a particular school's environment.

The variables collectively explain over 47% of the variance in disordered eating scores among individuals. The following relationships emerged from the model presented in Table 17. The most powerful predictor of disordered eating in the above model is, not surprisingly, *body dissatisfaction* scores ($t = 7.6, p = .000$). Individuals who are more dissatisfied with their body according to their current-self versus ideal-self ratings on the Contour Drawing Rating Scale are more likely to engage in disordered eating patterns. *Asian* girls tend to have higher disordered eating scores than girls who identify themselves as White ($t = 2.738, p = .000$). Hispanic girls as well as girls who identify themselves as being from a mixed racial background (or a category other than Black, White, Asian, or Hispanic which was labeled as Other) do not differ from White girls on the Eating Attitudes Test ($t = -.986, p = .325; t = .83, p = .407$; respectively). Although the variable representing *Black* girls is not statistically significant, the direction

of the effect suggests that the Black girls in this sample are at less risk for disordered eating than White girls ($t = -1.603, p = .109$). I am also mentioning this effect because the dummy variable for Black girls was a significant protective factor for disordered eating in the individual-level models presented in earlier drafts of the manuscript.

Respondents scoring high on the *hyper-femininity* ($t = 2.444, p = .015$) variable are more likely to display disordered eating attitudes. That is, girls who indicate it is very important for them to do things to make them appear feminine on one hand, while at the same time feel it is very important to avoid masculine behaviors on the other hand, tend to display greater disordered eating attitudes.

Girls who evidence *role conflict* ($t = 1.978, p = .048$) as measured by an inability to rank order a list of goals for the future (e.g., achieving career success, becoming a parent, etc.) also tend to be more at risk for disordered eating.

Those who show greater *gender ambivalence*, also tend to engage in more disordered eating patterns ($t = 1.955, p = .051$). Although the probability level associated with this effect lies on the border of statistical significance, it is important nevertheless given its central concern to some of the feminist theories of eating disorders presented in chapter two (e.g. Silverstein & Perlick, 1995). That is, girls who noted that they were not really sure if they would choose to be female, if given the option, are more likely to engage in disordered eating.

Perceptions of peers' *dating concerns* also have statistically significant predictive value for disordered eating attitudes ($F = -2.002, p = .046$). However, I want to call attention to the fact that girls who perceive their female peers at school as being very concerned with issues around dating tend to display *less* disordered eating patterns.

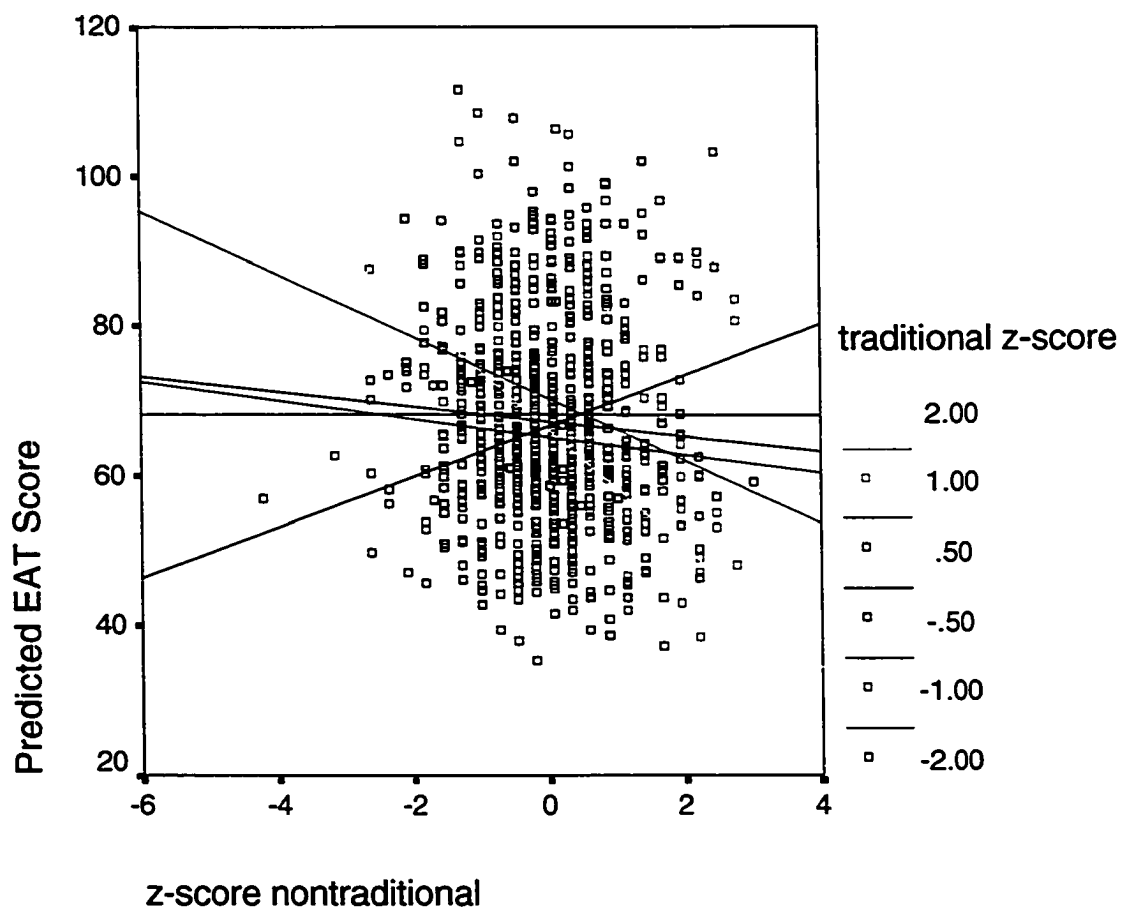
Note the direction of this relationship is reversed from the bivariate correlation discussed earlier (See Table 9, p. 85). Independently, increased levels of school dating concerns are associated with *greater* disordered eating attitudes. In the presence of the other variables in the complete model presented in Table 17 however, an individual perceiving more dating concerns among her female peers at school may actually be protected from engaging in disordered eating.

Perceptions of female peers at school being overly concerned with *appearance*, on the other hand, seem to be more harmful than beneficial—as one would expect ($t = 2.281$ $p = .023$). That is, girls who feel that their female peers at school are highly concerned with how they both physically appear and socially behave are more likely to engage in disordered eating.

There are also two interaction effects in the model that warrant careful attention. The first involves the perceptions of both *traditional* and *nontraditional* gender role behaviors among peers at one's school ($t = -2.092$, $p = .037$). The nature of the interaction is such that girls who perceive their female peers as behaving more assertively (i.e., nontraditional) only display less disordered eating patterns when they also perceive their peers as being more sensitive and compassionate (i.e., traditionally feminine) towards one another. Conversely, those who perceive more nontraditional gender role behaviors among peers but do *not* also perceive them as acting in more traditionally feminine ways, tend to report greater eating problems. The interaction of these two variables is illustrated in Figure 2. The regression line shown in yellow represents the relationship between EAT scores and nontraditional behaviors among peers for individuals perceiving the most traditional behaviors among her peers. As nontraditional

scores increase, EAT scores very clearly decrease ($t = -2.185$; $p = .029$). The regression line shown in red represents individuals perceiving the least traditional behaviors among peers. The red line indicates on the other hand, that as nontraditional scores increase, EAT scores tend to increase as well. Thus while perceptions of traditional behaviors have no main effect on disordered eating ($t = .375$; $p = .708$), its role is nevertheless important given that it moderates the nature of how perceptions of nontraditional behaviors among peers at school relates to eating problems.

Figure 2: Interaction between perceptions of nontraditional behaviors and perceptions of traditional behaviors for predicting EAT

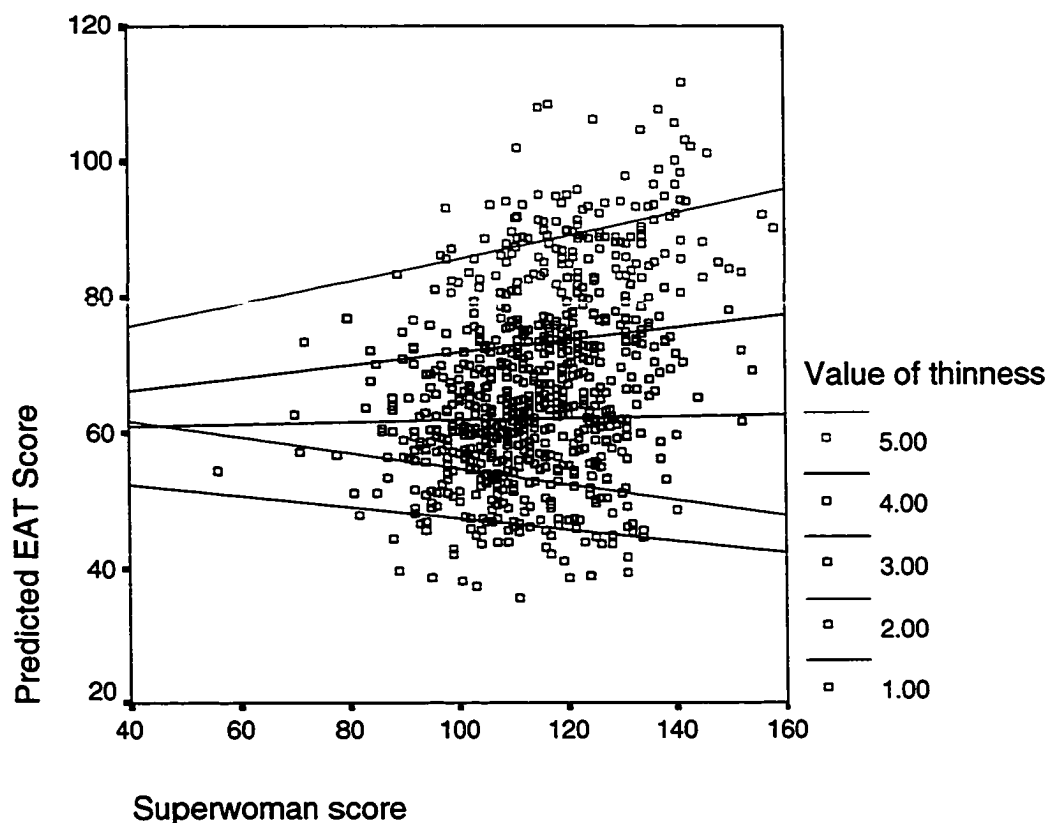


The second interaction effect involves *Superwoman scores* and the *importance of thinness* variable ($t = 4.039$; $p = .000$). While in prior sections of this paper I presented evidence that attachment to the Superwoman ideal is indeed associated with higher EAT scores, the comprehensive model built for question six reveals that there is an important contingency to be placed on the relationship. Due to the presence of a moderating mechanism (i.e., an interaction), the effect of the Superwoman variable on eating problems is not entirely stable. Recall that in order to begin establishing construct validity for the Superwoman Scale, the survey also asked participants to indicate the importance of a number of individual role concerns. Among the list of role concerns on this section of the survey was the importance of thinness – the key moderating factor. For individuals indicating that thinness is extremely important to them, adherence to the Superwoman ideal is associated with greater disordered eating. However, individuals scoring high on the Superwoman construct who indicated that thinness is not at all important to them are actually slightly less likely to be eating disordered than individuals not adhering to the Superwoman construct who also do not rate thinness as important.

In order to even better illustrate how the effects for Superwoman scores and the participant's value of being thin operate interactively, I will present the predicted outcomes for two individuals both scoring the highest score on the Superwoman construct. One of these individuals will rate thinness as extremely important, while the other will rate thinness as not at all important. The predicted EAT score for a young woman who is White and attends school one (the reference group on the categorical variables), is average on all of the other measures (e.g. appearance or dating concerns, etc.), and scores the *highest* values on both the Superwoman *and* thinness variables is

110. Her peer, who is also White, attends school one, scores average on all other variables in the model, adheres to the Superwoman construct to the same extent however places *no value* on being thin, is predicted to have an EAT score of 50. Interestingly, and very important to note, this same young woman would be predicted to have an EAT score of 57 if she did *not at all* adhere to the Superwoman construct. We can see here that in order to fully understand the implications of the Superwoman construct, the value one places on thinness is, in essence, the key factor. Figure 3 shows the scatter plot of the relationship between the Superwoman construct and disordered eating with a separate regression line drawn for those placing different value on being thin. Here the light blue line indicates the Superwoman who does place extreme importance on thinness; whereas the red line represents the Superwoman who places no value on thinness.

Figure 3: Interaction effect between Superwoman ideal and Value of thinness for predicting disordered eating



Finally, after accounting for the relationships between disordered eating and all of the above-mentioned “individual difference” variables, the *school* environment still explains a significant amount of additional variance in disordered eating scores.

Although the model presented in Table 17 only indicates the comparisons between each school and school one (since it is the reference group in the dummy coding scheme), there are several other adjusted school means differing from one another. On the right hand side of Table 18 the estimated means of disordered eating in each school context are displayed after adjusting for all of the variables in the equation. The columns indicate which means fall into homogenous subsets. With the exception of school four, it can be

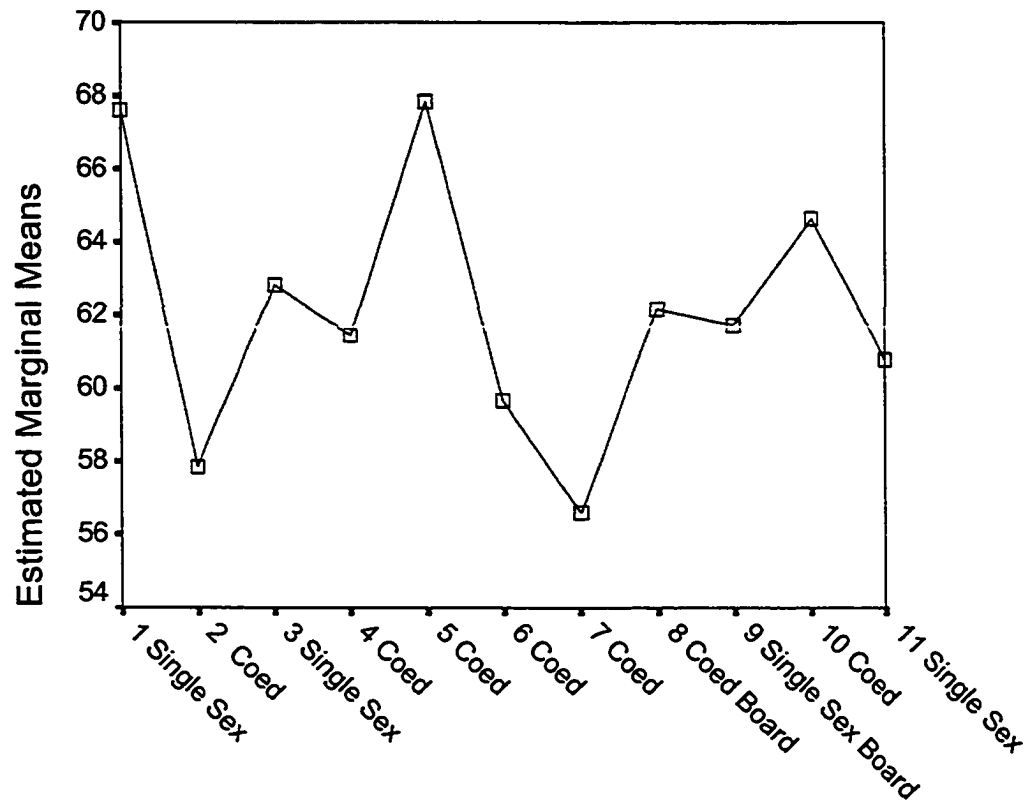
seen that every school differs from at least one other school. Figure 4 provides a pictorial image of the adjusted school means on disordered eating attitudes.

Table 18: Raw and Adjusted School Means on the Eating Attitudes Test

School ID	**	School ID	Homogeneous	Subsets
1→	69.6114	5→	69.969	
3→	65.5578	1→	67.696	
8→	64.9273	10→	65.715	
4→	64.2295	3→	63.146	
2→	63.0181	4→	62.581	62.581
10→	61.5197	8→		61.906
9→	60.8620	9→		61.196
5→	59.9300	6→		61.144
6→	59.4683	11→		60.923
7→	58.3636	2→		57.990
11→	55.2038	7→		56.978

****** Raw means by school ordered from highest EAT scores to lowest EAT scores prior to adjusting them for the other variables in the model

Figure 4 Adjusted School Means: EAT



CHAPTER FIVE

Discussion

While many of the underlying tenets of this research were supported by the analyses performed on these data, this is only the very beginning of our understanding of how the social processes occurring within school environments impact the psychological functioning of adolescent females. Overall, we have learned that there is an observable social phenomenon within schools possibly involving six underlying dimensions, which I have called gender socialization. The combination of these six underlying factors measured by the School Gender Socialization Scale created an index—aggregated at the school level—of the degree to which the female students attending each school feel the subtleties of ‘conflicting’ social norms in terms of gender role behaviors. The word conflicting is placed in quotes because the items on the scale did not overtly suggest a conflict *per se* in the social norms the girls were experiencing. Conflicting gender role prescriptions are the implied consequence of an environment, such as a school, where inordinately high standards are placed on adolescent females as they mature into womanhood. Using a measurement of the social norms perceived by the participants at school, until now, was an untested method of determining the level of conflicting gender role prescriptions being placed on young women by the social structure of their educational institution. More research and refinement of the SGSS will help improve its psychometric properties as well as our understanding of the role this contextual measure of conflicting gender role norms plays in shaping the adulthood expectations and value systems adolescents assume for themselves.

In addition to the recognition of an observable (i.e., measurable) gendered social climate within an educational context, the present study also offers a needed measure that captures the essence of the Superwoman construct. The theory that young women striving for the Superwoman ideal within a socio-cultural environment replete with conflicting messages about the female gender role has been discussed in the eating disordered literature for decades. Yet, no valid or reliable scale has been successful in measuring this psychological construct¹⁸. As with the SGSS, more work on the present Superwoman Scale is needed in order to improve both its psychometric properties and the accuracy in measuring precisely the kind of individual we purport to assess. Nevertheless, vital groundwork has been completed. With empirical evidence suggesting that a school's social climate influences an individual's tendency to adhere to the Superwoman ideal, and idealizing the Superwoman in turn puts that individual at greater risk for an eating disorder, we have knowledge to bring to schools in hopes of finding methods for alleviating some of the social forces contributing to female maladjustment.

In sum, although the results reported are not robust and can only be interpreted as preliminary patterns or trends, the contributions offered with the present research are many. The work accomplished here has provided us with a crucial starting point: School environments indeed make a difference in the lives of the kids participating in them.

¹⁸ In 1994, Murnen and colleagues developed the Super Woman Scale, created for a population of college women. The manuscript however was rejected for publication with needs for revision. Through personal communication Murnen informed me that she nor any of her colleagues working on the project had the time to continue with the revisions necessary for the scale to be published. The project remains unfinished to this day.

Gender Socialization in Schools

Substantial attempts at understanding gender socialization processes within single sex versus coeducational contexts have been made in the education literature (e.g., Lee et al., 1994; Lee & Marks, 1992; Brody et al., 1998; Mensinger, 2000). Since these studies were primarily qualitative however, it is difficult to make objective conclusions about the gendered nature of the school environments involved. Unfortunately, the quantitative work done in the area (e.g., Lee & Bryk, 1986; Marsh, 1989) offers little more. Even though these authors, Anthony Bryk in particular¹⁹, are well informed of the methodological issues involving quantitative analysis of data sets where students are nested within schools, there have been contentions in the literature regarding faulty conclusions based on inappropriate methods (e.g., Lee & Bryk, 1989). Moreover, the studies of a quantitative nature also did not measure the social climate per se of the schools. That is, the school-level variables considered were not related to dominant social norms perceived by students—as achieved with the SGSS. Instead they focused on individual beliefs and attitudes related to sex role stereotyping, achievement aspirations, and the like. Essentially, Lee, Bryk, and Marsh's work with the *High School and Beyond* data set modeled demographic characteristics of schools, gender composition in particular, as predictors of individual-level attitudes. The present study purported to fill this gap with the creation of a scale (i.e., the SGSS) measuring the perceived social climates of different educational contexts. Without a valid and reliable measure of the phenomenon of school gender socialization, further research in the area is unlikely to help clarify any of the existing evidence.

¹⁹ Anthony Bryk is one of the authors of the seminal textbook on hierarchical linear modeling (Bryk & Raudenbush, 1992).

In question one it was established that the subscales of the SGSS, and Z-Total SGSS scores as well, contain significant within-school homogeneity. This finding indicates that while to some degree it is true that an individual perceives an environment as he or she is as opposed to as the environment is, there are discernable shared norms within the social climate of a school that deserve careful attention. The *Intraclass Correlation Coefficients* (i.e., the proportion of variance that is attributable to the school) are notably higher for the gender socialization factors than they are for disordered eating and Superwoman scores. The proportion of the between school variances average close to 20% for the school gender socialization factors, while they are only around 3% for disordered eating and Superwoman scores. We would not be likely to see such a discrepancy if ratings of a social climate were in fact *only* a reflection of each individual's unique perceptions, as opposed to the shared collective reality of a social environment. This is by no means however to discount the 80% (on average) of variance in these 'social climate features' that does exist at the level of the individual. Perceptions and the individual differences that shape them are of course of extreme importance, but the purpose of the this dissertation is to argue that contexts like schools have their own definitive characteristics that warrant more attention in the social and health psychology literature—particularly with respect to problematic behaviors such as disordered eating.

After determining that the gender socialization factors varied among the sample of schools studied here, the goal of question one was to conclude if all female schools differed significantly from coeducational environments on any or all of the factors. The prediction of primary interest was with reference to Z-Total SGSS scores. It was hypothesized that single sex schools would report higher levels of conflicting gender role

prescriptions. Despite evidence in the literature (e.g., Heyward, 1995; Lee et al., 1994), as well as my preliminary qualitative research (Mensing, 2001) suggesting otherwise, there were no perceptible differences between single sex and coeducational environments on this index of conflicting gender role prescriptions.

When we broke the measure down into its six component parts however, analyses yielded results more in concurrence with expectations. Similar to the findings reported in the preliminary focus group research in Chapter two, the present study also found dating and appearance concerns to be more pronounced in the coeducational schools. Nontraditional and traditional gender role behaviors on the other hand, are more pronounced in the single sex contexts according to the present analyses.

At first glance I thought perhaps a better conceptualization of conflicting gender roles would have been achieved by adding *only* traditional and nontraditional z- scores together to make one variable instead of adding the z-scores of all 6 subscales. In fact, gender composition is a significant Level 2 predictor of a school's summed traditional and nontraditional z-scores ($t = 3.143; p = .013$). Single sex schools, as we would expect, have on average higher summed traditional and nontraditional z-scores. Although this may have yielded the finding I was seeking, it was not the initial method for achieving an index for conflicting gender roles for good reason. I consider dating, appearance, and academic concerns as well as attitudes conveying female gender prejudices to all be parts of the problematic cultural messages that make up a milieu prescribing unreasonable norms to which young woman are expected to aspire. Nevertheless, the method of summing all six subscale z-scores may have been flawed *if* the goal was to discern the conflicting messages purely in reference to traditional or

nontraditional gender-typed behaviors perceived in a school milieu. Clearly, the greater pressures in terms of appearance and dating matters found in the coeducational environment cancelled out the traditional and nontraditional gender roles being prescribed in the single sex environment when examining Z-Total SGSS scores. Greater consideration will be given to this dilemma in future research employing the School Gender Socialization Scale.

After exercising more thought over the interpretation of higher traditional and nontraditional gender socialization scores in the single sex contexts, I am reminded of two prior articles discussed in the literature review. First is the Brody et al. study, which was mentioned only in brief (1998). Brody et al.'s project involved in depth multifaceted research on the cultures of three regional private schools in the United States — one was experiencing a transition from being all male to being coeducational, another was experiencing a transition from being all female to being coeducational, and the third school, despite the changing institutions surrounding them, was steadfast in maintaining its all female status. These circumstances provided Brody et al. with an ideal situation in which to study the impact of gendered climates on the overall culture of a school. A multitude of interviews, focus groups, and surveys took place over the course of two years involving students, teachers, and the administrations. What strikes me now about their report is the nature of the nontraditional and traditional gender socialization occurring in the all female environment. While Heyward (1995), Lee, Marks, and Byrd (1992, 1994) pitched the presence of both traditional and nontraditional female gender socialization in single sex environments as problematic, Brody et al.'s similar findings beg for an alternative interpretation. In the Brody et al. study female students from single

sex schools clearly expressed their independence and noted feeling that they could do anything in life (1998). At the same time, the Brody et al. participants felt that their relationships with one another were valued and interpersonal intimacy was continually cultivated in the all female school environment. These comments from Brody et al.'s interview data could certainly be conceived as both nontraditional and traditional gender role socialization suggesting the presence of conflicting gender role prescriptions. However, I am reminded of the second article at this point. It is Catherine Steiner-Adair's influential work with a group of 32 adolescent females attending the Emma Willard School (1986). Recall the typology of adolescent females she developed out of the revealing interviews she conducted. There is the "Wise Woman" who successfully negotiates the developmental crisis inherent in females coming of age in Western culture, and there is the "Superwoman" who gets mired in Western culture's glorification of autonomy and control of the female body. Steiner-Adair explains that while the Wise Woman recognizes the cultural value placed on individualism, she is able to embrace the relational aspects of herself that are defined by her female identity. And in doing so, more importantly, she is able to reject the social pressures dictating an unrealistically thin body. Just like the girls in the all female environment in the Brody et al. study noted, interpersonal intimacy is continually cultivated in the life of the Wise Women. According to Steiner-Adair, it is partially due to this sense of connectedness with peers that saves her from succumbing to the rigid male-model dominant system of values in our culture—and ultimately, the tyranny of thinness. Hence, instead of interpreting the presence of both traditional and nontraditional gender socialization in the Brody et al. school as a sign of conflicting gender role norms—suggesting malevolence, it seems

conceivable that this same phenomenon can be interpreted and in turn labeled as the practices of Wise Women—suggesting protection from adjustment difficulties. Accordingly, the total summed scores of the nontraditional and traditional subscales of the SGSS being higher in single sex contexts, should not imply increased risk for potential problems with disordered eating. To the contrary, high scores on both the traditional and nontraditional subscales, instead of being interpreted as irreconcilable expectations placed on adolescent females (as initially conceived), they should probably be interpreted as a simultaneous recognition of the importance of independent thinking and autonomy juxtaposed with the expression of interpersonal connectedness through relationships with peers—akin to the female image portrayed by the Wise Woman. At the individual-level (i.e., the model constructed for question six) this alternative explanation is supported with the clear interaction effect between perceptions of traditional and nontraditional gender role behaviors among peers for predicting disordered eating patterns (this finding will be discussed further in a later section). Future papers written based on these data should test the possibility of this effect playing out at the school-level. That is, does the relationship between disordered eating and perceptions of peers' nontraditional gender role behaviors (at Level 1) vary according to a school's overall rating on the traditional gender socialization subscale (at Level 2)? The revised theory would claim that perceptions of nontraditional gender role behaviors among peers will only operate as a protective mechanism when the school is rated collectively as higher than average in traditional gender socialization.

Contrary to what was suggested in the focus group research performed prior to this project, these data do *not* affirm the longstanding debate that academic

competitiveness tends to be more pronounced in single sex environments (for a review of the literature see Shmurak, 1998). Socioeconomic status, religiosity, the student to teacher ratio, and possibly even school size all may be important factors in determining the level of academic rigor perceived by the students in the school, but gender composition does not even come close²⁰.

As can be seen in Table 12, there were a number of other school characteristics outside of gender composition that influenced scores on the SGSS subscales in general. School size appears to influence, at least to some degree, all of the factors except for traditional gender socialization. Girls attending the larger schools experienced more female gender prejudices among their teachers and less female assertiveness (i.e., nontraditional gender role socialization) among their peers. Participants from larger schools also reported their peers being more consumed by appearance and dating concerns. Lastly, greater conflicting gender role prescriptions overall were reported by students from larger schools. While closer evaluation of the school size variable goes beyond the scope of this paper, a recent special issue of the journal *Educational Leadership* examines in great length the considerable impact the number of students enrolled at a school has on student outcomes (Why Think Small? 2002). Outside of gender composition and school size, it is difficult to follow any consistent patterns with respect to how other school characteristics influence collective perceptions of the gender socialization factors. Comments in reference to these relationships will be made when deemed relevant later in the discussion.

²⁰ Keep in mind that the impact of school size on academic concerns is weak ($p < .15$) and only present when the student to teacher ratio, parents' education, and religiosity variables are held constant.

Adherence to the Superwoman Ideal in Schools

What are the implications for evidence that schools perpetuate a quantifiable gendered social climate? That is, do the social norms perceived by the students (in the form of the gender socialization factors) influence the individual standards the students within the school place on themselves? Using the Superwoman Scale as the outcome measure, the analyses performed suggest that the school's gendered social climate *does* make a difference in the students' tendencies to display perfectionist achievement in multiple roles. This finding is of great theoretical significance to the field of environmental psychology. As posited in Bronfenbrenner's bioecological paradigm, proximal processes occurring in a person's immediately influential environments (such as the perpetuation of conflicting gender role prescriptions in one's school) drive an individual's psychological development. Individual differences like genetically determined personality characteristics, physical traits, or aptitude levels in specific athletic or academic domains interact with the social processes and are expressed accordingly in each individual. There is a continual reciprocity occurring between the person and his or her environment. A school's perpetuation of conflicting gender role norms is not a property or characteristic existing separate from the students who attend the school. The students themselves take part in shaping the very conflicting gender role prescriptions to which they are being subjected; essentially, they are a reflection of one another. It took a collective effort to create such a social environment, and it will take the same collective effort to change it. At the present point in time however, outside of the ivory tower where feminist scholars have been writing about the potential adverse consequences of the widening parameters of the female gender role, there is little

recognition of conflicting gender role prescriptions being a real problem in the lives of maturing young women. In a society offering great opportunities for women, most maintain the belief that they can and should want to have it all.

A school's rated level of conflicting gender role prescriptions is not the only gender socialization factor that successfully predicted individual tendencies to adhere to the Superwoman ideal. Question three actually tested the school-level influences of the individual subscales of the SGSS as well (i.e., appearance, dating, and academic concerns, gender prejudice, traditional and nontraditional socialization). When the school-level scores on the SGSS subscales were modeled separately as predictors of an individual's tendency to adhere to the Superwoman ideal, the only factors with individual predictive ability were the appearance, dating and academic concerns subscales. This leads one to believe that perhaps the most discernable and hence influential aspects of a school's social climate involve academic competitiveness, appearance issues, and dating concerns. Notably, an *ICC* of .355 indicates that there is by far the most within-school homogeneity on the academic concerns subscale in comparison to the other 5 subscales whose *ICC*'s range from .089-.248. Given that over 35% of the variance exists between schools, we can say with confidence that there is relative consensus regarding perceptions of academic competitiveness among the female students attending this sample of schools.

While the *ICC*'s for school level appearance and dating concerns are not quite as high (21% and 15%, respectively), perhaps they were both influential factors because they reflect behaviors that are more likely to be susceptible to "social norms" than the nontraditional and traditional female gender role behaviors listed in the other subscales. Clearly, being concerned with how you look and being interested in developing romantic

relationships are both very overt and socially acquired behaviors (Gargiulo, Attie, Brooks-Gunn, & Warren, 1987). Although I believe that nontraditional and traditional gender role behaviors are also socially driven (e.g., having manners, refraining from using harsh language, taking risks), to me they are slightly more individualized in that they are likely to be influenced by personality characteristics more so than one's interest in dating and physical appearance. For example, a painfully shy adolescent may have difficulty with firmly defending her beliefs (one of the items from the nontraditional subscale) even if she witnesses her more outgoing peers doing it on a regular basis.

Given the claim that schools have measurable gendered climates, which in turn impact the psychological development of the individuals attending them—one's adherence to the Superwoman ideal in particular, carefully parceling out any potential underlying dimensions of this construct must be made a priority in future research. As suggested by the moderator variable found when fitting the comprehensive individual-level model for question six, being a Superwoman should probably not be construed as entirely maladaptive. Recall again the description of Steiner-Adair's Wise Women: she recognizes the culture's idealization of the autonomous self-made woman, yet *rejects* the culturally condoned dieting behaviors necessary to achieve the ultra-thin body representing the highly valued notion of being independent and in complete control. The Wise Woman negotiates the conflict by claiming her own ideal image that places equal value on a) relationships and interpersonal connectedness, and b) self-reliance and moral fortitude. I believe the Superwoman is in essence *trying* to do the very same thing—except she lacks the self-esteem to navigate this developmental path with flexibility and self-forgiveness when she falters. Most importantly, as illustrated in the interaction effect

between Superwoman scores and one's value of thinness, the Superwoman who fails to reject the rigid and unrealistic cultural ideal for the female body is the most vulnerable to psychopathology such as an eating disorder.

In future research, the individual items of the Superwoman Scale need to be studied in the context of both the individual role concern variables (i.e., importance of thinness, importance of career success, importance of becoming a parent, etc.) *and* a well-established perfectionism measure such as the Multidimensional Perfectionism Scale (Frost et al., 1990). As Ashby et al. (1998) have proposed, perfectionism has both adaptive and maladaptive components. People with eating disorders evidenced increased scores in the maladaptive component but not the adaptive component in their study (1998). Other researchers have established similar findings with respect to different forms of perfectionism and competitiveness and how they relate to eating problems (Striegel-Moore et al., 1990; Hewitt et al., 1995; Burckle et al., 1999, Mitzman et al., 1994). An exploratory factor analysis on a revised form of the Superwoman Scale might reveal several underlying dimensions that would call for a reconceptualization of this psychological construct.

Disordered Eating in Schools

Before moving on to a discussion of the between-school differences in disordered eating, it is important to remind readers of the current state of affairs with respect to the body of literature involving school environments and eating disorders. Despite recent recognition of epidemic levels of disordered eating in secondary schools (Black, 2002; Jones et al., 2001; Jimerson & Pavelski, 2000; Croll et al., 2002), well designed research examining disordered eating patterns with a focus on school context remains rare. Of the

few studies that have considered a school effect with respect to disordered eating outcomes, the analyses performed lacked power and methodological sophistication due to poor sampling strategies resulting in inadequate sample sizes (Striegel-Moore et al., 1991; Crago et al., 1996; Dyer & Tiggemann, 1996; Tiggemann, 2001)²¹. As discussed in Chapter four, fitting a multilevel model requires a sufficient number of schools. The statistical consultant involved in the current project estimates that an N of about 30 is a reasonable number for achieving robust findings. Unfortunately, infiltrating the secondary school system is of utmost difficulty, particularly when a study is liable to reveal problems such as eating disorders among the students. In my experience with recruiting schools for non-grant related research purposes, the majority of school officials are very enthusiastic to hear about a program addressing eating problems within their school—until the mention of having their students complete questionnaires for a study. Any official quantification of the problem at their particular school is perceived as a threat of bad publicity—something that most schools are not willing to risk. Consequentially, most researchers in the eating disorder field are hard pressed to find secondary schools agreeing to cooperate with having their students participate in a survey. In the event that a school does agree to allow their students to fill out a questionnaire, it is often stipulated that the questionnaire be completed during the student's free time on a voluntary basis. This sort of sampling method used by several authors of the four articles mentioned above compromised not only the number of participants but also made selection bias a serious confound. Given the circumstances

²¹ Crago et al. (1996) had a sample of 2 schools and total n = 69. Dyer & Tiggemann (1996) used 2 schools with a total n of 142. Tiggemann (2001) had a sample of 4 schools and a total n = 261 (however one school had only 9 respondents). Striegel-Moore (1991) used 211 incoming college freshman and asked students to rate the high school from which they graduated using a scale upon which the current SGSS was modeled.

under which the data were collected and the resulting statistical analyses performed for the prior studies, it would be unwise to interpret their findings as an accurate indicator of the role played by school environments with respect to disordered eating outcomes (Striegel-Moore et al., 1991; Crago et al., 1996; Dyer & Tiggeman, 1996; Tiggemann, 2001).

Considering the inherent barriers of obtaining a relatively representative sample of students attending a sufficient number of secondary schools, it is no surprise that there is such a paucity of work in this important area. I was very fortunate to be able to attach Dr. Ira Sacker's name as the director of the organization sponsoring this project (i.e., the H.E.E.D. Foundation), which, given his reputation and previous media coverage, clearly helped open some doors. Even with that advantage, an insufficient number of institutions were recruited for this project in order to yield truly robust findings.

School-level Risk Factors

The variance components analysis performed to determine if there are between-school differences in disordered eating suggested that these eleven school environments significantly differ from one another with respect to the prevalence of disordered eating patterns among their female students. In light of these differences, the question of most importance was whether or not conflicting gender role prescriptions at the school predicted greater problems with disordered eating. The present data suggest that schools perpetuating conflicting gender roles are more likely to see their female students engaging in disordered eating. This key finding supports, (on a new level given the statistical methods used), the notion that a socio-cultural environment, such as a school, pressuring young women to fulfill multiple and often conflicting and unrealistic gender roles contributes to the increasing prevalence of eating disorders. Although this theory

reverberates throughout the feminist literature, there is little quantitative evidence that overtly supports it.

Given that conflicting gender roles at school predict individual-level eating concerns, the next question asked in this dissertation was: Through what process does this occur? Since evidence suggests that an environment encouraging conflicting gender roles leads to idealization of the Superwoman, and idealization of the Superwoman in turn leads to disordered eating, it was proposed that the risk factor mechanism through which a school's conflicting gender roles is operating with respect to eating problems is in part due to one's idealization of the Superwoman. The multilevel mediation mechanism tested in question four supports this theory. This is a very complex finding however and its implications must be considered with caution. As is likely to be true with the Superwoman construct, some of the individual parts of the School Gender Socialization Scale are not entirely malevolent. In fact one of the underlying components of the SGSS—that is, the Level 2 collective rating of nontraditional gender role behaviors, operates in the direction of a protective mechanism ($p = .17$) against disordered eating once the impact of gender composition is factored into the equation. Thus, it must be emphasized that it is specifically when there are high ratings on every one of the six factors that this construct, which I have named conflicting gender role norms, becomes problematic and associated with greater eating problems.

In addition to the perpetuation of conflicting gender roles at a school being a determinant of the extent to which there are eating problems among the students, there are several other significant school-level predictors warranting attention. The single most potent school-level risk factor for eating problems is, not surprisingly, an environment

where the girls have collectively endorsed a thinner figure as the ideal body to which they aspire. For every one unit increase on the Contour Drawing Rating School (see p. 200, Appendix B), a school's average score on the EAT drops by approximately fourteen points. This reinforces the power a social norm has with respect to ideal bodies.

Schools where the girls are very concerned with developing intimate relationships with boys (i.e., dating concerns subscale) also suffer from more problems with eating disorders. The same is true for schools where the girls tend to compare their bodies to one another, conform to the ways of their peers, and are very concerned about their clothes and being overweight (i.e., appearance concerns subscale). Notably, the negative effects of both school dating and appearance concerns operate independently but become magnified when gender composition is simultaneously a part of the Level 2 equation. That is when we partial out the shared variance between gender composition and appearance concerns as well as between gender composition and dating concerns, both of these gender socialization factors become more powerful predictors of disordered eating.

Gender composition has no detectable effect on disordered eating in a bivariate context, that is when no other variables are being considered in either the Level 1 or Level 2 equations. It does however become a significant predictor when factoring out shared variance with several of the gender socialization subscales at Level 2 and Superwoman scores at Level 1. Given the complexity presented by the multicollinearity existing among all of these predictors, it is very difficult however to interpret the regression coefficients with confidence²². There definitely seems to be a suppressor

²² With appearance concerns in the Level 2 equation and Superwoman scores at Level 1, single sex environments are predicted to experience more eating problems ($p = .006$). If nontraditional gender role behaviors replaces appearance concerns at Level 2, single sex environments again predict greater eating problems ($p = .003$). When dating concerns replaces appearance concerns at Level 2 single sex schools are at greater risk as well, but only marginally ($p = .149$).

effect within these equations but which variable is suppressing which is not entirely clear given the capricious nature of the significant coefficients. Clearly the explanation for why a single sex environment might evidence greater eating problems, as found in the Dyer and Tiggemann data (1996) is not the gender socialization factors or adherence to the Superwoman ideal. The effect seen with respect to single sex environments discussed here, exists above and beyond the effects of adherence to the Superwoman ideal at the individual-level, as well as dating, appearance, and nontraditional gender role behaviors at the school-level. Thus while if we were to solely consider the implications of the differences in the gender socialization factors between single sex and coeducational environments, we would suspect that eating problems in coeducational environments may very well be more marked. Several of the multilevel models presented for question five however suggest the very opposite. The association between single sex environments and eating concerns is one demanding further clarification through additional research.

There are several other potential school-level risk factors that deserve attention. The more an environment is perceived as prejudiced against females, the worse-off the students are with respect to eating problems. Given the findings reported in the chapter four for question one, we might initially believe that once again, this does not bode well for coeducational environments. However, it is premature to conclude anything when coeducational schools only had very marginally higher gender prejudice scores ($p = .126$) after factoring out the effects of SES and religiosity. Regardless of whether single sex or coeducational environments are perceived as more gender prejudiced against females, a school's collective rating with respect to prejudiced attitudes independently contributes to between-school differences in disordered eating.

Two other independently operating school-level risk factors for eating problems are school size and the student-to-teacher ratio. Larger schools enrolling more students per every teacher tend to have greater eating problems among their female students. By turning to the Level 2 variable correlation matrix in Table 10 (p. 89), we can see that larger schools also tend to have greater dating concerns, appearance concerns, gender prejudices, and overall conflicting gender role prescriptions. Given that each of these factors is positively related to eating problems, larger schools are clearly risky environments for a child vulnerable to disordered eating. At the same time, larger schools have significantly less nontraditional gender socialization among their female students, which may actually be the one protective factor in the SGSS group. The encouraging aspect of this particular finding is that, at least for parents, it is something you have relative control over in terms of choosing where to send a child to school. It takes no insider information to learn the number of students enrolled in a school or the student-to-teacher ratio for that matter. If a parent is concerned about putting a child in an environment that may exacerbate a potential eating disorder, a small school is more likely to be the safer choice.

The final school-level risk factor that emerged from these data is the subject of another provocative discussion in the literature. After controlling for average SES (i.e., parents' education level) and religiosity of the school (both of which are protective), increased levels of academic competitiveness at a school predict greater disordered eating patterns among the students. As discussed in the introduction, Education Researcher, Susan Black warns schools in her recent article "Starving in Silence: Eating disorders take a heavy toll on students academically as well as physically" published in the

American School Board Journal (2002), that it is the academic superstars about whom we must be most cognizant. Extreme secrecy and denial associated with eating disorders often causes serious problems to escape detection by parents and teachers far longer than they should, especially when the individual is continually excelling in other areas such as academics (Siegel et al., 1997). For several decades now research on the clinical profiles of individuals diagnosed with eating disorders, as well as research detecting risk factors among non-clinical populations, has suggested that individuals with high levels of academic achievement tend to be more likely to develop eating disorders (Bruch, 1978; Dally & Gomez; 1979; Strober, 1980; Striegel-Moore et al., 1986; Stern et al, 1989; Silverstein et al., 1990; Levine & Smolak, 1992; Ryan, 1994; King, 1994; Gilbert & Thompson, 1996; Lask, 2000; Klump et al., 2000). Nevertheless, to date no study has empirically implicated *environments* of greater academic competitiveness to be riskier in terms of the disordered eating among female students. Given the abundance of past evidence at the level of the individual suggesting that girls with eating problems tend to be high academic achievers, it does not seem odd that this would hold at the level of the school.

Conversely, more recent work calls into question the previously well-established connection between eating problems and academic achievement. For instance, a recent epidemiological study involving over 80,000 adolescents in Minnesota designed to study high-risk behaviors prevalent among youth found school achievement as a protective factor against eating problems (Croll et al., 2002). However, the method of measuring disordered eating behaviors in the Minnesota Student Survey encompassed only two questions asking respondents to check the behaviors in which they have engaged at least

once during the past year²³. These questions have little diagnostic value and give no indication of the severity of the problem. Also, since the disordered eating outcome was based on a dichotomous variable—yes if any behaviors were checked, and no if none were checked, the analyses were limited. It may very well be that individuals engaging in some of the behaviors they listed (e.g., smoking in order to avoid gaining weight, or bingeing) tend to be less likely to achieve in school. This does not necessarily imply however that the person with a full-blown clinical syndrome is less likely to achieve academically.

Another potential contradiction to the evidence that schools of greater academic competitiveness afford riskier environments, exists within this very data set. Individual-level regression models fit for earlier drafts of this manuscript found individual perceptions of academic concerns among peers to be a protective factor against disordered eating²⁴. Note however, this is *not* the same as saying individuals who excel academically themselves are protected—as was the case in the Croll et al. study using the Minnesota Student Survey (2002). Nor is this saying that environments characterized by academic competitiveness are protected from eating problems. Rather, the model to which I am referring was before school was even entered into the equation and again, the protective effect is regarding individual perceptions of academic concerns among peers. I can offer one speculative explanation for what may seem like a perplexing finding given the majority of the clinical reports in the literature cited implicating high levels of

²³ The questions used to measure disordered eating in Croll et al. (2002) were as follows: "During the last 12 months have you done any of the following to lose or control your weight?" Participants were asked to check all that apply and the response choices were: "fasting or skipping meals", "smoking cigarettes", "using diet pills or speed", "vomit (throwing up) on purpose after eating", and "use laxatives." "During the last 12 months have you ever eaten so much in a short period of time that you felt out of control (binge-eating)?" "yes", or "no."

²⁴ Individual perceptions of academic concerns among peers operated as a protective factor *only* in the absence of Superwoman scores in the equation.

academic achievement as a characteristic of the eating disordered individual—anorectics in particular. It is possible that the individuals suffering from clinical eating disorders who participated in this study were in fact so absorbed in their own academic achievement (not to mention their absorption in weight-related issues), that perceptions of their peers' academic concerns were negatively distorted. Eating disordered adolescents often become overly focused on academics because it momentarily distracts them from the food obsessions—which inevitably plague them. In addition, heightened concerns with academic achievement offer another potential benefit to the anorectic. It gives her a more defensible excuse to avoid social engagements that might involve food (Bruch, 1978). Parents are much less likely to object to an isolated adolescent staying home on *another* weekend evening because she is claiming to have far too many hours of homework to complete than because she fears the temptations of unrestrained social eating.

Despite the plethora of literature implicating academic achievement as a risk factor mentioned earlier, we should be careful however about entirely disregarding the notion of a possible protective relationship between academic achievement and eating problems—particularly considering the self esteem one can gain from her academic achievements (Crago et al., 1996). Hilda Bruch (1973, 1978) and Arther Crisp's (1980) seminal writings (1980) describing the prototypical anorectic as the perfectionistic all-around-good-girl who tends to be above average in intelligence have created the kind of stereotype that often outlives its true basis in reality. With that stated, there is another fairly recent and more methodologically rigorous study utilizing a sample of 198 primarily white college women that found *no* relationship between the need to achieve in

academics and career and eating problems (Burckle et al., 1999). This evidence may be an indication of the shifting and perhaps widening population of individuals engaging in disordered eating. As some theorists of the culture-bound syndrome literature have posited, social illnesses such as eating disorders that are so intertwined with cultural value systems should be re-conceptualized as culture-*reactive* syndromes as opposed to culture-bound (Steiger, 1993; DiNicola, 1990). Patient profiles of individuals with eating disorders as well as symptomatic features of eating disorders have evolved and will continue to evolve in accordance with a changing world. The media has done wonders to glamorize eating disorders—anorexia in particular. As a result, this disorder has become an ill-fated social contagion to the most vulnerable individuals—academic achiever or not.

School-level Protective Factors

There were also a number of school-level protective factors that warrant further discussion. Interestingly, as mentioned above, religiosity of a school emerged as protective against eating disorders when holding constant several other variables²⁵. In the literature, to the contrary, there have been speculations over the years that anorexia nervosa in particular is more prevalent among strict Roman Catholic and Jewish families (Gordon, 2000). Unfortunately even the dieting culture itself has marketed weight control as a moral battleground, such that one who is thin is depicted as morally superior over the supposedly gluttonous obese individual. According to clinical psychologist and researcher of eating disorders Richard Gordon, at present there are no empirically driven

²⁵ Religiosity becomes protective only when controlling for either SES and academic concerns, or SES and the percentage of Black students sampled.

associations between religion and eating disorders available (2000). Nevertheless, the experiences of clinicians who have written extensive case studies on their patients suggest that the prototypical anorexic family often involves strict puritanical values, especially regarding female sexuality (Gordon, 2000). Furthermore, religions prescribing fasting rituals as repentance from sinfulness create an even greater cultural acceptance of the anorectic's food refusal behaviors (Brumberg, 1988; Bell, 1985). This is not to say religion is at all responsible for eating disorders, but the veneration of the sublime and pure soul having no corporeal needs creates a cultural context that is very amenable to expressing psychopathology through one's eating patterns (Vandereycken & Ron van Deth, 1994; Turner, 1996). Also, considering that religious families tend to send their children to schools affiliated with their religion, the ascetical value systems are reinforced in both home and school environments giving many of the kids at these schools a double dose of potentially unhealthy patterns of thinking.

Most likely, the effect in the present data with respect to school religiosity being protective factor against disordered eating is an artifact of how I classified my schools. Retrospectively, I see that I should have maintained the Roman Catholic schools as one group and the two schools participating in the Country Day School philosophy as another separate group. Instead, since the Country Day Schools had requisite Chapel services that the students attended each week, I thought this was sufficient evidence for classifying them as religiously affiliated. As a result, I decided to code them as one—as I had done for the Roman Catholic institutions. Clearly this was an error in judgment. Without schools 7 and 11 (the Country Day Schools) counted as religious, given the observable trends in the present data, religion at schools may have functioned in the opposite

direction (i.e., religious environments being associated with more eating problems).

Research looking at religious school environments, particularly those affiliated with the highly conservative Hasidic Jewish sect, is greatly needed in the eating disorder literature.

Clinics in New York City where many of the sects are concentrated are seeing disproportionate numbers of Jewish school-girls with serious eating disorders (personal communication with Ira Sacker, M.D.).

The most consistently potent protective factor against eating disorders in the school was socioeconomic status, as indicated by the parents' education levels of the students sampled. Schools with a higher average socioeconomic status among its students actually have fewer problems with disordered eating. These results are especially important to emphasize given the widespread myth that originated with 19th century descriptions of anorexia nervosa where physician Samuel Fenwick is repeatedly cited for having noted that "this is not a disorder found amongst those who must procure their bread through daily labor" (1880). The proliferation of articles on anorexia nervosa in the 1970's and early 80's authored by some of the leading experts in the field (e.g. Bruch, 1973; Crisp, et al. 1976; Garner et al., 1980; Garner & Garfinkel, 1982) reinforced the 19th century writings by suggesting that the disorder was practically non-existent anywhere except the privileged social classes. Epidemiological studies examining the entire psychiatric registers of several large counties in the United States, England, and Scotland supposedly convinced the field that the relationship between eating disorders and social class was *not* an artifact of selection bias, which was inherent in the case studies of such well-known clinicians as Hilda Bruch (Kendall et al., 1973). Of course their claim came with the obviously unfounded assumption that *all* cases of anorexia

nervosa are reported and treated (Gordon, 2000). Reviews written as recent as ten years ago (Nagel & Jones, 1992) still maintain the notion that eating disorders do not afflict those of lower socio-economic status, but only those who are upwardly mobile.

Fortunately publications, such as Gard and Freeman's 1996 review article, were written to serve the very purpose of "dismantling the myth" that eating disorders are concentrated among the wealthy. Gard and Freeman illustrate that it took almost 20 empirical studies where the relationship was *not* supported (5 of which where the opposite was actually found to be true e.g., Story et al., 1995) for the field to begin taking seriously the ramifications of such a misguided stereotype. More recent research is demonstrating that prevalence rates of disordered eating behaviors at least (as opposed to clinical syndromes) may in fact be more concentrated among the lower classes (Rogers et al., 1997; Croll et al., 2002; Thomas, James, & Bachmann, 2002). While it would be premature to conclude the trends observed in the present data support this later evidence (particularly given the relatively restricted range with respect to SES), we can at least reinforce the dismantling of the age-old myth that disordered eating is primarily a symptom or pathology of the privileged.

A protective factor that has often been discussed in the context of social class is ethnicity. When controlling for religiosity and SES, these data suggest that the greater the number of Black students sampled at the school, the lower the eating problems at that school. This finding is congruent with much of the literature on racial differences regarding attitudes toward body shape and dieting. Research has consistently found women from African and Afro-Caribbean backgrounds to prefer more plump figures and to be less likely to engage in dieting and other weight regulation behaviors (Furnham &

Baguma, 1994; Wardle & Marsland, 1990; Hodes, Jones, & Davies, 1996). In fact during data collection, one of my participant's asked me in reference to the question where they were to choose an 'ideal' body from the nine figure drawings presented, whether she should mark what *her* culture (she was African American) believes is ideal or what the dominant White culture depicts as ideal? She said emphatically, "...because they are two entirely different things." I responded by telling her to mark her own personal belief of what is beautiful. She was satisfied with my response and happily circled the larger figure as she handed me her completed survey. Thus, as pointed out by Gordon, the lower prevalence rates of young Black women with eating disorders is much more likely to be a cultural artifact as opposed to a socioeconomic one (2000).

In 1995, a community study of 8th and 9th graders living in Arizona qualitatively examined specific reasons for why Caucasian teens tend to be at greater risk for eating disorders than their African American peers (Parker et al.). For the African American teens, personal acceptance was clearly less associated with external appearances. Beauty was derived from a sense of "inner goodness" and recognition of personal strengths. While obesity is certainly less stigmatized in Black culture, and men do prefer more robust women, the African American girls insisted that these are *not* the reasons that they are less likely to diet. It was quite obvious to the researchers that the African American participants in this study were all-in-all more secure with themselves and less vulnerable to outside influences than their White peers. Considering the effect being discussed in this dissertation has to do with a group-level, as opposed to individual-level norm, this pattern seems to have held true for the African American girls participating here too.

The final school-level protective factor deserving comment, particularly given its power of influence on the average disordered eating scores a school is likely to see among its female students, is the 'career mom' variable²⁶. The more likely the kids sampled at a school were to have mothers working in professional careers, the less likely they were to suffer from an eating disorder. While this variable is indeed correlated with SES at the school level ($r = .86$), it is more than merely an indication of social class. In fact even if a mother had a Ph.D. but was labeled by the participant as a stay-at-home-mom she would have received a zero for the variable. Recall that to receive a one on this variable she would have to have both at least a Bachelor's degree *and* be working outside of the home. If the mother was working but did not have a college education, she received a score of .5 on the variable.

A correlation also exists between the proportion of career moms at a school and the ideal figure size endorsed by the students sampled. The more mothers with careers, the heavier the ideal figure nominated by the students. Clinical psychologist and broadly read feminist author Kim Chernin, dedicates a great deal of attention to this issue in her books on women, eating, and identity. Chernin recognizes a unique challenge for young women today; a developmental challenge that is very different from that faced by her mother a generation earlier (1985). According to Chernin, the relative ease young women meet when entering the world today—while at first glance may seem like a blessing to our foremothers who struggled far more for equal rights and access to once entirely male-dominated public spheres where all the power and money reside—is the very vice contributing to the struggle met by so many adolescent females at this

²⁶ A school characterized by all career mothers can expect to see an average eating disorder score of 22 points lower than a school with a population of 100% stay-at-home mothers.

crossroads. She describes the feeling expressed by her patients suffering from eating disorders as a profound sense of guilt over claiming the multitude of opportunities that were never presented their mothers. Typically disabling development and growth, an eating disorder provides the conflicted young woman with an ideal solution to the irreconcilable guilt she has over taking her education, professional opportunities, and basic social ease for granted. Since the mothers of the prior generation confronted huge limitations career-wise leading many to sacrifice their professional lives for their children, Chernin posits that the daughter, who is entering a very different adult world, enacts her mother's silenced frustration by stunting her own abilities to achieve professionally with a self-sabotaging eating disorder. While it is not often taking place on a conscious level, Chernin's patients evidence clear identification with a pervasive guilt about the life they have been offered. Further introspection reveals the awareness that the mothers' pain was never acknowledged. Her losses were not considered significant and remained hidden from the rest of the world as she dutifully played her role as caretaker of husband and children. Now as the children mature and leave home, the most intuitive daughters will sense their mother's discontentment with her life that remains unfulfilled of private ambitions. With no words to communicate the socially censored anguish the mother's felt, the suffering is literally transferred to the younger generation. Although the battle is much less tangible for the individual with the eating disorder, her crisis becomes public—the residual pain of the generations prior is communicated via their starving bodies.

Although to some Chernin's ideas may seem like mere therapeutic parlance, other researchers have demonstrated empirically how young women growing up in a traditional

household where the mother is essentially devalued intellectually, are more likely to engage in disordered eating (Silverstein et al., 1990; Silverstein and Perlick, 1995). In fact, Silverstein and Perlick in their book *The Cost of Competence*, treat at great length the issue of how both mothers' and fathers' roles in the home influence attitudes leading to eating problems in their adolescent daughters (1995). Although no present evidence of this nature exists at the contextual level, Silverstein and colleagues would not likely be surprised that schools where there are more career-track mothers tend to have fewer problems with disordered eating.

I would imagine that this kind of effect would eventually fade given the increasingly vast opportunities women have had for choosing both a career and family life. That is, adolescents with parents from a younger generation are increasingly less likely to enact a struggle over surpassing one's mother considering that her mother's opportunities were not nearly as thwarted as the mothers of Chernin's generation described in her work published almost 20 years ago. Interestingly, this age effect actually plays out in the present data—the older the students sampled at the school, the less likely they were to have mothers with careers. Actually, although the average age of the students sampled at each school was entered as a possible school-level variable into all of the exploratory multilevel analyses, it failed to be an important predictor of, or correlated with, anything except the 'career mom' variable. In the present data, the younger students sampled are more likely to have moms with careers than the older students sampled. Perhaps this is evidence supporting the fading effect mentioned above. While it is very likely that the issues described by Chernin, Silverstein and his colleagues were in fact more relevant for the adolescents coming of age in the 80's and 90's, it is

hard to imagine that more relevance can be attributed to adolescents differing in age by only a few years—as is the case in the present data. Considering the caution that must be applied to the multilevel results reported for this project, I recognize that the relationship between the age and career mom variables may very well be an artifact of sampling error. It could certainly be mere chance that the two schools ranking highest in terms of proportion of career mothers happened to be the schools where the youngest students were sampled. Regardless, it would be interesting to dedicate attention in the future to the perhaps changing nature of mother-daughter issues prevailing in adolescents suffering from eating disorders of later generations.

To summarize, the potential for contextual effects at least implied by the present research are abundant indeed. Despite the limited sample size and the caution that must be attached to the reported findings given the possible downwardly biased standard error estimates, we have made significant progress in eating disorders research related to school environments. Fertile soil is now present for an area where far too little methodologically sound research exists.

Individual-level Variables

The remaining discussion refers entirely to the analyses performed at the individual-level for question six. In addition to school milieu, there are many other highly relevant individual-level variables that played a part in predicting disordered eating outcomes in this research. Given the strong correlation between body dissatisfaction and disordered eating scores in the present research, as expected, it was the strongest individual level predictor of disordered eating patterns in this analysis. While

body dissatisfaction is frequently conceived as an inherent cause of an eating disorder, (Polivy & Herman, 2002) the role it plays in clinical cases of individuals with anorexia and bulimia nervosa is enormously complex and remains a separate issue from the focus in the present research—which is on eating pathologies in particular. There are several recommended comprehensive volumes reviewing and discussing the current body image literature and how this construct relates to—however should be considered distinct from, the eating disorders (Cash & Pruzinsky, 2002; Thompson & Smolak, 2001). All of forthcoming variables to be discussed uniquely predict EAT scores after adjusting the means for the influence of body dissatisfaction.

Before offering comments on any of the results derived from building the individual-level model for the final research question, it is appropriate to recap the current state of the literature regarding the general underlying theme driving the present study: that is disordered eating and issues surrounding gender role prescriptions. We have been trying for decades to model the relationship between femininity, masculinity and eating disorders (for a review see, Lancelot & Kaslow, 1994; or Murnen & Smolak, 1998). Some theories have been posited that contradict one another entirely, and others take more of a middle-ground approach by claiming it is not masculinity or femininity that are related to eating disorders, it is rather a discrepancy between one's ideal and actual self with respect to gender roles. Researchers have managed to collect data that support every rendition of the theories making reviews of the literature disastrous for those seeking clarity and a summarization of all previous work. Some use acceptable measures and sound methods; others use instruments lacking in validity and reliability statistics and seriously questionable methods. Authors have even suggested the potential confounds of

contexts and responses driven by social desirability. That is while college students may be influenced by the academic milieu where ascribing to more masculine gender role traits would be positively reinforced, participants who are inpatients of eating disorder hospital units are subjected to a milieu where compliance and more female gender role traits are applauded. Adding to the complexities, some studies look solely at anorexic populations while others look only at bulimics. While these distinct disorders share a lot of common symptoms and risk factors, there are reasons to believe that with respect to gender roles, anorexics tend to differ considerably from bulimics (Boskind-Lodahl, 1976).

Considering the vast disparity employed in terms of diagnostic categories, clinical versus non-clinical populations, measures used to assess both disordered eating and gender role issues, and the unsatisfactory conclusions drawn from prior reviews, eating disorder experts, Sarah Murnen and Linda Smolak attempted to achieve greater clarity through the use of meta-analysis techniques (1998). Meta-analysis uses a more systematic statistical method for combining and synthesizing the results of large groups of related studies. These analyses are built on the concept of a multilevel model where individual studies operate as the Level 2 units (equivalent to schools in the present study). The varying characteristics of the studies—such as what kind of population was used, or the specific measures employed become Level 2 predictors in the multilevel analyses.

Although Murnen and Smolak traced a total of 61 published papers and 7 dissertations that qualified as a study involving disordered eating and gender roles, only 23 of these studies contained applicable data that could be used in a meta-analysis. They hypothesized the effect sizes for femininity and eating problems as well as masculinity

and eating problems would both be non-significant based on the inconsistencies of the literature. Surprisingly, significant effects were found. High scores on femininity were associated with greater disordered eating and low scores on masculinity were associated with greater disordered eating.

Despite the outcome of the meta-analysis, there is still no real consensus in the field. Murnen and Smolak merely concluded that their results suggest we *not* throw in the towel on studying gender role issues and disordered eating. Given that the former review of this literature by Lancelot and Kaslow (1994) could have easily been the interpreted as such (i.e., “there is probably no relationship... so let’s move on...”), Murnen and Smolak’s large-scale analysis was interpreted as a reminder that gender role issues are indeed pertinent. Ironically, the discussion in their 1998 paper brings us full circle back to where we began in the review of the literature for the present paper. They made the familiar suggestion that perhaps it is not an endorsement of feminine or masculine gender roles in the traditional sense that is associated with eating problems. They also note that the gender role measures most often used for the studies included in the meta-analysis were developed in the 1970’s (e.g., BEM’s SRI and Spence and Helmreich’s PAQ), making their relevance to issues facing modern women questionable. Hence they recommend a re-conceptualization of the issue and the development of a new method for measuring it. Murnen and Smolak also highlight Steiner-Adair’s conversations with teens in the 1980s where they spoke of the “Superwoman” who achieves in both masculine and feminine roles. They proceed to a discussion of Silverstein and Perlick’s book *The Cost of Competence* where gender ambivalence is seen as the core issue for eating disordered women as opposed to the adoption of a specific

group of either masculine or feminine gender role traits. In essence they point us in the very direction taken here in this dissertation.

In response to their suggestions we have further theorized about the operationalization of the gender role dilemma. By carefully analyzing the writings of the scholars over the decades offering cogent explanations of the gender role crisis, we have considered precise measurement of the nuances believed to be present in individuals experiencing it. In addition, we held intimate conversations with teenagers coming of age today in order to address current real world experiences as opposed to relying only on the written interpretations of academic scholars. And finally, as recommended by others, we clearly considered context as a primary factor in the expression of these issues. Despite the concerted efforts made in the present study to fill in known caveats, the findings yielded from these data with respect to the relationship between individual gender role issues and disordered eating for a sample of adolescent females attending coeducational and single sex independent schools, still leave us with unanswered questions.

Nevertheless, it would be difficult to convince readers at this point that individuals who develop eating disorders do not tend to be 'feminine'. The final individual model built for the present data includes greater levels of hyper-femininity as a significant predictor of problems with disordered eating. This particular variable however tells us little *about* the feminine gender role per se. It merely suggests those who feel it is very important that they both a) do things to make them appear feminine and b) avoid doing things to make them appear masculine (Questions 3 and 4 in the gender identity and beliefs section of the survey, p. 188 of Appendix B) tend to have

greater disordered eating attitudes. In order to infer what roles the hyper-feminine individual typically considers as important, correlations with the individual role variables are considered. Those indicating a strong relationship with hyper-feminine behaviors (i.e., $r > .30$) are: importance of attractiveness, importance of marriage, importance of parenthood, and importance of thinness. Superwoman scores and the multiple role concerns variable also strongly correlate with hyper-femininity. This suggests that our hyper-feminine adolescents tend to adhere to the Superwoman ideal in both indicators of the construct used for this research. Further, they tend to place a particularly high value on being both thin and attractive, *and* eventually getting married and becoming a parent. According to the literature reviewed and the theory on which this dissertation is based, these factors taken as a whole are likely to increase one's propensity to engage in disordered eating.

Clearly, these data support the relationship between femininity and disordered eating found in Murnen and Smolak's meta-analysis and numerous prior studies (e.g., Van Strein, 1989; Jackson et al., 1988). Thus it is apparent that despite Hilda Bruch's landmark observations (1973, 1978) that her anorectic patients show a blatant rejection of the adult female role and *literally* forbid their body to biologically enter that state, more evidence continues to suggest that individuals engaging in disordered eating patterns in many ways embrace femininity. Susie Orbach (1986) specifically describes this inherent contradiction in the psyches of her anorectic patients by noting their relentless pursuit of thinness simultaneously as both a subtle desire for a hyper-feminine state juxtaposed with a confessed hatred of femininity. The issue is extraordinarily complex given the consequences of the extreme behaviors displayed by individuals with clinical eating

disorders. While Bruch and others are obviously correct in their observation of the anorectic rejecting her womanliness by suppressing her menstrual cycle and ridding herself of female curves, in the height of the illness, her behavior inevitably engenders a state of dependency – traditionally labeled a feminine role. This paradox is actually very representative of the crisis described by Steiner-Adair. The participants whom she described as “Superwomen” refused to value the relational aspect of their selves. Through this denial, in turn they over idealized the individualistic ideology respected by Western culture and hence strove for a representation of this with an ultra-thin physique absent of feminine curves. In doing so the anorectic presents a frail rather defenseless image, which although is indeed desexualized, is also seen as dependent and childlike. Her angry pursuit of autonomy through thinness has backfired. The question remains, how *does* one measure this complex chain of psychological events embedded within a very specific socio-cultural context? There is no wonder the evidence is fraught with inconsistency. There may be no tangible method of precisely capturing a simultaneous rejection of and desperate clinging to femininity.

Setting aside the exaggerations characterized by individuals entrapped in the full-blown clinical syndrome, a much larger segment of the adolescent population suffers from what we often label as a sub-clinical eating disorder or a dieting disorder. The less extreme form of disordered eating usually involves dieting and exercising in order to conform one’s body to the rigid culturally prescribed female ideal. Often this stems from a desire to be accepted and perceived as beautiful by others. Our culture teaches young women that thinness will guarantee us beauty, desirability, and acceptance—all of which are achieved with traditionally feminine behaviors. Since the present data are based on a

non-clinical population, we can safely assume that the majority of disordered eating behaviors detected among these young women are driven primarily by hopes to gain social approval and acceptance by peers as opposed to the calculated rejection of the sexualized female body communicated by the anorectic's self starvation. We need to maintain an awareness of these important distinctions in our interpretations of data collected in non-clinical populations.

Before moving on with a discussion of other risk factors present in the final model I want to point out that the way in which the hyper-femininity questions are posed clearly imply concern over appearances within a social context in particular. The questions emphasize how the respondent behaves in order to "appear to others." Since it is the social context that seems to be important to respondents scoring high on the hyper-femininity questions, it would be interesting to know the within-school homogeneity on this variable. Accordingly, the *ICC* happens to indicate that close to 7% of the variability in hyper-femininity scores exists between schools. While lower than the gender socialization factors (whose *ICCs* range from 9-36%), 7% is still double the between-school variability found for our other individual psychological variables considered earlier with *ICCs* around only 3% (i.e., disordered eating and Superwoman scores). Future papers utilizing the present data would probably benefit from considering the hyper-femininity variable in a multilevel analyses. That is, what kinds of school contexts foster adolescent girls wanting to appear feminine? Contrary to what we might expect, single sex schools actually have significantly higher mean hyper-femininity scores at least when considered at the individual level. This suggests that the presence of boys is *not* a deciding factor for wanting girls to appear feminine.

Gender ambivalence is another variable from the section of the survey labeled gender identity and beliefs questions (Appendix B; p. 188) that speaks directly to the theory addressed in the literature review. Although the probability level is only just barely significant in the final model presented in Table 17 ($p = .051$), the positively skewed distribution of the gender ambivalence variable (i.e., where responses are concentrated at the low end) may be responsible for the borderline statistical significance. Seventy-five percent of the respondents indicated that they would probably or definitely choose to be a girl if given the option while only ten percent indicated that they would probably or definitely choose to be a boy. In the present data, those who are less than sure that they would opt to be a female are more likely to engage in disordered eating patterns.

Silverstein and Perlick also treat this issue at length in their 1995 book *The Cost of Competence*. Their descriptions of how some women come to experience such ambivalence about their gender (i.e., outside of their sexual orientation) include general societal attitudes depicting females as inferior but extend also into the family environment and the key role it plays in the daughter's experiences of gender biases. They discuss how cultural values are often mediated through the family, and the primary role model for a girl entering her adolescence is her mother. Through intensive biographical research on historical figures as well as survey data collected on a sample of contemporary high school students, Silverstein and Perlick maintain that highly intelligent daughters of traditional families are often relegated a special connection with their father until adolescence. This is particularly true in families where there are no sons. During childhood, girls are typically given more latitude in terms pursuing nontraditional

roles. They begin to develop their self-concepts around the rewards and encouragement they get for intellectual and achievement oriented accomplishments as children. Once the daughter reaches adolescence however, Silverstein and Perlick posit that a shift occurs in her relations with her father; consequentially, a loss is experienced. A once cherished connection fades as the daughter grows into her female body, which comes along with it a new set of expectations and roles no longer valued by the father. Daughters reporting that fathers tended to treat them as sons when they were growing up were four times more likely to report high levels of disordered eating, headaches, insomnia, and breathing difficulties in high school. Silverstein and Perlick's data on contemporary young woman also show that those who feel limited by being female and often wished that they were male are three times more likely than their peers not reporting such feelings to exhibit depression, disordered eating, headaches, insomnia, and breathing difficulties.

Even Simone de Beauvoir, the highly esteemed feminist scholar admitted that she grew up believing that girls were inferior to boys (Silverstein & Perlick, 1995). Despite her adulthood successes as a feminist author and her activism displaying a clear repudiation of the sexist idea, her reports of a lifelong struggle with depression and migraine headaches cause Silverstein and Perlick to question the extent to which symptoms such as disordered eating, depression, and headaches develop from a *conscious* awareness of an ambivalence toward being female. The possibility of the deeply rooted feelings regarding female inferiority operating subconsciously challenges us as researchers when it comes to measuring constructs like gender ambivalence. Accordingly, in future research that considers this construct it would be helpful to include a second index that measures gender ambivalence in a more subtle fashion. For instance,

Silverstein and Perlick employed an exercise in their research with high school aged women where the participants were simply asked to draw a human figure. Those reporting disordered eating were significantly more likely to draw human figures with either no sex characteristics at all or figures that clearly represented a male. This was interpreted as a possible internal and often subconscious desire to negate one's female identity—precisely the consequence of the anorectic's relentless pursuit of thinness.

As discussed earlier in this chapter, the central variable of concern in the individual-level model predicting disordered eating scores was the construct used to measure adherence to the Superwoman ideal. Recall that the measure used to assess adherence to the Superwoman ideal was a modified version of Murnen et al.'s original unpublished Superwoman Scale, initially developed for a population of college women. The content of the items written for the present Superwoman Scale was significantly altered in order to fit a non-gender specific adolescent population (see Appendix J for a copy of the original Superwoman Scale). The revised Superwoman Scale was intended to assess two things: a) one's perfectionist achievement in multiple roles and b) the tendency to experience conflict over fulfilling multiple roles. In Chapter three, we discovered that while it successfully predicted achievement in multiple roles, Superwoman scores did *not* correlate with whether or not one was able to rank order a list of goals for their future. Since the Superwoman variable did not address the role conflict aspect of the Superwoman construct, the dichotomous role conflict variable itself was added to the final individual-level model for predicting disordered eating. Although it was not a strong unique predictor of eating problems ($p = .048$) in the multiple regression context, individuals who were unable to rank order the five roles listed for their future

tended to be at greater risk of disordered eating. Future research regarding the Superwoman hypothesis needs to explore more alternatives for measuring role conflict in order to improve our understanding of the part it plays in putting someone at risk for an eating disorder. At the same time, it is clear that further revisions need to be made on the items of the present Superwoman Scale in order to achieve a measure with the capability of detecting an adolescent experiencing conflict over fulfilling multiple roles as she matures into adulthood.

While Superwoman scores were in fact a significant predictor of eating problems in the present model, this relationship was qualified when the value one places on being thin was introduced. As shown in Figure 3 (p. 118) a Superwoman is *only* at greater risk of disordered eating when she places a high value on being thin. In fact, Superwomen that do not value thinness are slightly *less* likely to engage in disordered eating patterns. Although the coefficient for the Superwoman main effect was not significant in the final model presented in Table 17, when you fit a model with no other variables except the interaction between Superwoman scores and the value of thinness variables, and the respective main effects, Superwoman scores become a significant protective factor. Clearly, despite Murnen et al.'s conceptualization of the Superwoman construct being only one maladaptive dimension, this evidence suggests that embedded within the present 27 items, is at least one adaptive or positive aspect that has not been considered in this study. Before moving forward with work on the present Superwoman Scale, future research should focus on first gaining a greater understanding of the modern Superwoman by using interviewing methods similar to those conducted by Steiner-Adair in 1985. From this qualitative work, hopefully we can develop a more accurate and

psychometrically sound scale that assesses the Superwoman of the 21st century.

Aside from the school gender socialization factors, the only remaining significant predictor variable in the model presented for question six in Table 17 is race. The race variables were created as a set of dummy variables because this enabled us to see how each racial category (i.e., African/Caribbean American, Latina, Asian, other) compared to the white group, which involved approximately seventy-five percent of the sample. Although race was not a central factor considered in this research, the data suggest that the Asian participants are indeed at much greater risk for an eating disorder. The first few decades of published research on eating disorders focused almost exclusively on whites from more privileged social classes. Since the typical anorectic patient came from a white upper-middle class family, experts wrongly assumed that the disorder was a rare occurrence in other ethnic and social class groups. By the 1990's the field starting seeing more research that focused on diverse populations in order to determine the prevalence rates of eating problems among minority groups. A growing body of literature on ethnicity and weight consciousness suggests that not only have we been incorrect in the assumption that eating disorders occur infrequently in other ethnic groups, but now prevalence rates among several minority groups are increasing to levels above rates seen in the white population (Thomas, James, & Bachmann, 2002; Croll et al., 2002). In fact, over ten years ago there was evidence available suggesting that disordered eating attitudes were more prevalent among Asian girls (mostly from Pakistan) than white girls at a British high school (Mumford et al., 1991). We have also known for quite some time that anorexia is well recognized in Japan where rates are similar to rates in the United States (Dolan, 1991). Acculturation to Western values has been implicated as being

responsible for the rising rates of eating problems in minority groups (Ball, Kenardy, 2002). While I am certain that this explains some of the increasing rates, I think the consistent evidence for high levels of disordered eating in Asian women both in living within Westernized countries and in their home nations (Lee, 1993; Lee & Lee, 1996, 2000) indicates that something beyond standard Western values is also at work. Future research looking specifically at women in certain Asian cultures and the development of disordered eating patterns may reveal new information about the etiology of an increasingly globalized social disorder.

Individual Perceptions of School Gender Socialization and Disordered Eating

Once again, prior to discussing the findings with respect to perceptions of the gender socialization factors, it is important to remember that in the model being discussed here (i.e., question six), the subscales take on a slightly different meaning than how they were conceptualized in the prior questions when they were incorporated as school-level predictors. The gender socialization factors now represent *individual perceptions* of the normative behaviors among their peers, as opposed to collective ratings for each school. Overall, three of the six SGSS subscales (i.e., dating, appearance, and nontraditional gender role behaviors) uniquely predicted disordered eating scores at the individual-level in the context of the multiple regression analysis presented in Table 17. In addition, a fourth SGSS subscale – traditional gender role behaviors, acted as a moderator to the effect of nontraditional gender role behaviors. This final result happens to carry significant theoretical implications with respect to the notion of the Superwoman Ideal.

Contrary to expectations, those perceiving greater concerns over dating among

peers tend to engage in *less* disordered eating. The direction of the dating concerns variable in the individual-level model is of particular interest given findings discussed earlier. At the level of the school, the dating concerns variable was implicated in several models as a risk factor for increased disordered eating levels in a school's environment. In fact even at the level of the individual when only a bivariate relationship is considered, those perceiving female peers as being focused on developing relationships with boys are more likely to engage in disordered eating patterns. In a multiple regression context however the variable shifts from being a risk factor to being a protective factor. That is to say, after factoring out the effects of all the other predictors listed in Table 17, those who perceive their peers as being very focused on cultivating relationships with boys tend to have *lower* eating disordered scores. Statistically, this is typically a consequence of multicollinearity among the set of predictor variables. Aside from the role conflict and gender ambivalence variables, perceptions of peers' dating concerns at school are positively correlated with every predictor variable in the equation making multicollinearity an inevitable problem. Consequentially, the element in the peer dating variable that is problematic in terms of disordered eating is obviously shared with the other risk factors in the model. Considering the particularly strong positive correlation between the dating variable and perceptions of peers concerns over appearance, it is likely that the "risky" portion of dating is being consumed in the shared variance with appearance concerns among peers. When the risky element is factored out, the protective element in the peer dating variable is able to surface, resulting in our unexpected yet informative finding.

Conceptually, the social mechanisms inherent in the peer dating concerns variable

are equally as complex. Paralleling the result yielding dating concerns as a risk factor is the body of literature implicating the onset of dating as a precipitating event for weight concerns and dieting among adolescent females (Levine et al., 1994; Smolak et al., 1993). Researchers have demonstrated that adolescent females consider their weight as the most important component of their desirability to boys (Nichter & Vuckovic, 1994). On the other hand, the result yielding dating concerns as a protective factor against disorder eating is perhaps related to Cohn et al.'s findings (1987) where girls significantly underestimated the figure size considered most attractive to boys. Even over 30 years ago, Dwyer et al. found that boys chose a significantly heavier figure drawing than what the girls chose as representing the most feminine, indicating another contradiction between male and female preferences (1969). In social environments where there is an abundance of male/female interactions and romantic relationships are a central focus, girls may be more in touch with the female curves that adolescent boys find desirable—regardless of the boyish figures, reminiscent of the Twiggy era, propagated by much of the media.

In addition, researchers have found that high school girls who were involved in intimate heterosexual relationships before most of their peers tend to have a higher self-esteem (McDonald & McKinney, 1994). Perhaps this higher self-esteem has carryover effects and protects some girls who are dating from developing eating problems. Accordingly, it is possible that girls who are especially interested in boys are somewhat shielded from the social pressures to achieve the highly unrealistic ultra-thin look. If previous research is accurate and males prefer more robust female figures than females tend to realize, then a coeducational environment may serve to reinforce the fact that it is

the girls with curves who are receiving attention from male peers. The extreme dieting necessary to achieve the advertising industry's sick depiction of feminine beauty may hold less power in these social contexts.

Regardless of the fact that boys may desire more curves than found on many of today's runway models, the data suggests that individuals who perceive their school environment as a place in which girls get teased for their appearance, compare their bodies to one another, and do things to gain approval from peers, not surprisingly, are more likely to engage in disordered eating. The clear positive relationship between the items making up the school appearance concerns subscale and disordered eating at the level of the individual, directs our future work regarding influences of the social context on disordered eating toward social comparison theory and negative feedback. Although social comparison theory was originally developed by Festinger as an individual's cognitions and appraisals of herself and her capabilities (1954), the theory has evolved through the work of researchers such as Wood in that the characteristics of the social environment have taken a more important role in determining the nature of the comparisons (1989). Wood understands the comparisons as having reciprocal effects continually occurring between the self-evaluator and the target. Stormer and Thompson (1996) extended these theories to research on disordered eating and body image disturbance. Their research suggests individuals with strong needs to engage in social comparison have been found to suffer from greater body image disturbances and eating disorders—particularly in environments characterized by negative verbal commentary. According to multilevel analysis performed for question one, coeducational schools are more likely to be experienced as such by adolescent girls. Furthermore, the multilevel

findings reported in question two and five support Stormer and Thompson's findings: schools fostering social comparison processes (as indicated in the school-level appearance concerns variable) are likely to be contributing to eating problems among its students.

The final individual-level school gender socialization factor predicting disordered eating scores was an individual's perceptions of nontraditional gender role behaviors among her peers. Although there was a significant protective main effect for perceptions of peers engaging nontraditional gender role behaviors on disordered eating, the nature of the effect should really not be interpreted without considering an individual's perceptions of peers engaging in traditional gender role behaviors. Those who perceived her peers as trying hard to win arguments, defending beliefs, and taking risks—among other empowering behaviors, were less likely to engage in disordered eating *only* if their perceptions of peers being sensitive and compassionate to the needs of others were high. In turn, if one's perceptions of traditional female behaviors (i.e., sensitivity, compassion, etc.) were low, then greater perceptions of nontraditional behaviors (defending beliefs, taking risks, etc.) are actually associated with *higher* levels of disordered eating. The implications of this interaction are vast considering the efforts to understand the nature of the relationship between gender role behaviors and disordered eating. While the interaction initially appears to operate in contrast to how I would have guessed prior to commencing this research, as discussed earlier in this chapter, a new more enlightened conceptualization of the presence of both nontraditional and traditional socialization for females is supported by this finding. The interaction effect is consistent with Steiner-Adair's notion of the Wise Woman who is able to simultaneously embrace her femininity

and value her interpersonal connections while still asserting herself in more traditionally masculine ways. Perhaps the contradictory literature discussed in chapter two regarding the adoption of gender roles and disordered eating (e.g., Sitnick & Katz, 1984; Lewis & Johnson, 1985; Steiger, Fraenkel, & Leichner, 1989 vs. Boskind-White & White, 1986; Cash et al., 1997; Martz et al., 1995) is due to a failure to recognize the way in which masculine and feminine gender roles interact with one another. Although prior research has found women who identify themselves with both masculine and feminine gender roles are less likely to engage in disordered eating (e.g., Thorton et al.), the present results are unique in that they, for the first time, implicate a similar effect with respect to perceptions of a *social climate* characterized by masculine and feminine gender role behaviors. This information is especially important with respect to prevention efforts. Perceptions of female empowerment among peers in a school environment is only beneficial *if* the social relationships by which girls tend to identify themselves are also clearly perceived as being valued in that environment. Given this finding, which essentially crystallized Steiner-Adair's Wise Woman/Superwoman dichotomy and shed light on findings reported by Brody et al. in their study of the gender culture of several different types of schools (as mentioned in the beginning of this chapter), it is advised to use the notion of conflicting gender role norms with extreme caution in future research. Perhaps the variable derived from the totaled z-scores of the six gender socialization factors should even be renamed in order to avoid misunderstanding.

CHAPTER SIX

Conclusion

Shortcomings in Research

There were a number of shortcomings methodologically as well as substantively that could have biased the results of this study. First, and probably most important was the flaw in the recruitment process (inherent to most studies of this kind as discussed in Chapter 5). It would have been impossible to gain the cooperation of a random sample of independent schools throughout the United States; thus as with most correlational research with non-experimental designs, a convenience sample of schools within the Philadelphia and New York City Metropolitan Areas was obtained. Despite being referred by contact people from within school personnel, the administrations were extremely resistant to allowing any kind of research take place with a population of their students. The H.E.E.D. Foundation's offer of a presentation on eating disorders given by Dr. Ira Sacker, a well-known expert in the field did little to sway those in charge at many of the institutions. To our dismay, the schools where we had contacts in particular and thus knew how severe and widespread the epidemic of eating problems were in those environments, were the very schools (among others of course) that refused to participate in our project. While some of the health-care professionals were excited about the prospect of H.E.E.D. doing the research with their students in hopes to use us as a needed intervention, their supervisors refused to cooperate. Although I made efforts to speak firsthand with the higher administrative officials in order to allay their anxieties about issues of confidentiality and anonymity, most refused to even discuss the matter. This problem was especially common with the single sex schools contacted. One of these

schools actually directed me to speak to their publicity chairperson who was forthright and said to me that while they would really love to have us come to their school, they simply could not afford any additional negative publicity that would be generated from the results of the research. We then started faxing official confidentiality and anonymity agreements to all schools approached, but this too did little to improve our success rate with recruitment. In sum, the schools that needed our services the most, were the least likely to partake in the project. Despite the probable bias in this sample, 16% of the kids surveyed still scored above the threshold for a potential eating disorder diagnosis using the Eating Attitudes Test (i.e., a score >20 when using the scoring method for clinical populations as footnoted in Chapter three). Although these rates are substantially lower than rates reported in some of the large epidemiological research, considering that a clinical screening device was used as opposed to the one or two questions (as discussed in Chapter 5 for Croll et al.) posed regarding weight loss techniques, 16% is nonetheless alarming.

Another shortcoming related to sampling occurred during the actual completion of the surveys. While it was my intent to have the students answer the questionnaires in a similar context across the school populations, some groups were not able to conform to the standard procedure. All surveys were completed during the school day, however some were done in small quiet classrooms where there was no discussions amongst the students, while others were filled out in a large assembly format where discussions could not be controlled. The latter situation caused many of the surveys to be returned incomplete and thus had to be discarded.

In terms of substance, the major shortcoming is that there was no well-established perfectionism scale with good validity and reliability statistics associated with it included within the survey packet. Although achievement in multiple roles and perfectionism are not identical constructs, their similarities warrant future comparisons for validity purposes. The role concerns questions, which were limited due to the restricted range, were the only source for establishing validity for the Superwoman Scale. Given the complexity of this construct, it is important to validate it against both adaptive and maladaptive perfectionism scales as well as some of the classic gender role scales such as Bem's Sex Role Inventory (SRI, 1974) or Spence and Helmreich's Personality Attributes Questionnaire (PAQ, 1978). The items on the Superwoman Scale are also clearly lacking the ability to detect role conflict or an evident developmental dilemma with respect to gender roles in the respondents. More thought must be given to capturing the essence of the crisis being experienced by teens adhering to the Superwoman ideal.

Establishing validity and reliability statistics for the School Gender Socialization Scale is another area warranting improvement. Presently, the internal consistencies for the nontraditional, traditional, and gender prejudice subscales are below recommended levels (.53, .64, and .68 respectively) calling into question the actual construct being measured with the items grouped in such a way. Performing a confirmatory factor analysis on the SGSS items with a program such as LISREL will aid us in knowing whether or not the items are in fact clustered as they should be. Relating individuals' perceptions of their school's gendered social climate to scores on one of the gender role measures like the SRI or PAQ would also be informative. It would provide an indication of how much the individuals' SGSS subscale scores are reflections of the individuals

completing the scale as opposed to the actual social climate of which she is a part. For instance, perhaps the only kids perceiving their peers as assertive (like the questions on the nontraditional subscale) are the kids who in fact indicate that they themselves are assertive.

Another problem with the survey packet used for the present dissertation was simply the way in which the questions for all of the surveys were laid out on the page. The EAT in particular caused problems (see Appendix B. p. 198). Initially the items were written this way because I anticipated purchasing software that would automatically read my data, and this was the format in which the data needed to be in order to use the software. However, I manually entered the data, and noticed that because the circles were not easy to line up with the questions, participants often skipped rows. This format contributed to many surveys having to be inferred with item averages in order to be complete.

In sum, given the time constraints and limited resources for carrying out this project, there were of course a multitude of shortcomings. Considering the paucity of research on school environments and eating disorders, this project makes an important contribution nevertheless. In addition, the relationships between the variables measured for the present research were enormously complex, thus only a slice of the story could be told in this dissertation. The work done here provides very little in terms of answers or conclusions; however more informed questions mark progress in any field of inquiry. To be sure, separate articles with much greater detail will be written based on the data collected for this project—particularly regarding the issues that received cursory treatment here.

Concluding Remarks

In light of the present findings, where do we stand with respect to the question of single sex versus coeducational school environments and the development of disordered eating attitudes? As stated in the beginning, the goal here was not to determine which environment is superior but rather what kinds of processes are occurring within the different contexts. Considering the whole picture (i.e., dating, appearance, academics, gender prejudice, traditional and nontraditional gender socialization) conflicting gender role prescriptions are not more prevalent in single sex environments as was suggested in the literature review. Schools that are rated as high in every one of the areas however are likely to incur greater problems with disordered eating among the students.

Since coeducational schools are more likely to be rated as environments replete with appearance consciousness, body comparisons, and a strong focus on heterosexual relationships—all school-level risk factors for eating problems, we can argue that single sex environments would be better for a vulnerable adolescent. However, girls attending single sex schools tend to be on average more concerned with maintaining a feminine appearance through their behaviors (i.e., *hyper-femininity* variable). There is also a marginal tendency for girls in the single sex schools to be more dissatisfied with their bodies. Both of which are undeniable individual-level risk factors for eating problems. Thus as concluded in the 2001 Tiggemann study on single sex versus coeducational environments, eating problems are bound to exist in both contexts, the mechanisms through which they are expressed however are likely to be different. Testing for cross-level interaction effects within the context of a multilevel model will help ascertain these processes. Future research will involve modeling the schools' individual slope

coefficients for each of the Level 1 predictors of disordered eating. The results reported here suggests that a school's gender composition is likely to play an important role in determining exactly how and the extent to which the individual risk factors are related to eating problems in the different school contexts.

Overall, using the theoretical framework proposed by Urie Bronfennbrenner—the bioecological model, this dissertation illuminates how dominant values of larger social structures in our culture get expressed within schools and in turn influence the expectations and standards by which adolescent women are compelled to live. Although ambiguous and often conflicting gender role prescriptions are representative of ubiquitous social forces in Western culture, smaller systems such as schools operate so that these forces are either wholly reinforced or actively rejected.

The chief implications for the present research are with respect to primary prevention efforts of eating disorders. Although a good portion of an individual's likelihood to develop an eating disorder exists within psychological factors and issues surrounding the family environment, the mere accessibility of kids within the context of their schools, provides a window of opportunity for primary prevention. In addition, given the growing evidence of the importance of peer influences and friendship relations in the development of disordered eating habits (Paxton, 1999), the school offers an ideal locale for instituting social change. Although all current prevention and intervention programs discussed in the literature are school-based, (Paxton, 1999) many are limited due to their didactic structure and focus on presenting information around risk factors (Phelps et al. 1999). The typical content of school-based programs involve information regarding the negative consequences of weight control techniques such as fasting and yo-

yo dieting, increased critical awareness of social and media pressures to achieve thinness, the adoption of healthy eating patterns, etc (Smolak et al., 1998; Paxton, 1993).

Prevention efforts in the eating disorders is not the only area where gains with respect to factual information regarding risks have not been effective in reducing future intentions to engage in the risky behavior. Research on prevention models for unprotected sex, drug use, drinking and driving, etc. have shown little benefits from providing people with knowledge and understanding of the risks involved in these behaviors (e.g., Dielman, 1994; Gerstein & Green, 1993). Overall, past research on prevention efforts for eating disorders have not been promising (Killen et al., 1993), and even more discouraging is that several programs have been shown to induce more harm than good (Mann et al., 1997; Carter et al., 1997). Primary prevention of eating disorders is also a delicate matter because of possible iatronic effects resulting from the program. In other words, we must use extreme care to be sure that focusing on the problem in hopes to dispel it does not act to create it altogether or exacerbate a previously only minor issue. Several experts have written on the dangers of this with respect to eating problems (Garner, 1985; Russell & Beumont, 1995). A disorder such as anorexia nervosa that has been glorified on many levels by the media is especially vulnerable to this problem.

Group polarization effects are another danger to be aware of when carrying out an intervention within the context of a peer group. This occurs when a set of established individual attitudes among a group of people become stronger and more united when discussed as a group and particularly when challenged by an outsider who is offering an alternative perspective. Research indicates that group polarization is very likely to occur in the context of small-group interactions (Eagly & Chaiken, 1993). If you are dealing

with a peer group that is especially committed to support for the socio-cultural ideal for thinness, be sure to enter the situation only with sufficient preparation for dealing with the matter if dissention begins to surface.

One of the compensatory presentations given to a coeducational health class of approximately 12 students for participation in the present research had the misfortune of a kind of negative group polarization effect. The males in the group dominated the interactions with convictions around why valuing thinness is important and entirely appropriate (e.g., ease of physical activity and maneuverability). Sadly, they were not referring to a “healthy thinness” with natural female curves, but rather referred specifically to pictures of prepubescent looking models that were shown as part of a presentation of the twisted ideals for female bodies fed to us by the media. It was a very disillusioning lesson for me, particularly since I entered the class with the hopes to capitalize on the healthier depictions ideal female bodies evidenced by the males I had encountered in prior schools. Instead of positive male reactions to the ultra-thin models shown in the slides, I had optimistically envisioned an outright rejection of the media’s exaggerated depiction of the feminine beauty ideal from the male. This error in judgment was not only difficult to deal with on a personal level, but it underscores the importance of collecting and carefully reviewing data from a school *prior* to the implementation of a program. Although this was the intended methodology for this project, the demands of this particular school were very problematic with respect to the coordination of the surveys and presentations. Needless to say, this particular presentation has not been repeated with other groups.

Unfortunately these realities pose immense challenges with respect to prevention efforts against eating disorders. Thus, it is of utmost importance that all individuals involved in carrying out a primary prevention program are highly informed about the difficulties of working with adolescents on issues surrounding body image, eating, and weight control. Aside from the prejudices among the kids themselves, sometimes it is very difficult for facilitators to separate their own “fat-phobic” attitudes, which very subtly can act to reinforce unhealthy social mores about ideal body size for females.

Leaders in the field have recognized the near impossibility of creating a safe space for eating disorder intervention that does not on some level collude with oppressive social structures (Piran, 1999). With this obstacle in mind, Niva Piran is in the early stages of designing and testing a feminist approach to the prevention of eating disorders that involves a participatory framework. Her work in this area was initially tested through an intensive and long-term program at a residential school for ballet in Toronto. Piran’s experiences with implementing the health-promoting school model developed by the World Health Organization (European Network of Health Promoting School, 1993, cited in Piran, 1999) have provided her with a greater understanding of and appreciation for the deeply rooted preoccupation with body weight and shape existing in young dancers. By meeting the challenge of effecting change in a social system such as an elite school for ballet, whose very definition involves an unrealistically thin body Piran has developed many needed tools to recreate such a program in other school contexts.

There are several principles by which a feminist participatory approach for eating disorder prevention should operate. It is my goal to integrate the findings of the present dissertation research with Piran’s principles for school-based primary prevention

programs (1999). Her model overall, purports to effect systemic change as opposed to individual change. Underlying this principal is of course the need to involve the entire school community including administration, teachers, and even staff such as cafeteria workers and janitors in addition to the students themselves. Educating teachers and staff about set-point theory, signs of eating problems in students, how to handle a potential problem if one arises, and being especially aware of their own comments around appearance and weight issues adds an important dimension to this successful model. It is suggested that prior to discussions and/or interventions with the students, the facilitators of the program must establish a good working rapport with those holding power with regard to policy making at the school. Without their cooperation, any efforts exercised by the girls could likely result in an increased sense of helplessness around effecting change in surrounding social structures.

The number one principle involves creating a safe milieu in which a process of dialogue can occur among the students and the facilitator. This will involve establishing the goals of the program *with* the students as opposed to *for* the students. From intensive small-group discussions with the dancers around bodily functions (of which most dancers are ashamed), and appearance expectations a sense of power and voice emerged from the group. Their acknowledgement of these "lived experiences" allowed them to assign meaning to their behaviors, and consequentially a multitude of issues evolved from their discussions including sexual harassment, violence, racism, etc. In traditional prevention programs emphasizing eating patterns and socio-cultural pressures for thinness, these very relevant topics (i.e., harassment, racism), which are clearly important to the young women, are typically not able to emerge.

The final principle to be discussed in the feminist approach to a participatory prevention model for eating disorders is of tremendous relevance to the tenets underlying adherence to the Superwoman ideal. It involves the notion that “change occurs within a matrix of relationships” (Piran, 1999, p. 153). It was quite evident to Piran during her work with the school that it would be highly productive to utilize the strong value the young women placed on their interrelationships and sense of connectedness with their peers. This need to acknowledge the importance of social connection is at the very heart of the crisis felt by the adolescent adhering to the Superwoman ideal. The Superwoman exaggerates her autonomy and tries to deny her need for intimate relations with others. The ways of the Wise Woman are fostered in a participatory program emphasizing repairing and strengthening interpersonal relations. The students discussed issues of competition between themselves particularly with respect to body size, and through the guidance of the facilitator, over time they were able to identify the toxicity of social comparisons. United together the girls communicated an empowered outlook that would not stand for the unrealistic expectations placed upon their female bodies. In this context, the occurrence of group polarization aids the situation because the attitudes cultivated were positive and healthy. As proposed in the social contagion literature (Levy and Nail, 1993), dominant attitudes will take precedence especially when the status of the initiator—in this case the facilitator of the program, is highly respected and trusted.

In sum, the regularly occurring formal interactions with small groups of students at the school created new knowledge through a dialogue, as opposed to didactic instruction. The knowledge discovered through an analysis of lived experiences for the young women transformed into power that was exercised toward creating new and

healthier norms in their community. The principals behind the program Piran is proposing are especially amenable to residential school communities. It so happens that both of the boarding schools participating in the research for this dissertation have not yet received their compensatory eating disorders prevention program. It is my hope to use the guidelines set forth by Piran to develop a feminist participatory model of prevention in these school environments. Given the residential status of the majority of the students, there is opportunity to intervene within the dormitory setting creating a safe milieu where a dialogue can begin with respect to relevant issues in their community.

Probably the most difficult aspect of implementing programs of this kind is being able to allow the program to evolve within its own environment. While the program must be informed about risk and protective factors as well as be operating within a specific framework, it should be relatively unstructured. In essence, the participants must be the leaders under the guidance of the facilitators.

Given the unlikely reality of being able to implement such a model in an environment with large enrollments such as a university setting or even a traditional high school, similar methods that target a group of peer leaders may be substituted. At West Chester University for example, Bonifazi has developed a prevention program where peer leaders from each sorority are chosen and educated about how to create an anti-dieting social milieu among their sisters (2002). Bonifazi's model also appreciates the importance of interpersonal relationships among the sisters and works to foster healthy attitudes in leaders who will initiate positive change in their peers. Research findings such as Crandall's (1988) where there was a definite social contagion among sorority women with respect to *unhealthy* eating habits can be applied to achieve a social

contagion effect with respect to *healthy* attitudes around food and body issues.

Anecdotal reports from the trained peer mentors in Bonifazi's program suggest that there have been positive changes, particularly among the peer mentors themselves (personal communication). As more data are collected throughout the intervention program, Bonifazi is hoping to demonstrate a positive social contagion effect whereby the trained peer mentors in the sororities promote healthier eating attitudes among their sisters. In light of the results from the present study suggesting that peer norms with respect to assertiveness (i.e., the nontraditional subscale of the SGSS) are protective against eating problems, perhaps there is even an element of positive social contagion operating here.

Although eating disorders represent the third most common chronic illness among women (Croll et al., 2002), they are horribly misunderstood by the general population. Despite the diagnostic criteria and the symptomatology revolving around food and body image, these issues are merely the smokescreen for a deeper problem or set of problems that are too ambiguous and painful for the individual to confront. Often an eating disorder evolves out of a personal crisis experienced during a transitory period in the life of an adolescent, such as changing schools or moving away from home to begin college. Unfortunately weight regulation and having an obsession with one's body is a culturally acceptable outlet for the distressed adolescent. While her inner world remains in turmoil, her outer appearance is gaining compliments and respect from peers, parents, teachers, and even doctors. She has discovered the perfect solution to her crisis. In fact she is so engaged in continuing her path towards the attainment of a "perfect body", she hardly thinks about the initial problems that precipitated her deadly quest for "personal improvement". Because eating disordered behaviors are normative among women and

an ultra-thin body so venerated (Rodin et al., 1988), it is only when she is so overly engrossed in her pursuit of thinness that others begin to notice her absence from social functions and her now diminishing appearance. It is often too late at this stage to reverse the six months or more of positive reinforcement the individual was given for getting to where she is—an eating disorder has already formed. Primary prevention in school contexts can work to inhibit positive reinforcement for weight loss. An anti-dieting school milieu where there is a general disapproval for the cult of thinness is a goal within reach if we commit to dedicating enough resources to the cause. My hope is that “weightism” will eventually reach the status of racism. The law does not tolerate prejudicial treatment based on one’s skin color, nor should we tolerate it based on one’s size.

Appendix A

Single Sex Schools contacted for participation in study:

1. Academy – Notre Dame De Namur (6-12), 560 Sproul Rd., Villanova, PA 19085, (610)687-0650.
2. Agnes Irwin School (K-12), Ithan Ave, Conestoga Rd., Box 407, Rosemont, PA 19010, (610)525-8400.
3. The Baldwin School (PK-12), 701 Montgomery Ave., Bryn Mawr, PA 19010, (610)525-2700.
4. The Country Day School (Sacred Heart) (PK-12), 480 Bryn Mawr Ave., Bryn Mawr, PA 19010, (610)525-3915.
5. Mount Saint Joseph Academy (9-12), 120 W. Wissahickon Ave., Flourtown, PA 19031, (215)233-3177.
6. The Springside School (PK-12), 8000 Cherokee St., Philadelphia, PA 19118, (215)247-7117.
7. The Brearly School (K-12), 610 East 83rd St., NY, NY 10028, (212)570-8511.
8. The Chapin School (K-12), 100 East End Ave., NY, NY 10023, (212)744-2335.
9. Convent of the Sacred Heart (PK-12), 1 East 91st St., NY, NY 10128, (212)722-4745.
10. The Hewitt School (K-12), 44 East 75th St., NY, NY 10021, (212)288-1919.
11. The Marymount School (PK-12), 1026 5th Ave., NY, NY 10028, (212)744-4486.
12. The Nightingale Bamford School (K-12) 20 East 92nd St., NY, NY 10128, (212)933-6517.
13. The Spence School (K-12), 22 East 91st St., NY, NY 10128, (212)249-5940.
14. The Stuart Country Day School (PK-12), 1200 Stuart Rd., Princeton, NJ 08450, (609)921-2330.
15. Kent Place School (PK-12), 42 Norwood Ave., Summit, NJ 070902, (908)273-0900.
16. Mount St. Mary Academy (9-12), 1645 Rt. 22 at Terrill Rd., Watchung, NJ 07060, (908)757-0108.

Appendix A continued.....

17. Oak Knoll School of the Holy Child (K-6 Coed) (7-12 Girls), 44 Blackburn Rd, Summit, NJ 07901, (908)522-8133.
18. Purnell School (9-12) Day/Boarding, Pottersville Rd. Pottersville, NJ 07979, (908)439-2154.
19. Villa Walsh Academy (7-12), 455 Western Ave. Morristown, NJ 07960, (973)538-3680.
20. Mount St. Dominic Academy (9-12) 3 Ryerson Avenue, Caldwell, NJ 07006, (973)226-0660.
21. Academy of the Holy Angels (9-12) 315 Hillside Ave. Demarest, NJ 07627, (201)768-7822.
22. Emma Willard School (K-12) 285 Pawling Avenue, Troy, NY 12180, (518)833-1505.
23. Fontbonne Hall Academy, 9901 Shore Rd. Bay Ridge, Brooklyn 11209, (718)748-2244.
24. Villa Victoria Academy (PK-12) (PK-8 Coed), 376 West Upper Ferry Road, Ewing, NJ 08628, (609)882-1700.

Coeducational Schools contacted for participation in study:

25. Episcopal Academy (PK-12) 376 North Latches Lane, Merion, PA 19066, (610)667-9612.
26. The Shipley School (PK-12) 814 Yarrow St., Bryn Mawr, PA 19010, (610)525-4300.
27. The Woodlynde School (K-12) 445 Upper Gulph Rd., Strafford, PA 19087, (610)687-9660.
28. Moravian Academy (PK-12) 4313 Green Pond Rd., Bethlehem, PA 18020, (610)866-1171.
29. Germantown Academy (PK-12) Morris Rd., P.O. Box 287, Ft Washington, PA 19034, (215)646-3300.
30. Packer Collegiate Institute, 170 Joralemon St., Brooklyn, NY 11201, (718)875-6644.

Appendix A continued.....

31. The Calhoun School, 433 West End Ave., NY, NY 10024, (212)877-1700.
32. Ethical Culture Fieldston School, Fieldston Rd., Bronx, NY 10471, (718)329-7300.
33. The Dalton School, 108 East 89th St., NY, NY 10128, (212)423-5200.
34. Columbia Grammar-Prep School, 5 West 93rd St., NY, NY 10025, (212)749-6200.
35. The Horace Mann School, 231 West 246th St., Riverdale, NY 10471, (718)432-3418.
36. Loyola School, 980 Park Ave., NY, NY 10028, (212)288-3522.
37. Riverdale Country School, 5250 Fieldston Rd., Bronx, NY 10471, (718)549-8810.
38. The Trevor Day School, 11 East 89th St., NY, NY 10128, (212)535-2130.
39. The Dwight School (K-12) 291 Central Park West, NY, NY 10024, (18 W. 89th)
(212)724-2146 or 6360.
40. Birch Wathen Lenox School (K-12), 210 East 77th St, NY, NY 10021,
(212)861-0404.
41. Morristown-Beard School (6-12), 70 Whippany Rd, Morristown, NJ 07960,
(973)539-3032.
42. The Hill School (9-12) Boarding/Day, 717 East High St., Pottstown, PA 19464,
(610)326-1000.
43. Perkiomen School (5-12) Boarding/Day, Seminary Ave. Box 130, Pennsburg, PA
18073, (215)679-9511.
44. Berkeley Carroll School (PK-12) 181 Lincoln Place, Brooklyn, NY 11217,
(718)789-6060.
45. Polytechnic Preparatory Country Day School (PK-12) 9216 7th Ave. Brooklyn, NY
11228, (718)836-9800.
46. Trinity (K-12) 139 W. 91st St, NY, NY 10024, (212)873-1650.
47. Princeton Day School (PK-12) Box 75, The Great Road, Princeton, NJ 08540,
(609)924-6700 (fax # 924-8944).

Appendix B *(Original was on H.E.E.D. Letterhead)*

2002 Independent School Prevention Project **In honor of** **Eating Disorders Awareness Week (Feb. 24th, 2002 – Mar. 3rd, 2002)**

Description of the Project:

The H.E.E.D Foundation's eating disorder school prevention program involves two components. Phase I consists of several classes within the upper school completing an anonymous questionnaire packet which screens for "high-risk" individuals by assessing their perceptions of the social climate of the school, their personal eating patterns and self-expectations, gender role concerns, and body image. The questionnaire takes approximately 20 to 30 minutes to complete and was designed for students in grade 9 or above. Since many schools require that all students partake in health and physical education classes, and the topic is of relevance to these curricula, in the past we have successfully given the questionnaires within the context of either of these classes. Other schools that have periodic universal free periods for an entire grade level have chosen to distribute the questionnaire during this time frame instead. In order to ensure the effectiveness of the questionnaires, we do need a relatively representative sampling of the students at your school. While a limited sample of students (such as the full 10th or 11th grade class) will suffice for participation in Phase I, we would be happy to arrange for the entire upper school to complete the questionnaire.

Phase II involves reviewing the completed questionnaires from your specific school (all schools are guaranteed 100% anonymity). Based on the trends found in your students' responses, Dr. Ira Sacker, Founder and Executive Director of the HEED Foundation, or one of his trained professionals in the field of eating disorders, will give a presentation to a group of your choice on prevention and intervention strategies. This lecture/group discussion may be in the form of a large assembly program or several smaller class-based discussions. It may be given to students, teachers, or parents. Although Phase I must be done with upper school students because of the questionnaires, the lecture may be arranged with middle school students if you prefer. H.E.E.D. is willing to accommodate the particular needs of your student body. If the lecture cannot be scheduled for the present academic year (some schools have already booked their remaining assembly programs), we can easily arrange the presentation for next year. We would prefer however, to have the questionnaire component of the project take place during the current academic year.

If you have any additional questions or need further information, please feel free to contact **Janell Mensinger, Principal Investigator of the Independent School Prevention Project** at (610) 965-9553 or janellmensing@att.net.

Appendix B continued...*Original was on H.E.E.D. Letterhead*

2002 Independent School Prevention Project
In honor of
Eating Disorders Awareness Week (Feb. 24th –March 3rd, 2002)

Official Agreement of Confidentiality and Anonymity

On behalf of Dr. Ira Sacker, Founder and Executive Director of H.E.E.D., I hereby assure that [school's name] participation in the H.E.E.D Foundation's Independent School Prevention Project will remain confidential to only the necessary individuals who are directly involved in the administration and advisement of this project. The H.E.E.D. Foundation hence guarantees with this written official document that there will be no risk to the participating institutions of receiving any kind of public attention or media coverage related to participation in or the information gathered during this project.

As Senior Researcher at the H.E.E.D. Foundation and Principal Investigator of this project, I will be the sole individual to have access to the completed questionnaires and the data file on which the contents of the questionnaires are stored. Unless otherwise specified, no one outside of myself, and the appropriate school officials, will be privy to the results of an individual school's surveys.

Further, in any written reports of the project, anonymity will be maintained by referring to the sample as a group of all female and coeducational independent schools from a metropolitan area within the United States.

Sincerely,

Janell Mensinger,
 Sr. Researcher H.E.E.D.
 Doctoral Candidate, The Graduate Center, CUNY

Cc: Dr. Ira Sacker

Appendix B continued...*Original was on H.E.E.D. Letterhead*

H.E.E.D. – Helping to End Eating Disorders

There are more than thirteen million people afflicted with eating disorders in the United States today. Anorexia, bulimia, and binge eating disorders have become widespread epidemics. If left undetected, eating disorders can cause permanent, debilitating damage to both the physical and mental health of those suffering. Eating disorders can lead to death.

H.E.E.D. (Helping to End Eating Disorders), a not for profit organization, began in 1996. H.E.E.D.'s mission is to provide awareness and prevention of eating disorders, as well as to treat those who are already affected. Dr. Sacker, H.E.E.D.'s founder and executive director, has been an acknowledged expert in the field of eating disorders for over twenty-five years.

Under Dr. Sacker's supervision, H.E.E.D. provides individual, family, group, and nutritional counseling. H.E.E.D. gears each patient's treatment towards their individual needs and goals. Experienced therapists and nutritionists work closely together to provide a nurturing and safe environment for their patients and families.

The ultimate goal of the H.E.E.D. organization is the establishment of The H.E.E.D. House, a loving and caring group home for women struggling with eating disorders. This facility will serve as the transitional space for those patients who are discharged from the strict confines of a hospital setting, but who need more intensive care than an outpatient program can provide. The H.E.E.D. House will provide a comprehensive spectrum of treatment services essential for overall recovery. It will prevent the vicious cycle of relapse through unconditional support and professional guidance in a family setting. It is estimated that four million dollars is needed to achieve this goal. As of yet, there is no such facility in the tri-state area, and the need for The H.E.E.D. House is vital in saving the lives of those who suffer from eating disorders.

P.O. Box 635, Jericho, NY 11753 • Telephone 516-822-0324 • 718-240-64518 • Fax 516-935-7952
Webpage www.heedfoundation.org

Survey distributed to all participants
(spacing and font size modifications have been applied where necessary)

1. Are you? ☐ male 2. How old are you? _____
 ☐ female 3. What grade are you presently in? _____
4. In what grade did you begin attending your current school? _____
5. Are you a boarder or a day student? _____
6. Unless you have attended your current school since Kindergarten, what kind of school did you attend prior to this one?
- ☐ Public Coeducational
☐ Private Coeducational
☐ Private Single Sex
7. What is your current GPA (Grade Point Average)? _____
- ☐ 3.5 – 4.00 (approximately equivalent to an A)
☐ 3.0 – 3.49 (approximately equivalent to a B)
☐ 2.5 – 2.99 (approximately equivalent to a C)
☐ 2.0 – 2.49 (approximately equivalent to a D)
☐ 1.5 – 1.99 (approximately equivalent to an F)
8. What is your race? (please mark one): 9. What is your religion? _____
☐ Latina/o (if you have one)
☐ African American/Caribbean American
☐ Caucasian/ European American (White)
☐ Asian/South Pacific
☐ Native American
☐ Other (please specify) _____
10. With whom do you live?
- ☐ both parents in same household
☐ both parents but in separate households
☐ stepmother and natural father
☐ stepfather and natural mother
☐ mother only
☐ father only
☐ relative, please specify _____
☐ other, please specify _____
11. Are your parents?
- ☐ married
☐ divorced
☐ separated
☐ other, _____
12. Please specify the occupations of your parents or guardians:
- Father/Guardian _____ Mother/Guardian _____
13. Please indicate their highest level of education:
- Father/Guardian: Mother/Guardian:
- ☐ did not finish high school ☐ did not finish high school
☐ high school diploma ☐ high school diploma
☐ some college or technical school ☐ some college or technical school
☐ Bachelor's Degree ☐ Bachelor's Degree
☐ Graduate or Professional Degree ☐ Graduate or Professional Degree
14. Do you participate in any extracurricular activities? ☐ yes ☐ no
If you do, please list them _____

Appendix B continued.....

1	2	3	4	5	6
strongly disagree		disagree	agree		strongly agree

Consider each statement with respect to the opinions of the girls at your school

Please indicate how much you agree with the following statements by neatly shading the appropriate circle.	1	2	3	4	5	6
1. Girls at this school tend to check on whether their behavior is acceptable to others.	☐	☐	☐	☐	☐	☐
2. Going out with guys is a recurring topic of conversation among girls around here.	☐	☐	☐	☐	☐	☐
3. In our classes at this school discussions among girls frequently turn into verbal debates.	☐	☐	☐	☐	☐	☐
4. Most girls here hardly ever spend time studying.	☐	☐	☐	☐	☐	☐
5. There is a lot of pressure for girls in this school to be thin.	☐	☐	☐	☐	☐	☐
6. Teachers here would/do have less rigorous expectations of girls than they would/do have of boys.	☐	☐	☐	☐	☐	☐
7. Most girls here probably spend time preparing to look their best for weekend nights out (especially if there is potential to meet guys).	☐	☐	☐	☐	☐	☐
8. Girls at this school are discouraged from showing their feelings or being too emotional.	☐	☐	☐	☐	☐	☐
9. Girls here pretty much act and think freely without too much regard for the opinion of others.	☐	☐	☐	☐	☐	☐
10. Girls here are taught to have compassion when a peer is upset.	☐	☐	☐	☐	☐	☐
11. Being popular with guys is important to girls at this school. (outside of school if your school is all girls)	☐	☐	☐	☐	☐	☐
12. Studies generally come first at this school.	☐	☐	☐	☐	☐	☐
13. Girls at this school compare their bodies to one another.	☐	☐	☐	☐	☐	☐

Appendix B continued.....

	1	2	3	4	5	6
14. It is likely that teachers here believe that girls are overall less intelligent than boys are.	0	0	0	0	0	0
15. It is very important to our administration that girls here behave as polite young ladies, especially when representing this school in public.	0	0	0	0	0	0
16. Most girls at this school consider getting married someday as very important.	0	0	0	0	0	0
17. At this school, girls are taught that competitiveness is a positive thing.	0	0	0	0	0	0
18. Most girls here work hard to get top grades.	0	0	0	0	0	0
19. Girls often get teased (to their face or behind their back) for their appearance at this school.	0	0	0	0	0	0
20. In general, advisors and guidance counselors here tend to discourage girls from taking certain classes (like advanced math or physics).	0	0	0	0	0	0
21. The girls here have been taught to have manners.	0	0	0	0	0	0
22. Few girls at this school hang out with guys on a regular basis.	0	0	0	0	0	0
23. Most girls here try very hard to win arguments.	0	0	0	0	0	0
24. Girls here consider acceptance into prestigious colleges and universities as very important.	0	0	0	0	0	0
25. Boys here tend to speak more in class. (Please skip if you attend a single sex school)	0	0	0	0	0	0
26. Girls at this school worry about the kind of clothes they wear.	0	0	0	0	0	0
27. Girls here are generally encouraged to take risks.	0	0	0	0	0	0
28. Girls here often behave in ways that will gain the approval of their peers.	0	0	0	0	0	0
29. Girls and boys are treated differently in this school. (Please skip if you attend a single sex school)	0	0	0	0	0	0
30. Most girls here are quick to defend their beliefs.	0	0	0	0	0	0
31. Girls here have few opportunities for leadership.	0	0	0	0	0	0

Appendix B continued.....

	1	2	3	4	5	6
32. Being overweight would be difficult for a girl at this school.	0	0	0	0	0	0
33. Girls and boys are disciplined differently in this school. (Please skip if you attend a single sex school)	0	0	0	0	0	0
34. Girls at this school tend to conform to the way others do things here (meaning they go along with the crowd).	0	0	0	0	0	0
35. At this school, it is important to the girls to be friendly with and go out with guys.	0	0	0	0	0	0
36. Teachers here show a lot of respect for the intellectual abilities of the girls at this school.	0	0	0	0	0	0
37. Girls here have been taught to be self-sufficient.	0	0	0	0	0	0
38. At this school studies do <i>not</i> interfere much with our social lives.	0	0	0	0	0	0
39. Girls at this school are pretty self-conscious about their appearance.	0	0	0	0	0	0
40. Girls here are discouraged from using harsh language.	0	0	0	0	0	0
41. Girls here tend to be very ambitious and goal oriented.	0	0	0	0	0	0
42. Girls here are taught to be sensitive to the needs of others.	0	0	0	0	0	0
43. Most girls at this school would consider themselves intelligent.	0	0	0	0	0	0
44. Many girls here seem to like hanging out with guys more than hanging out with other girls.	0	0	0	0	0	0
45. Most girls here probably begin their homework soon after they get home from school.	0	0	0	0	0	0
46. Looking good is important to girls at this school.	0	0	0	0	0	0
47. Getting the highest grades is respected among girls at this school.	0	0	0	0	0	0
48. This school makes a special effort to be sure that girls and boys are <i>not</i> treated differently. (Please skip if you attend a single sex school)	0	0	0	0	0	0

Appendix B continued...

Please indicate how you feel about the following statements by shading in the circle that corresponds to what you believe to be most true. Boys may begin with #5.

1. If you had a choice, you would ☐ definitely choose to be a girl ☐ probably choose to be a girl ☐ not sure ☐ probably choose to be a boy ☐ definitely choose to be a boy	2. Other people see me as feminine. ☐ strongly agree ☐ agree ☐ disagree ☐ strongly disagree
3. How important is it to you that you do things doing that make you appear feminine? ☐ extremely important ☐ very important ☐ important ☐ not very important ☐ not at all important	4. How important is it to you that you avoid things that make you appear masculine? ☐ extremely important ☐ very important ☐ important ☐ not very important ☐ not at all important
5. Who is better at working with babies and children, girls or boys? ☐ Girls are a lot better ☐ Girls a little better ☐ Girls and boys are equally as good ☐ Boys are a little better ☐ Boys are a lot better	6. Who is working with babies and young children more important for, girls or boys? ☐ A lot more important for girls ☐ A little more important for girls ☐ Equally important for boys and girls ☐ A little more important for boys ☐ A lot more important for boys
7. Who is better at sports, girls or boys? ☐ Girls are a lot better ☐ Girls a little better ☐ Girls and boys are equally as good ☐ Boys are a little better ☐ Boys are a lot better	8. Who are sports more important for, girls or boys? ☐ A lot more important for girls ☐ A little more important for girls ☐ Equally important for boys and girls ☐ A little more important for boys ☐ A lot more important for boys
9. In general, who is better at math and science, girls or boys ☐ Girls are a lot better ☐ Girls a little better ☐ Girls and boys are equally as good ☐ Boys are a little better ☐ Boys are a lot better	10. In general, who are math and science classes more important for, girls or boys? ☐ A lot more important for girls ☐ A little more important for girls ☐ Equally important for boys and girls ☐ A little more important for boys ☐ A lot more important for boys
11. It is usually better for everyone involved if the man is the "breadwinner" outside of the home and the woman takes care of the home and family.	strongly disagree disagree agree strongly agree ☐ ☐ ☐ ☐
12. Babies and young children are likely to suffer if the mother works outside the home.	☐ ☐ ☐ ☐
13. A working mother can establish just as warm and secure a relationship with her children as a mother who does not work.	☐ ☐ ☐ ☐
14. Women who aren't willing to take some time off from their careers probably shouldn't have children.	☐ ☐ ☐ ☐

Appendix B continued.....

1	2	3	4	5	6
strongly disagree		disagree	agree		strongly agree

Please read the following statements and use the scale above to indicate how much you either agree or disagree with it. If you *agree* with the statement, then you believe that it *is true* about yourself and you would circle the number 4,5, or 6, depending on *how much* you agree with it. If you *disagree* with the statement, then you believe it *is not true* and you would circle the number 3, 2, or 1, depending on *how much* you disagree with it.

PLEASE READ EACH STATEMENT CAREFULLY!	1	2	3	4	5	6
1. It is very important to me that I accomplish everything that I set out to do.	☐	☐	☐	☐	☐	☐
2. I value the strength of the relationship that I have with my parents.	☐	☐	☐	☐	☐	☐
3. I do <i>not</i> like to take on the leadership role when working on a class project.	☐	☐	☐	☐	☐	☐
4. I would love for people to look at my boy/girl friend (significant other) and envy me.	☐	☐	☐	☐	☐	☐
5. I will probably consider a career that automatically commands respect from strangers.	☐	☐	☐	☐	☐	☐
6. When making big decisions I like to be sure that I learn a lot about all of my options.	☐	☐	☐	☐	☐	☐
7. Being popular at school is <i>not</i> important to me.	☐	☐	☐	☐	☐	☐
8. I don't like to leave my house until I look my best.	☐	☐	☐	☐	☐	☐
9. I get very upset with myself if I forget something that I was supposed to do.	☐	☐	☐	☐	☐	☐
10. If you try hard enough, it is definitely possible to reach excellence in every aspect of life.	☐	☐	☐	☐	☐	☐
11. I feel I must socialize on weekends even if I am tired.	☐	☐	☐	☐	☐	☐
12. I do <i>not</i> like participating in sports or working out to keep my body toned.	☐	☐	☐	☐	☐	☐
13. It means a great deal to me to be told that I am great at everything I try.	☐	☐	☐	☐	☐	☐
14. I believe that having the "right" clothes is important.	☐	☐	☐	☐	☐	☐

Appendix B continued.....

	1	2	3	4	5	6
15. In the future, I definitely plan to be a supportive spouse and a superb parent, <i>while</i> still having a very successful professional life.	☐	☐	☐	☐	☐	☐
16. Getting respect from my peers and teachers is very important to my self-esteem.	☐	☐	☐	☐	☐	☐
17. It is important to me that I rise to the top of my class before graduating high school.	☐	☐	☐	☐	☐	☐
18. Being independent and self-reliant is very important to me.	☐	☐	☐	☐	☐	☐
19. My friends always turn to me when they need help with a problem or emotional support.	☐	☐	☐	☐	☐	☐
20. I <i>cannot</i> picture myself in a job where I will have people working under or for me.	☐	☐	☐	☐	☐	☐
21. If I become a parent someday, I would make it my priority to attend all of my child's school functions.	☐	☐	☐	☐	☐	☐
22. I am the kind of student who would volunteer to help the teacher if she or he needs something.	☐	☐	☐	☐	☐	☐
23. I do <i>not</i> believe appearances count for much.	☐	☐	☐	☐	☐	☐
24. It is very important to me to be healthy by adopting good exercise and eating habits.	☐	☐	☐	☐	☐	☐
25. I love exposing myself to new and different activities and experiences.	☐	☐	☐	☐	☐	☐
26. I think it is important for people to spend time making themselves look as attractive as possible.	☐	☐	☐	☐	☐	☐
27. In order to feel fulfilled someday, I would need to "have it all" (that is a strong marriage, a prestigious career, and great kids).	☐	☐	☐	☐	☐	☐

Appendix B continued...

Eating Attitudes Test (EAT-26)

Age _____ Height _____
 Sex _____ Current Weight _____
 Ideal Weight _____ (that is the weight you would most like to be)

Please shade in a circle for each of the following questions.	Never	Rarely	Some-times	Often	Usually	Always
	1	2	3	4	5	6
1. I am terrified about being overweight.	☐	☐	☐	☐	☐	☐
2. I avoid eating when I am hungry.	☐	☐	☐	☐	☐	☐
3. I find myself preoccupied with food.	☐	☐	☐	☐	☐	☐
4. I have gone on eating binges where I feel that I may not be able to stop.	☐	☐	☐	☐	☐	☐
5. I cut my food into small pieces.	☐	☐	☐	☐	☐	☐
6. I am aware of the calorie content of foods that I eat.	☐	☐	☐	☐	☐	☐
7. I particularly avoid food with high carbohydrate content.	☐	☐	☐	☐	☐	☐
8. I feel that others would prefer I eat more.	☐	☐	☐	☐	☐	☐
9. I vomit after I have eaten.	☐	☐	☐	☐	☐	☐
10. I feel extremely guilty after eating.	☐	☐	☐	☐	☐	☐
11. I am preoccupied with a desire to be thinner.	☐	☐	☐	☐	☐	☐
12. I think about burning up calories when I exercise.	☐	☐	☐	☐	☐	☐
13. Other people think I am too thin.	☐	☐	☐	☐	☐	☐
14. I am preoccupied with the thought of having fat on my body.	☐	☐	☐	☐	☐	☐
15. I take longer than others to eat.	☐	☐	☐	☐	☐	☐
16. I avoid food with sugar in them.	☐	☐	☐	☐	☐	☐
17. I eat diet food.	☐	☐	☐	☐	☐	☐
18. I feel that food controls my life.	☐	☐	☐	☐	☐	☐
19. I display self-control around food.	☐	☐	☐	☐	☐	☐
20. I feel that others pressure me to eat.	☐	☐	☐	☐	☐	☐
21. I give too much time and thought to food.	☐	☐	☐	☐	☐	☐
22. I feel uncomfortable after eating sweets.	☐	☐	☐	☐	☐	☐
23. I engage in dieting behavior.	☐	☐	☐	☐	☐	☐
24. I like my stomach to be empty.	☐	☐	☐	☐	☐	☐
25. I enjoy trying new rich foods.	☐	☐	☐	☐	☐	☐
26. I have the impulse to vomit after meals.	☐	☐	☐	☐	☐	☐

David M. Garner et al. (1982)

Please indicate how important it is for you, *personally*, to fulfill the following roles today or in the future.

	Not at all	Somewhat	Moderately	Very	Extremely
1. How important is being intelligent to you?	☐	☐	☐	☐	☐
2. How important is being attractive to you?	☐	☐	☐	☐	☐
3. How important is being independent or self-reliant to you?	☐	☐	☐	☐	☐
4. How important is being thin to you?	☐	☐	☐	☐	☐
5. How important is having a lot of friends to you?	☐	☐	☐	☐	☐
6. How important is being physically fit or athletic to you?	☐	☐	☐	☐	☐
7. How important is obtaining an advanced degree, such as an MD, PhD, or Law Degree to you?	☐	☐	☐	☐	☐
8. How important is having a successful career to you?	☐	☐	☐	☐	☐
9. How important is getting married to you?	☐	☐	☐	☐	☐
10. How important is becoming a parent to you?	☐	☐	☐	☐	☐

If you were asked to rank order the following goals *for your future*, how would you arrange them? Place a 1 on the line to the left of the goal you see as most important to you, a 2 on the second most important, a 3 on the third most, a 4 on the fourth most, and a 5 on the least important.

___ Obtaining an advanced degree (such as a Law degree, Ph.D., or Medical Doctor)

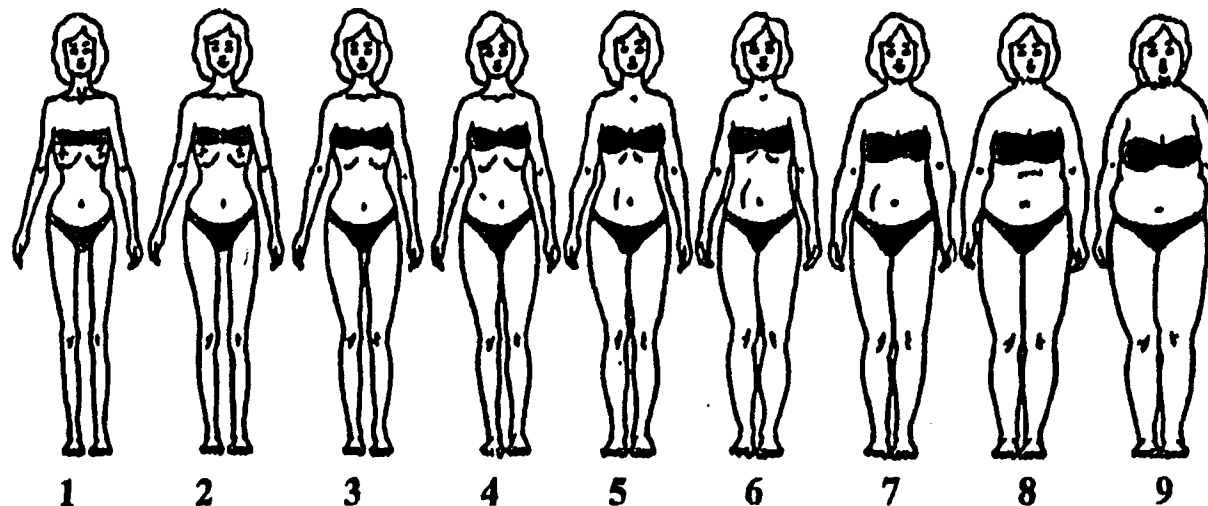
___ Maintaining a youthful and physically fit appearance.

___ Achieving career success

___ Having a strong marriage

___ Being a good parent

****If you have a difficult time prioritizing these goals for your future, indicate which you see as being equally important by placing the same number next to them.**



Appendix B continued...

Please indicate by placing an arrow under the figure that best represents (a) how your body currently looks, (b) how you your body to ideally look, and (c) the figure you consider to be most attractive to others

Please label each arrow with either the word **current**, **ideal**, or **attractive**.

For further clarity, please also indicate the number which corresponds to each of your arrows. You may use fractions or points.

(a) _____ current

(b) _____ ideal

(c) _____ attractive

From "Development and Validation of a New Body Image Assessment Scale,"
by M.A. Thompson and J.J. Gray, 1995,
Journal of Personality Assessment, 64, p. 263.
Copyright 1995 by Lawrence Erlbaum Associates, Inc.

Appendix C

Socioeconomic Status of Sampled Students Attending Participating Schools

SCHOOL ID# (GROUP N)	1 NO HS DIPLOMA	2 HS DIPLOMA	3 SOME COLLEGE	4 BACHELORS DEGREE	5 GRADUATE DEGREE	STD. DEV.	MEAN
1 (n = 44)	0%	9.1%	11.3%	25.0%	54.5%	.85242	4.24
2 (n = 32)	6.3%	0%	22.1%	18.8%	53.2%	.96250	4.09
3 (n = 233)	8.2%	29.6%	36.1%	11.2%	16.7%	1.0502	3.11
4 (n = 30)	0%	3.3%	13.3%	16.7%	66.7%	.81931	4.37
5 (n = 26)	3.8%	11.5%	11.5%	3.8%	69.2%	1.0590	4.19
6 (n = 49)	0%	10.2%	12.3%	12.2%	61.2%	.96036	4.27
7 (n = 52)	3.8%	11.5%	13.5%	13.5%	55.7%	1.1307	4.03
8 (n = 104)	1.0%	5.8%	26.9%	25.0%	41.3%	.86181	4.00
9 (n = 79)	2.6%	16.4%	21.6%	20.3%	38.0%	1.0643	3.79
10 (n = 91)	2.2%	12.1%	30.8%	18.7%	34.1%	.94634	3.80
11 (n = 126)	0.8%	2.4%	17.4%	22.2%	57.1%	.76066	4.27

Racial breakdown of students sampled in each school and % minority on public record

SCHOOL ID# (GROUP N)	White	Black	Asian	Hispanic	Other	Minority on record
#1 (n = 44)	65.9%	9.1%	6.8%	6.8%	11.4%	23%
#2 (n = 32)	81.3%	3.1%	0%	9.4%	6.3%	16%
#3 (n = 233)	85.8%	2.6%	1.7%	5.6%	4.3%	11%
#4 (n = 30)	93.3%	0%	0%	6.7%	0%	17%
#5 (n = 26)	69.2%	15.4%	3.9%	3.9%	7.7%	20%
#6 (n = 49)	63.3%	10.2%	12.2%	4.1%	10.2%	25%
#7 (n = 52)	51.9%	15.4%	9.6%	5.8%	17.3%	38%
#8 (n = 104)	82.7%	2.8%	9.6%	2.8%	1.9%	14%
#9 (n = 79)	65.8%	16.5%	10.1%	6.3%	1.3%	17%
#10 (n = 91)	83.5%	2.2%	3.3%	8.8%	2.2%	21%
#11 (n = 126)	74.6%	7.9%	9.5%	4.0%	4.0%	1%

Appendix D

School Gender Socialization Scale

Untested theoretical factor structure:

Nontraditional Gender Socialization

- 3. In our classes at this school discussions frequently turn into verbal debates.
- 9. Most girls here pretty much act and think freely without too much regard for the opinion of others.
- 17. At this school, girls are taught that competitiveness is a good thing.
- 23. Most girls here try hard to win an argument.
- 27. Girls here are encouraged to take risks.
- 30. Most girls here are quick to defend their beliefs.
- 31. *Girls here have few opportunities for leadership.***
- 37. Girls here have been taught to be self-sufficient.
- 41. Girls here tend to be very ambitious and goal oriented.

Traditional Gender Socialization

- 1. Girls at this school tend to check on whether their behavior is acceptable to others.
- 8. *Girls at this school are discouraged from showing their feelings or being too emotional.*
- 10. Girls here are taught to have compassion when a peer is upset.
- 15. It is important to the administration at this school that girls behave as polite young ladies when seen in public.
- 21. The girls at this school have been taught to have manners.
- 28. Girls here often act in ways that will gain the approval of peers.
- 34. Girls at this school tend to conform to the way others do things here.
- 40. Girls here are discouraged from using harsh language.
- 42. Girls here are taught to be sensitive to the needs of others.

Academic Concerns

- 4. *Most girls here hardly ever spend time studying.*
- 12. In general, at this school studies come first.
- 18. Most girls here work hard to get top grades
- 24. Girls here consider acceptance into prestigious colleges and universities as very important.
- 38. *At this school studies do **not** tend to interfere much with our lives.*
- 43. Most girls at this school are intelligent.
- 45. Most girls begin their homework soon after they get home from school.
- 47. Getting the highest grades is respected among girls at this school.

Appendix D continued.....

Untested theoretical factor structure of SGSS

Female Gender Prejudice

- 6. Teachers here sometimes seem to have less rigorous expectations of girls because of their gender.
- 14. Sometimes it seems that teachers here think that girls are less intelligent than boys are.
- 20. It is common to be discouraged from, or encouraged into, taking certain classes here because of your gender.
- 25. **Boys here tend to speak more in class.**
- 29. **Girls and boys are treated differently in this school.**
- 33. **Girls and boys are disciplined differently in this school.**
- 36. *Teachers here show a lot of respect for the intellectual abilities of the girls at this school.*
- 48. *This school makes a special effort to be sure that girls and boys are not treated differently.*

Appearance Concerns

- 5. There is a lot of pressure in this school to be thin.
- 13. Girls at this school compare their bodies to one another (in a positive *or* negative way).
- 19. Girls often get teased (to their face *or* behind their back) for their appearance at this school.
- 26. Girls at this school worry about the kind of clothes they wear.
- 32. Being overweight would be difficult for a girl at this school.
- 39. Girls at this school are pretty self-conscious about their appearance.
- 46. Looking good is important to girls at this school.

Dating Concerns

- 2. **Going out with guys is a recurring topic of conversation around here.**
- 7. Most girls here probably spend time preparing to look their best for weekend nights out (especially if there is potential to meet guys).
- 11. Being popular with guys is important to girls at this school.
- 16. In order to feel fulfilled, most girls at this school consider getting married someday as very important.
- 22. *Few girls at this school actually hang out with guys.*
- 35. At this school, it is important to the girls to be friendly with and go out with guys.
- 44. Many girls here seem to like hanging out with guys more than hanging out with other girls

** Italicized items must be reverse scored.*

*** Item numbers in bold on Female Gender Prejudice scale are applicable only to coeducational schools.**

Appendix E

Statement to be read to students immediately prior to answering the questionnaires

Single Sex version:

As a participant in an eating disorders prevention project, you are receiving a packet of questionnaires to be completed during this class period. Answer the questions by neatly shading the appropriate circles just as you would on an important exam. All information provided will be completely anonymous.

The first page requests information such as your gender, age, race, grade point average, and parents' occupations. Please answer these questions to the best of your ability, taking care not skip over any questions. There is no second side to this form; however please note, the remaining pages have both a front and a back!

The following three pages involve a survey about the social environment of your school. You will be asked to either disagree or agree, on a scale from 1 to 6, with a series of statements regarding the female students at this school in particular. Please consider each statement with respect to what you feel is true of the girls here at [school name]. Do not spend a considerable amount of time on any one-question, I am interested in knowing your initial reaction to the statements. Please answer every question, even if you are really not sure what to put. There are no wrong answers.

The remaining pages include a series of questionnaires that ask you to indicate how *you personally* feel about a statement. Please read the directions at the beginning of each questionnaire and pay special attention to the wording of the statements and the scale on which you are asked to rate each statement. Here too, I am interested in your *initial feeling* about what you *as an individual* believe; therefore do not spend a considerable amount of time on any one question.

Once again, please be sure not to skip any pages and answer all questions, even if you are not really sure exactly what you believe. Do not worry about what you think your answer could imply; there will be no conclusions drawn from your individual answers. It is very important that you answer the questions with complete honesty. Remember, all surveys will remain anonymous, as will the schools participating in this project.

Appendix E continued...

Statement to be read to students immediately prior to answering the questionnaires

Coed version:

As a participant in an eating disorders prevention project, you are receiving a packet of questionnaires to be completed during this class period. Answer the questions by neatly shading the appropriate circles just as you would on an important exam. All information provided will be completely anonymous.

The first page requests information such as your gender, age, race, grade point average, and parents' occupations. Please answer these questions to the best of your ability, taking care *not skip over any questions*. There is no second side to this form; however please note, the remaining pages have *both a front and a back*!

The following three pages involve a survey about the social environment of your school. You will be asked to either disagree or agree, on a scale from 1 to 6, with a series of statements regarding the female students at this school in particular. Please consider each statement with respect to what you feel is true of the girls here at [school name]. Please understand that answering these questions will not imply that the same thing is not true of the boys here at [school name] as well. Do not spend a considerable amount of time on any one-question, I am interested in knowing your initial reaction to the statements. Please answer every question, even if you are really not sure what to put. There are no wrong answers.

The remaining pages include a series of questionnaires that ask you to indicate how *you personally* feel about a statement. Please read the directions at the beginning of each questionnaire and pay special attention to the wording of the statements and the scale on which you are asked to rate each statement. Here too, I am interested in your *initial feeling* about what you *as an individual* believe; therefore do not spend a considerable amount of time on any one question.

Once again, please be sure not to skip any pages and answer all questions, even if you are not really sure exactly what you believe. Do not worry about what you think your answer could imply; there will be no conclusions drawn from your individual answers. It is very important that you answer the questions with complete honesty. Remember, the identity of all students and all school participating in the project will remain anonymous.

Appendix F

Rotated Component Matrix: School Gender Socialization Scale

	1	2	3	4	5	6
SGSS 39	.736				.188	
SGSS 46	.705			-.103	.269	
SGSS 32	.674		.201			-.131
SGSS 26	.674	.125			.231	
SGSS 13	.627					.108
SGSS 34	.623	-.146			.168	
SGSS 28	.613			.212		.195
SGSS 19	.609	-.129	.132	-.102	.111	
SGSS 5	.596		.263			
SGSS 18		.755		.130		
SGSS 47		.696	-.129			
SGSS 24	.139	.678	-.149		.186	.124
SGSS 41		.647	-.261	.256		.183
SGSS 45	-.190	.546	.144			
SGSS 43		.542	-.181			.210
SGSS 4		-.525	.255		.152	.290
SGSS 12	-.168	.515		.301		-.168
SGSS 17	.232	.310		.124	.105	.185
SGSS 14			.668	-.146		
SGSS 20		-.155	.632			.117
SGSS 31			.591			
SGSS 8	.312		.538		-.127	
SGSS 6			.523	-.121		.159
SGSS 36		.322	-.445	.245	-.164	.198
		.331	-.354	.264	-.103	.296
	-.299		.306	.260	-.266	.247
SGSS 21		.125		.706	.129	
SGSS 15	.181	.104		.583	.275	.159
SGSS 10	-.233	.125	-.327	.531		
SGSS 42	-.116	.292	-.335	.524	-.141	.129
SGSS 40		.141		.510	.108	
SGSS 1	.373	.111		.384		-.159
SGSS 2	.188			.162	.652	
SGSS 35	.518				.529	
SGSS 44	.280			-.102	.523	
SGSS 11	.482				.503	
SGSS 7	.316	-.131		.148	.496	.185
SGSS 16	.151	.184	.175	.235	.439	.138
SGSS 23	.220					.612
SGSS 9	-.277			-.160	.138	.523
SGSS 30		.200	-.321	.116		.495
SGSS 3			.175		.141	.476
SGSS 27		.246	-.288	.124		.390
		-.294		-.134	-.257	.322

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations.

* Highlighted items indicate those out of sequence from final component breakdown used

Appendix G

School Gender Socialization Scale

Factor structure used for all analyses in dissertation

Derived using PCA, Varimax Rotation, 6 factors requested

Rotation converged in 7 iterations (N=857)

Appearance concerns (Alpha = .8534)

- 39. Girls at this school are pretty self-conscious about their appearance.
- 46. Looking good is important to girls at this school.
- 32. Being overweight would be difficult for a girl at this school.
- 26. Girls at this school worry about the kind of clothes they wear.
- 13. Girls at this school compare their bodies to one another.
- 34. Girls at this school tend to conform to the way others do things here.
- 28. Girls here often act in ways that will gain the approval of peers.
- 19. Girls often get teased for their appearance at this school.
- 5. There is a lot of pressure in this school to be thin.

Academic Concerns (Alpha = .7689)

- 18. Most girls here work hard to get top grades.
- 47. Getting the highest grades is respected among girls at this school.
- 24. Girls here consider acceptance into prestigious colleges and universities as very important.
- 41. Girls here tend to be very ambitious and goal oriented.
- 45. Most girls here probably begin their homework soon after they get home from school.
- 43. Most girls at this school would consider themselves intelligent.
- 4. Most girls here hardly ever spend time studying. (reverse coded)
- 12. Studies generally come first at this school.
- 17. At this school, girls are taught that competitiveness is a positive thing.
- 38. At this school studies do *not* interfere much with our social lives. (reverse coded)

Female Gender Prejudice (Alpha = .6807)

- 14. It is likely that teachers here believe that girls are overall less intelligent than boys are.
- 20. In general, advisors and guidance counselors here tend to discourage girls from taking certain classes (like advanced math or physics).
- 31. Girls here have few opportunities for leadership.
- 8. Girls at this school are discouraged from showing their feelings or being too emotional.
- 6. Teachers here would/do have less rigorous expectations of girls than they would/do have of boys.
- 36. Teachers here show a lot of respect for the intellectual abilities of the girls at this school. (reverse coded)

Appendix G continued....

PCA Factor Structure for SGSS

Traditional Gender Socialization (Alpha = .6425)

- 21. The girls at this school have been taught to have manners.
- 15. It is very important to our administration that girls here behave as polite young ladies, especially when representing this school in public.
- 10. Girls here are taught to have compassion when a peer is upset.
- 42. Girls here are taught to be sensitive to the needs of others.
- 40. Girls here are discouraged from using harsh language.
- 1. Girls at this school tend to check on whether their behavior is acceptable to others.

Dating Concerns (Alpha = .7102)

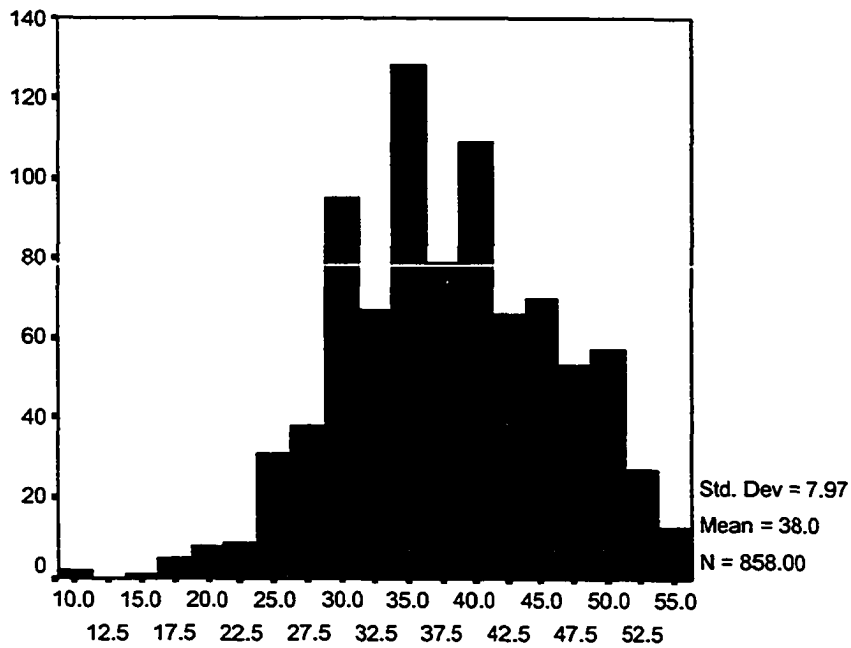
- 2. Going out with guys is a recurring topic of conversation around here.
- 35. At this school, it is important to the girls to be friendly with and go out with guys.
- 44. Many girls here seem to like hanging out with guys more than hanging out with other girls.
- 11. Being popular with guys is important to girls at this school.
- 7. Most girls here probably spend time preparing to look their best for weekend nights out (especially if there is potential to meet guys).
- 16. Most girls at this school consider getting married someday as very important.
- 22. Few girls at this school actually hang out with guys. (reverse coded)

Nontraditional Gender Socialization (Alpha = .5323)

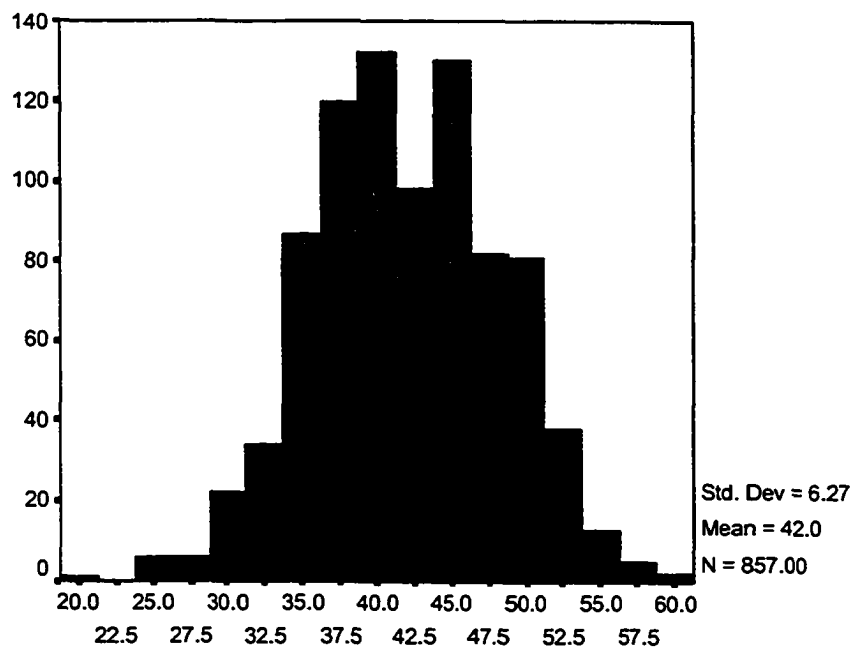
- 23. Most girls here try very hard to win arguments.
- 9. Girls here pretty much act and think freely without too much regard for the opinion of others.
- 30. Most girls here are quick to defend their beliefs.
- 3. In our classes at this school discussions among girls frequently turn into verbal debates.
- 27. Girls here are generally encouraged to take risks.
- 37. Girls here have been taught to be self-sufficient.

Appendix H

Histograms of SGSS Subscales

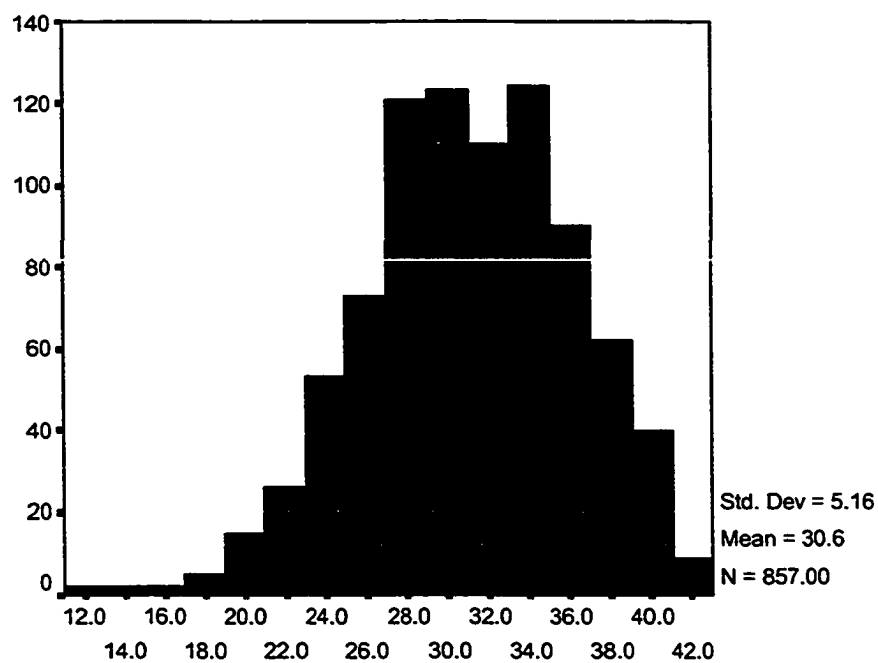


appearance concerns

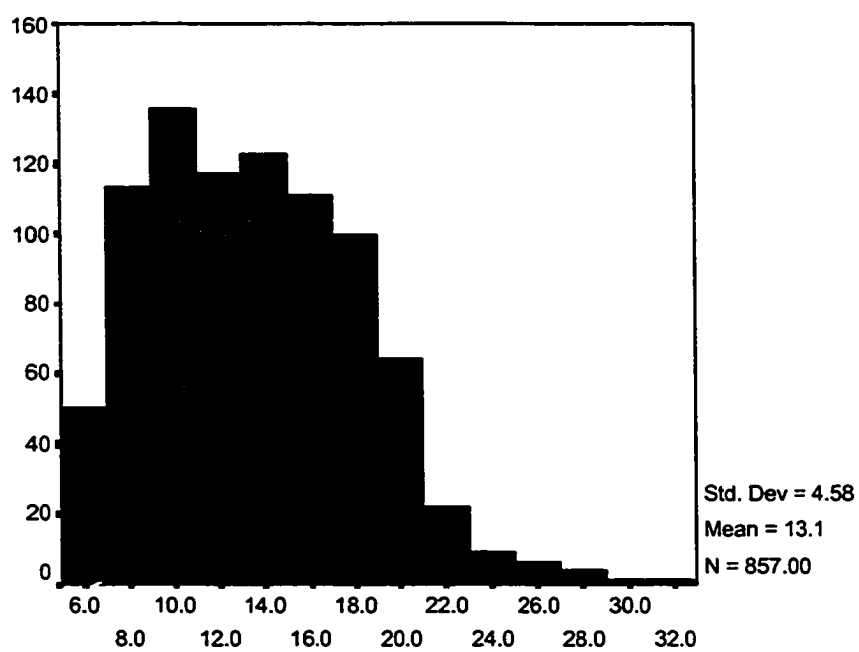


academic concerns

Appendix H continued....

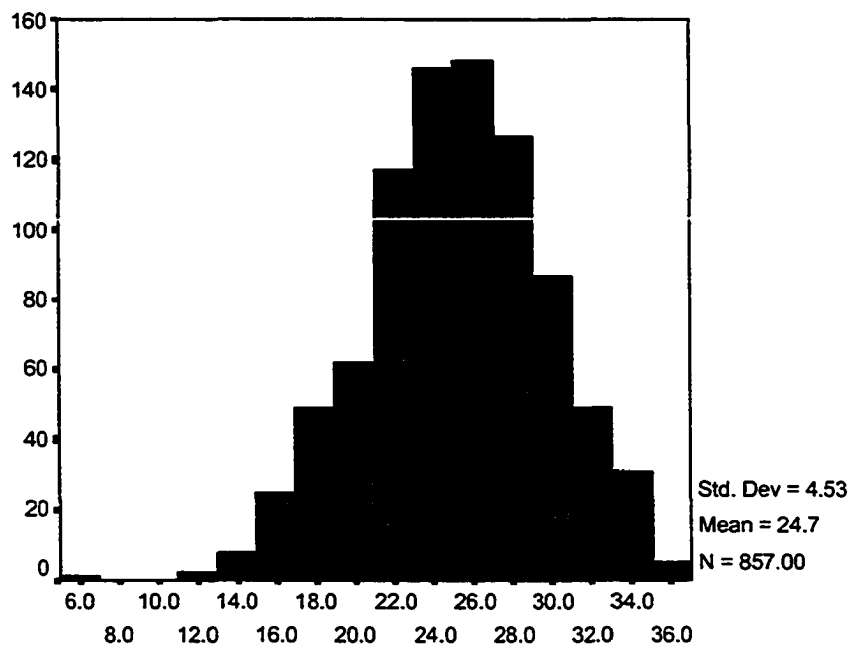


dating concerns

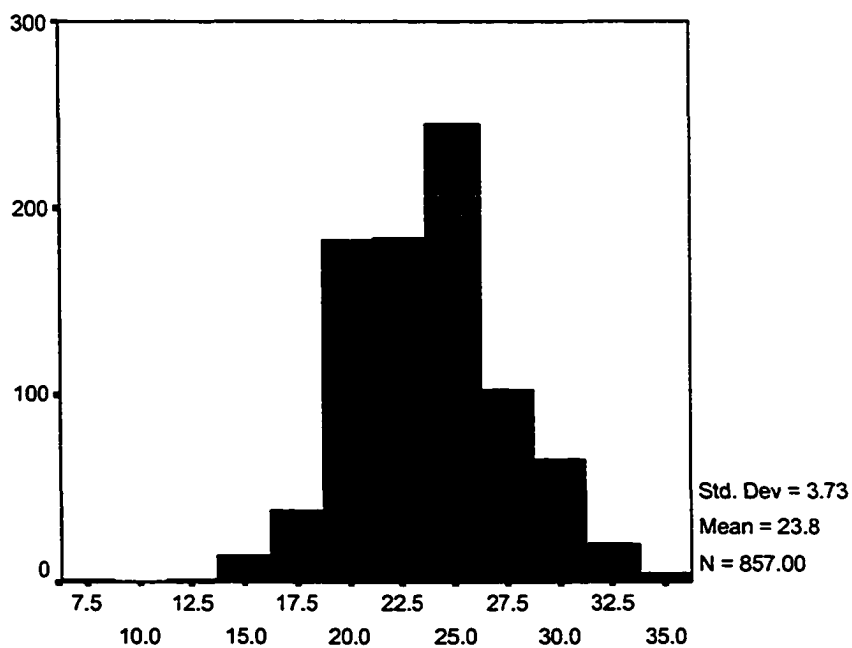


female gender prejudice

Appendix H continued....



traditional gender socialization



nontraditional gender socialization

Appendix I

Ideal figure, Disordered Eating, and Superwoman Descriptives by School

SCHOOL ID		Ideal figure	Disordered Eating	Superteen Score
1 Single Sex	Mean	3.7273	69.6114	118.1486
	N	44	44	44
	Std. Deviation	.99682	21.15392	13.85492
2 Coed	Mean	3.8281	63.0181	118.1010
	N	32	32	32
	Std. Deviation	.95554	18.01280	14.47505
3 Single Sex	Mean	3.8052	65.5578	112.2437
	N	213	226	231
	Std. Deviation	1.05210	22.47679	14.73677
4 Coed	Mean	4.2833	64.2295	117.0517
	N	30	30	29
	Std. Deviation	.93480	20.13187	13.48699
5 Coed	Mean	4.3077	59.9300	108.4497
	N	26	26	26
	Std. Deviation	.91735	23.65968	13.83917
6 Coed	Mean	4.5170	59.4683	110.3469
	N	47	48	49
	Std. Deviation	.83960	21.18132	15.22768
7 Coed	Mean	4.1122	58.3636	117.6800
	N	49	50	50
	Std. Deviation	.86762	20.05177	14.64782
8 Coed Board	Mean	3.9375	64.9273	118.3990
	N	104	104	104
	Std. Deviation	1.01849	21.04932	13.41593
9 Single Sex Board	Mean	4.1667	60.8620	112.6789
	N	78	79	79
	Std. Deviation	1.08313	21.99273	14.07254
10 Coed	Mean	4.2133	61.5197	116.6741
	N	75	76	83
	Std. Deviation	1.36107	22.53552	11.62081
11 Single Sex	Mean	4.3880	55.2038	111.7810
	N	125	126	126
	Std. Deviation	.88869	16.57362	12.73050
Total	Mean	4.0708	62.2414	114.1791
	N	823	841	853
	Std. Deviation	1.04861	21.23423	14.09593

Appendix J

Original Superwoman Scale

For the following statements circle the number that indicates how well each statement characterizes you using the scale below. For example, if you think the first statement characterizes you “well” you would circle the number three next to that statement. Please try to answer all of the questions in you can.

Characterizes you....

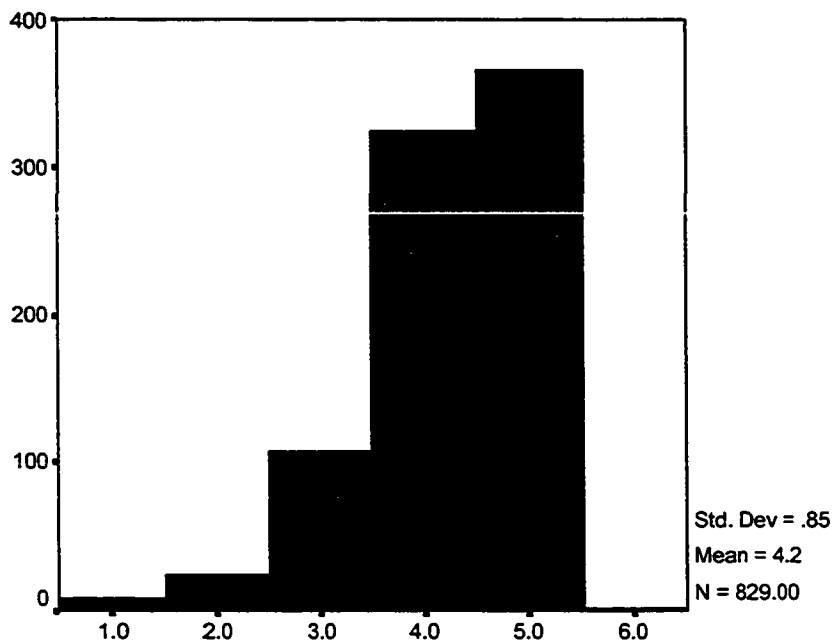
	Extremely well	Very well	Well	Somewhat	A little	Not at all	
	1	2	3	4	5	6	
1. Getting the best assignment and fast promotions at work is important to me.	1	2	3	4	5	6	
2. I would be disappointed if my children did not qualify for “gifted and talented programs.	1	2	3	4	5	6	
3. While it’s hard for most people to do, I think I can have a strong family life and a very successful career.	1	2	3	4	5	6	
4. I think people will look at my spouse and envy me.	1	2	3	4	5	6	
5. I would never consider a career that doesn’t automatically command respect from strangers.	1	2	3	4	5	6	
6. I intend to learn a lot about being a parent before my first child is born.	1	2	3	4	5	6	
7. Being known as a prominent person in the community is important to me.	1	2	3	4	5	6	
8. I don’t like to leave my house until I look my best.	1	2	3	4	5	6	
9. I get very upset with myself if I forget something I’m supposed to do.	1	2	3	4	5	6	
10. I don’t think it is possible for a person to reach excellence in all aspects of life. (reverse coded)	1	2	3	4	5	6	
11. I feel I must socialize on the weekends even if I am tired.	1	2	3	4	5	6	
12. I don’t spend much time keeping my body toned. (reverse coded)	1	2	3	4	5	6	
13. Being told that I am great at everything I do would be an incredible compliment to me.	1	2	3	4	5	6	
14. Having the “right clothes” is important.	1	2	3	4	5	6	

Appendix J continued...

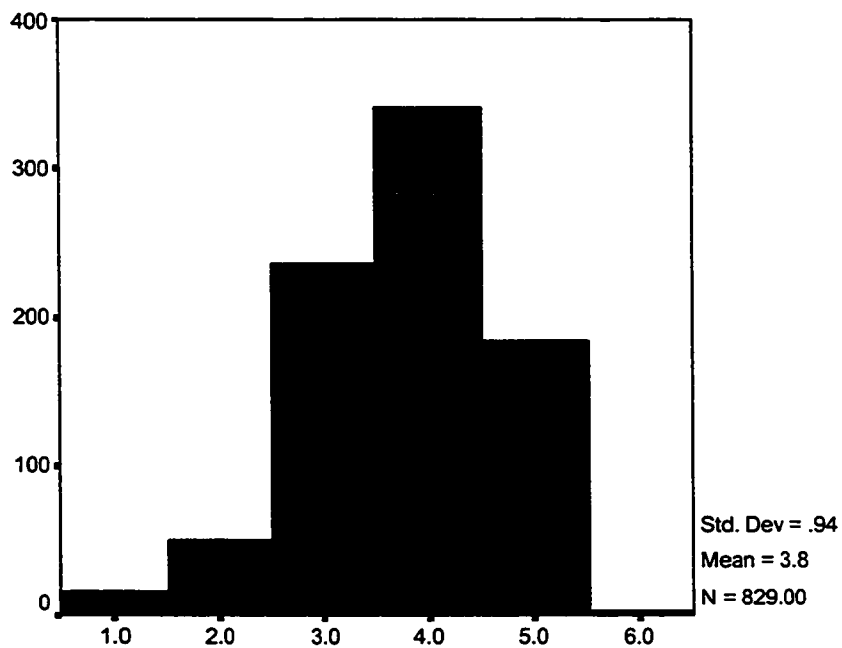
15.	I don't care whether people notice things I do well. (reverse coded)	1	2	3	4	5	6
16.	Respect from coworkers and peers is very important for my self-esteem.	1	2	3	4	5	6
17.	I will probably host dinners and parties for my boss and important coworkers.	1	2	3	4	5	6
18.	I'm not very good at judging how to "dress for success". (reverse coded)	1	2	3	4	5	6
19.	I think it is very important that parents provide multiple opportunities for their children in terms of dance, art, and music classes.	1	2	3	4	5	6
20.	I probably won't have my own secretary. (reverse coded)	1	2	3	4	5	6
21.	As a parent I will attend all of the school functions of my children.	1	2	3	4	5	6
22.	I model myself after other people who "have it all" – successful marriages, careers, and great kids.	1	2	3	4	5	6
23.	Appearances are more important than most people realize.	1	2	3	4	5	6
24.	It is not important to me that I rise to the top of my profession. (reverse coded)	1	2	3	4	5	6
25.	I would be embarrassed by public recognition of achievement. (reverse coded)	1	2	3	4	5	6
26.	I think more women should take the time and effort to make themselves look better.	1	2	3	4	5	6
27.	I will make sure that I "age gracefully" by controlling my eating and exercise habits.	1	2	3	4	5	6

Appendix K

Histograms of Individual Role Concerns Variables

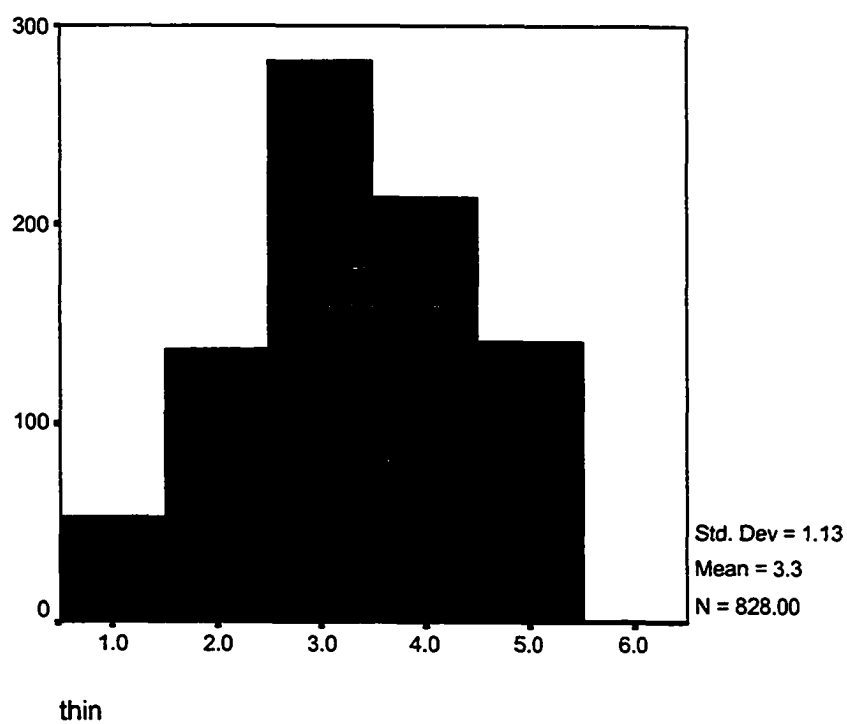
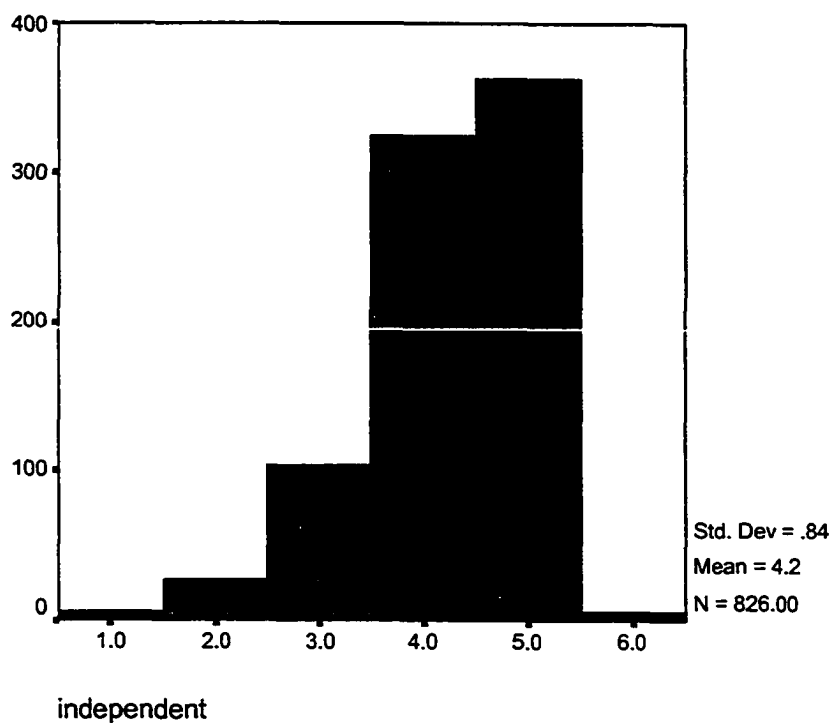


intelligent

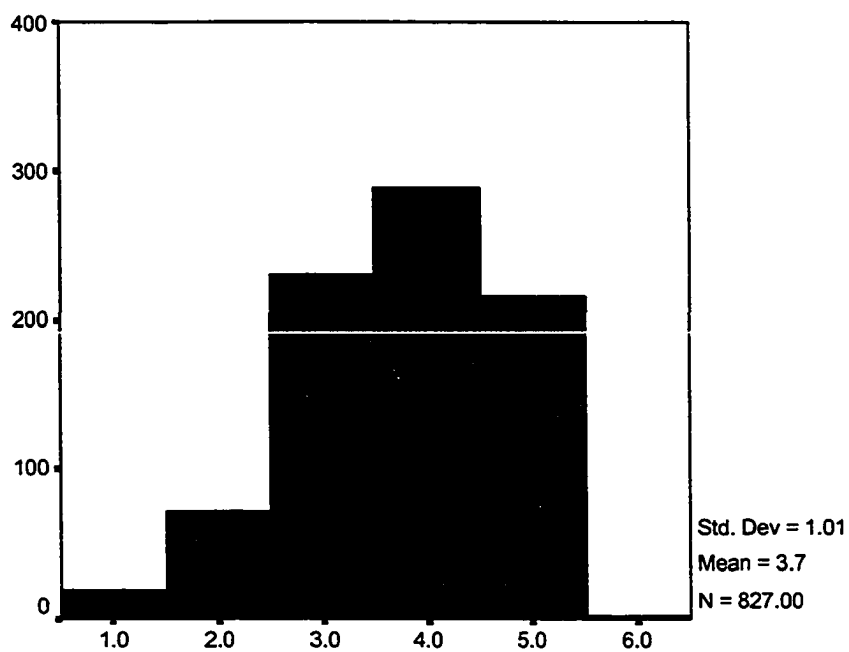


attractive

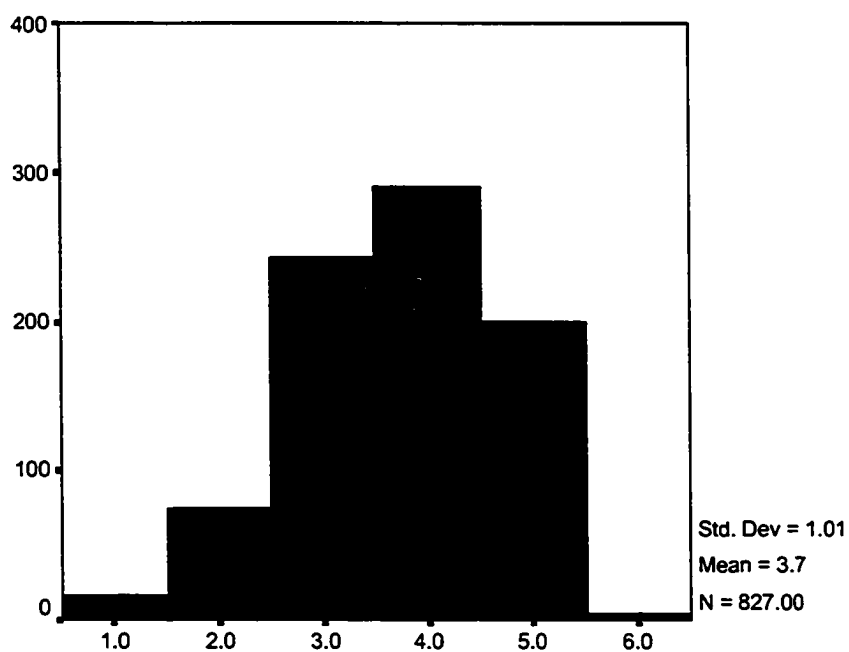
Appendix K continued...



Appendix K continued...

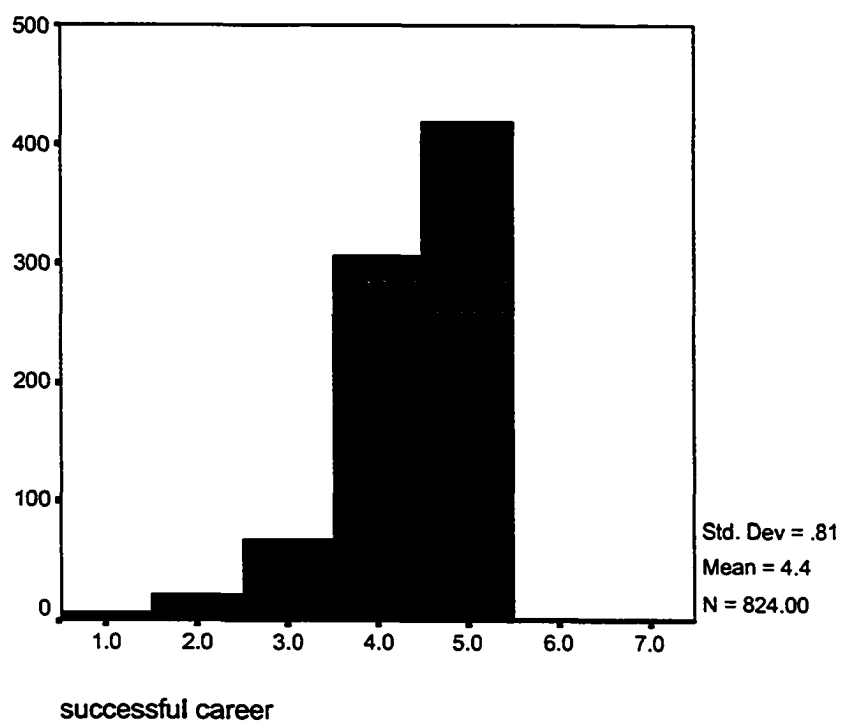
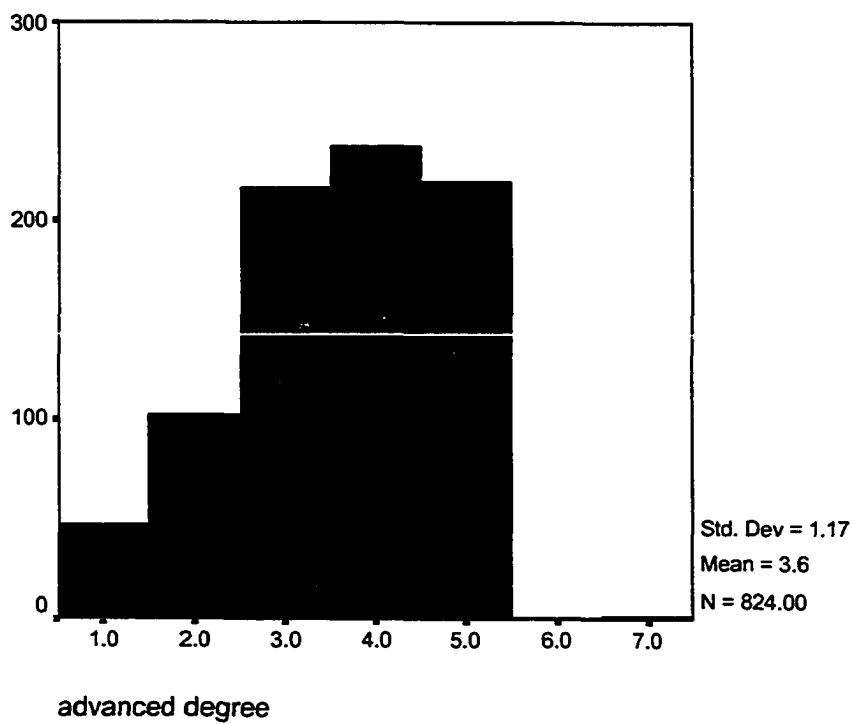


a lot of friends

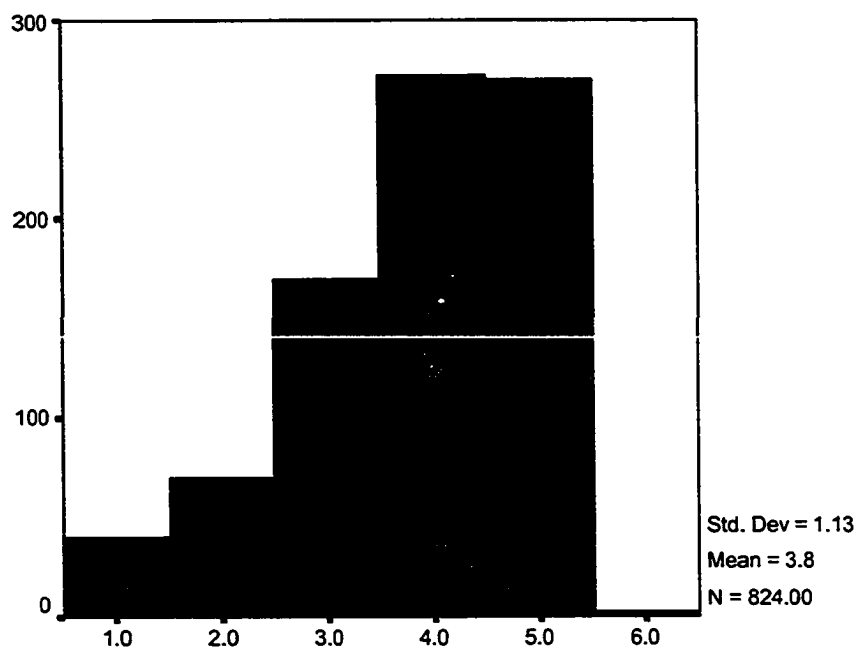


physically fit/athletic

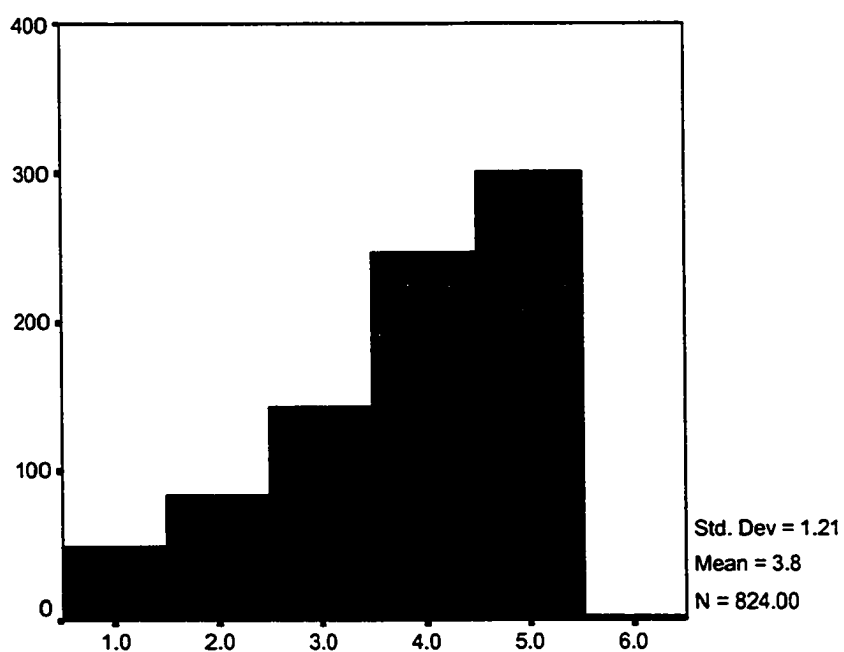
Appendix K continued...



Appendix K continued...



marriage



parenthood

References

- Ashby, J.S., Kottman, T., & Schoen, E. (1998). Perfectionism and eating disorders reconsidered. *Journal of Mental Health Counseling*, 20(3), 261-271.
- American Association of University Women. (1998). *Separated by Sex: A critical look at single sex education for girls*. Washington DC: AAUW Education Foundation.
- Ball, K., & Kenardy, J. (2002). Body weight, body image, and eating behaviors: Relationships with ethnicity and acculturation in a community sample of young Australian women. *Eating Behaviors*, 3(3), 205-216.
- Basow, S.A., & Rubin, L.R. (1999). Gender influences on adolescent development. In Johnson, N.G., Roberts, M.C. & Worell, J. (Eds) *Beyond Appearance: A New Look at Adolescent Girls*. (pp. 25-52.) Washington DC: American Psychological Association.
- Barnett, L. R. (1986). Bulimarexia as symptom of sex-role strain in professional women. *Psychotherapy: Theory Practice, and Research*, 23, 311-315.
- Bell, R.M. (1985) *Holy Anorexia*. Chicago and London: The University of Chicago Press.
- Bem, S. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, 42, 155-162.
- Berg, K.M. (1988). The prevalence of eating disorders in co-ed versus single sex residence halls. *Journal of College Student Development*, 29, 125-131.
- Black, S. (2002). Starving in Silence: Eating disorders take a heavy toll on students academically as well as physically. *American School Board Journal*, 189(3), <http://www.asbj.com/2002/03/0302research.gif>.
- Bonifazi, D.Z. & Pole, M. (2002). *Sister to Sister Peer Mentor Training Manual*. Unpublished manuscript, West Chester University, West Chester, PA.
- Boskind-Lodahl, M. (1976). Cinderella's Stepsisters: A feminist perspective on anorexia nervosa and bulimia. *Signs: Journal of Women in Culture and Society*, 2, 342-356.
- Boskind-White, & White (1986). Bulimarexia: A historical socio-cultural perspective. In Brownell and Foreyt (Eds.) *Handbook of Eating Disorders* (pp. 353-366). NY: Basic Books.
- Brody, C., Fuller, K., Gosetti, P., Moscato, S., Nagel, N., Pace, G., & Schmuck, P. (1998). *Gender and the culture of schools*. Paper presented at the annual meeting of the American Educational Research Association. San Diego, CA.

- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513-529.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (1995). Developmental ecology through space and time: A future perspective. In P. Moen, G.H. Elder, & K. Luscher (Eds.), *Examining Lives in context: Perspectives on the ecology of human development* (pp. 619-647). Washington DC: American Psychological Association.
- Brown, L.M., & Gilligan, C. (1992). *Meeting at the crossroads: Women's psychology and girls' development*. Cambridge: Harvard University Press.
- Bruch, H. (1973). *Eating disorders, obesity, anorexia nervosa, and the person within*. New York: Basic Books.
- Bruch, H. (1978). *The Golden Cage: The Enigma of Anorexia Nervosa*. New York: Vintage Books.
- Brumberg, J.J. (1988). *Fasting Girls: The History of Anorexia Nervosa*. Cambridge: Harvard University Press.
- Bryk, A.S., & Raudenbush, S.W. (1992). *Hierarchical Linear Models*. London: Sage Publications.
- Bryk, A.S., Raudenbush, S.W., Seltzer, M., & Congdon, R. (1988). *An introduction to HLM: Computer program and user's guide* (2nd ed.). Chicago: University of Chicago Department of Education.
- Burckle, M.A., Ryckman, R.M., Gold, J.A., Thorton, B., & Audesse, R.J. (1999). Forms of competitive attitude and achievement orientation in relation to disordered eating. *Sex Roles*, 40(11/12), 853-870.
- Carter, J.C., Stewart, D.A., Dunn, V.J., & Fairburn, C.G. (1997). Primary prevention of eating disorders: Might it do more harm than good? *International Journal of Eating Disorders*, 22, 167-172.
- Cash, T.F., Ancis, J.R., & Strachan, M.D. (1997). Gender attitudes, feminist identity and body images among college women. *Sex Roles*, 36(7/8), 433-447.
- Cash, T.F., & Pruzinsky, T. (Eds.). (2002). *Body Image: A Handbook of Theory, Research, and Clinical Practice*. New York: Guilford Press.

- Casper, R.C. (1983). Some provisional ideas concerning the psychologic structure in anorexia nervosa and bulimia. In P.L. Darby, P.E. Garfinkel, D.M. Garner, & D.V. Coscina (Eds.), *Anorexia nervosa: Recent developments in research* (pp. 387-392). New York: Alan R. Liss.
- Chernin, K. (1985). *The Hungry Self: Women, eating, and identity*. New York: HarperCollins.
- Chodorow, N. (1978). *The Reproduction of Mothering Psychoanalysis and the Sociology of Mothering*. Berkeley: University of California Press.
- Chodorow, N. (1990). *Feminism and the psychoanalytic theory*. New Haven, CT: Yale University Press.
- Cohn, L.D., Adler, N.E., Irwin Jr, C.E., Millstein, S.G., Kegeles, S.M., & Stone, G. (1987). Body-figure preferences in male and female adolescents. *Journal of Abnormal Psychology*, 96(3), 276-279.
- Crago, M., Yates, A., Fleischer, C.A., Segerstrom, & Gray, N. (1996). The superwoman ideal and other risk factors for eating disturbances in adolescent girls. *Sex Roles*, 35(11/12), 801-810.
- Crago, M., Shisslak, C.M., & Ruble, A. (2001). Protective factors in the development of eating disorders. In R.H. Striegel-Moore, and L. Smolak (Eds.) *Eating Disorders: Innovative Directions in Research and Practice* (pp. 75-89). Washington DC: American Psychological Association.
- Crandall, C.S. (1988). Social Contagion of Binge Eating. *Journal of Personality and Social Psychology*, 55(4), 588-598.
- Crisp, A.H., Palmer, R.L., & Haper, P. (1976). How common is anorexia nervosa? A Prevalence study. *British Journal of Psychiatry*, 128, 549-554.
- Crisp, A. H. (1980). *Anorexia Nervosa: Let Me Be*. London: Academic Press.
- Croll, J., Neumark-Sztainer, D., Story, M., & Ireland, M. (2002). Prevalence and risk and protective factors related to disordered eating behaviors among adolescents: relationships to gender and ethnicity. *Journal of Adolescent Health*, 31(2), 166-175.
- Dally, P., & Gomez, J. (1979). *Anorexia Nervosa*. London: Heinemann.
- Damhorst, M., Littrell, J., & Littrell, M. (1988). Age differences in adolescent body satisfaction. *Journal of Psychology*, 121, 153-162.

- Dielman, T.E. (1994). School-based research on the prevention of adolescent alcohol used and misuse: Methodological issues and advances. *Journal of Research on Adolescence*, 4, 271-293.
- Dempster, A.P., Laird, N.M., & Rubin, D.B. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society, Series B*, 39, 1-8.
- DiNocola, V.F. (1990). Anorexia multiforme: Self starvation in a historical and cultural context. Part I: Anorexia nervosa as a culture-reactive syndrome.
- Dolan, B. (1991). Cross-Cultural aspects of Anorexia Nervosa and Bulimia: A Review. *International Journal of Eating Disorders*, 10, 67-78.
- Duncan, G.J., & Raudenbush, S.W. (1999). Assessing the effects of context in studies of child and youth development. *Educational Psychologist*, 34(1), 29-42.
- Durham, M.G. (1998). Dilemmas of desire: Representations of adolescent sexuality in two teen magazines. *Youth and Society*, 29(3), 369-389.
- Dyer, G., & Tiggeman, M. (1996). The Effect of School Environment on Body Concerns in Adolescent Women. *Sex Roles*, 34(12), 127-138.
- Dwyer, J. T., Feldman, J. J., Seltzer C. C., & Mayer, J. (1969). Adolescent attitudes toward weight and appearance. *Journal of Nutrition Education*, 1(2), 14-19.
- Eagly, A.H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich College Publishers.
- European Network of Health Promoting Schools (1993). World Health Organization Regional Office for Europe. Copenhagen, Denmark.
- Fallon , A. E., & Rozin, P. (1985) Sex differences in perceptions of desirable body shape. *Journal of Abnormal Psychology*, 94 (1), 102-105.
- Fenwick, S. (1880). *On atrophy of the stomach and on the nervous affections of the digestive organs*. London: Churchill.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117-140.
- Frost, R.O., Martin, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, 14, 449-468.

- Furnham, A., & Baguma, P. (1994). Cross-cultural differences in the evaluation of male and female body shapes. *International Journal of Eating Disorders*, 15, 81-89.
- Gard, M.C.E., & Freeman, C.P. (1996). The dysmanteling of a myth: A review of eating disorders and socioeconomic status. *International Journal of Eating Disorders*, 20, 1-12.
- Garfinkel, P.E., & Dorian, B.J. (2001). Improving understanding and care for the eating disorders. In R.H. Striegel-Moore, and L. Smolak (Eds.) *Eating Disorders: Innovative Directions in Research and Practice* (pp. 9-29). Washington DC: American Psychological Association.
- Gargiulo, J., Attie, I., Brooks-Gunn, J., & Warren, M.P. (1987). Girls dating behaviors as a function of social context and maturation. *Developmental Psychology*, 23(5), 730-737.
- Garner, D.M., (1985). Iatrogenesis in anorexia nervosa and bulimia nervosa. *International Journal of Eating Disorders*, 4, 701-726.
- Garner, D.M., & Garfinkel, P.E. (1979). The Eating Attitudes Test: An index of the symptoms of anorexia nervosa, *Psychological Medicine*, 9, 273-279.
- Garner, D.M., & Garfinkel, P.E. (1982). Anorexia Nervosa: A Multi-Dimensional Perspective. New York: Brunner and Mazel.
- Garner, D.M., Garfinkel, P.E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. *Psychological Reports*, 47, 483-491.
- Garner, D.M., Olmsted, M.P., Bohr, Y., & Garfinkel, P.E. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine*, 12, 871-878.
- Garner, D.M., Olmsted, M.P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2, 315-346.
- Garner, D.M., & Olmsted, M.P. (1984). *Eating disorder inventory*. Odessa, FL: Psychological Assessment Resources.
- Gerstein, D.R., & Green, L.W. (1993). *Preventing drug abuse: What do we know?* Washington, DC: National Academy Press.
- Gilbert, S., & Thompson, J.K. (1996). Feminist explanations of the development of eating disorders: Common themes, research findings, and methodological issues *Clinical Psychology: Science and Practice*, 3, 183-202.
- Gilligan, C. (1982). *In a Different Voice*. Cambridge: Harvard University Press.

- Gilligan, C., Lyons, N.P., & Hanmer, T.J. (Eds.) (1990). *Making Connections: The Relational Worlds of Adolescent Girls at Emma Willard School*. Cambridge: Harvard University Press.
- Gordon, R.A. (2000). *Eating Disorders: Anatomy of a Social Epidemic*. (2nd ed.). Oxford: Blackwell Publishers Ltd.
- Hart, K., & Kenny, M. (1997). Adherence to the super woman ideal and eating disorder symptoms among college women. *Sex Roles*, 36(7/8), 461-478.
- Hewitt, P.L., Flett, G.L., & Ediger, E. (1995). Perfectionism traits and perfectionistic self presentation in eating disorder attitudes, characteristics, and symptoms. *International Journal of Eating Disorders*, 18, 317-326.
- Heyward, C. (1995). Catching up: Gender values at a Canadian Independent school for girls, 1978-1993. *Gender and Education*, 7(2), 189-203.
- Hodes, M., Jones, C., & Davies, H. (1996). Cross-Cultural differences in Maternal Evaluation of Children's Body Shapes. *International Journal of Eating Disorders*, 19(3), 257-263.
- Jackson, L.A., Sullivan, L.A., & Rostker, R. (1988). Gender, gender role, and body image. *Sex Roles*, 19, 429-443.
- Jimerson S.R., & Pavelski, R. (2000). The School Psychologist's Primer on Anorexia Nervosa: A Review of Research Regarding Epidemiology, Etiology, Assessment, and Treatment. *The California School Psychologist*, 5, 65-77.
- Johnson, N.G., & Roberts M.C. (1999). Passage on the wild river of adolescence: Arriving safely. In Johnson, N.G., Roberts, M.C. & Worell, J. (Eds) *Beyond Appearance: A New Look at Adolescent Girls*. (pp. 3-23.) Washington DC: American Psychological Association.
- Jones, J.M., Bennett, S., Olmsted, M.P., Lawson, M.L., & Rodin, G. (2001). Disordered eating attitudes and behaviours in teenaged girls: A school-based study. *Canadian Medical Association Journal*, 165(5), 547-552.
- Kendell, R.E., Hall, D.J., Hailey, A., & Babigian, H.M. (1973). The epidemiology of anorexia nervosa. *Psychological Medicine*, 3, 200-203.
- Killen, J.D., Taylor, C.B., Hammer, L.D., Litt, I., Wilson, D.M., Rich, T., Hayward, C., Simmonds, B., Kraemer, H., & Varady, A. (1993). An attempt to modify unhealthy eating attitudes and weight regulation practices of young adolescent girls. *International Journal of Eating Disorders*, 13, 369-384.

- King, N. (1994). College women: Reflections on recurring themes and a discussion of the treatment process and setting. In B. Kinoy (Ed.), *Eating Disorders: New directions in treatment and recovery* (pp. 122-131). New York: Columbia University Press.
- Klump, K.L., Bulik, C.M., Pollice, C., Halmi, K., Fichter, M.M., Berrettini, W.H., Devlin, B., Strober, M., Kaplan, A., Woodside, D.B., Treasure, J., Shabbout, M., Lilenfeld, L.R., Plotnicov, K.H., & Kaye, W.H. (2000). Temperament and character in women with anorexia nervosa. *Journal of Nervous and Mental Disease*, 188(9), 559-567.
- Krull, J.L., & MacKinnon, D.P. (1999). Multilevel mediation modeling in group-based intervention studies. *Evaluation Review*, 23(4), 418-444.
- Krull, J.L., & MacKinnon, D.P. (2001). Multilevel modeling of individual and group-level mediated effects. *Multivariate Behavioral Research*, 36(2), 249-277.
- Lask, B. (2000). Aetiology. In B. Lask, & R. Bryant-Waugh (Eds.), *Anorexia Nervosa and Related Eating Disorders in Childhood and Adolescence* (pp. 63-79). East Sussex, UK: Psychology Press Ltd.
- Lancelot, C., & Kaslow, N.J. (1994). Sex role orientation and disordered eating in women: a review. *Clinical Psychology Review*, 14, 139-157.
- Lee, S. (1993). How abnormal is the desire for slimness? A survey of eating attitudes and behaviors among Chinese undergraduates in Hong Kong. *Psychological Medicine*, 23, 437-445.
- Lee, A.M., & Lee, S. (1996). Disordered eating and its psychosocial correlates among Chinese adolescent females in Hong Kong. *International Journal of Eating Disorders*, 20, 177-183.
- Lee, A.M., & Lee, S. (2000). Disordered eating in three communities of China: A comparative study of female high school students in Hong Kong, Shenzhen, and rural Hunan. *International Journal of Eating Disorders*, 27, 317-327.
- Lee, V.E., & Bryk, A.S. (1986). Effects of single-sex secondary schools on student achievement and attitudes. *Journal of Educational Psychology*, 78, 381-395.
- Lee, V.E., & Bryk, A.S. (1989). Effects of single-sex schools: Response to Marsh. *Journal of Educational Psychology*, 81, 647-650.
- Lee, V.E., & Marks, H.M., (1992). Who goes where? Choice of single-sex and coeducational independent secondary schools. *Sociology of Education*, 65, 226-253.

- Lee, V.E, Marks, H. M., & Byrd, T. (1994). Sexism in single-sex and coeducational secondary school classrooms. *Sociology of Education*, 67(2), 92-120.
- Levine, M.P., & Smolak, L. (1992). Toward a model of the developmental psychopathology of eating disorders: The example of early adolescence. In J. Crowther, D. Tennenbaum, S. Hobfoll, and M. Stephens (Eds.), *The etiology of bulimia nervosa: The individual and family context* (pp. 59-80). Washington DC: Hemisphere.
- Levine, M.P., Smolak, L., Moodey, A.F., Schuman, M.D., & Hessen, L.D. (1994). Normative developmental challenges and dieting and eating disturbances in middle school girls. *International Journal of Eating Disorders*, 15, 11-20.
- Levy, D.A., & Nail, P.R. (1993). Contagion: A theoretical and empirical review and reconceptualization. *Genetic - Social & General Psychology Monographs*, 119(2), 233-284.
- Lewis, L.D., & Johnson, C. (1985). A comparison of sex role orientation between women with bulimia and normal controls. *International Journal of Eating Disorders*, 4, 247-257.
- Lindley, D.V., & Smith, A.F.M. (1972). Bayes estimates for the linear model. *Journal of the Royal Statistical Society, Series B*, 34, 1-41.
- Linville, P.W. (1985). Self-complexity and affective extremity: Don't put all your eggs in one cognitive basket. *Social Cognition*, 3, 94-120.
- Mann, T., Nolen-Hoeksema, S., Huang, K., Burgard, D., Wright, A., & Hanson, K. (1997). Are two interventions worse than none? Joint primary and secondary prevention of eating disorders in college females. *Health Psychology*, 16, 215-225.
- Marsh, H.W. (1989). Effects of attending single-sex and coeducational high schools on achievement, attitudes, behaviors, and sex differences. *Journal of Educational Psychology*, 81, 70-85.
- Martz, D.M., Handley, K.B., & Eisler, R.M. (1995). The relationship between feminine gender role stress, body image, and eating disorders. *Psychology of Women Quarterly*, 19, 493-508.
- McDonald, D.L., & McKinney, J.P. (1994). Steady dating and self esteem in high school students. *Journal of Adolescence*, 17, 557-564.

- Mensinger, J.L. (2000). *Gender concerns in adolescent females attending single sex and coeducational school environments*. Unpublished Master's thesis. The Graduate Center of The City University of New York.
- Mensinger, J.L. (2001). Conflicting gender role proscriptions and disordered eating in single sex and coeducational school environments. *Gender and Education*, 13(4), 417-429.
- Mitzman, S.F., Slade, P., & Dewey, M.E. (1994). Preliminary development of a questionnaire designed to measure neurotic perfectionism in the eating disorders. *Journal of Clinical Psychology*, 50(4), 516-522.
- Moos, R. (1979). *Evaluating Educational Environments: Procedures, measures, findings, and policy implications*. San Francisco: Jossey-Bass.
- Moos, R. (1973). Conceptualizations of Human Environments. *American Psychologist*, 38, 652-665.
- Mori, D., Pliner, P., & Chaiken, S. (1987). "Eating lightly" and the self-presentation of femininity. *Journal of Personality and Social Psychology*, 53(4), 693-702.
- Mumford, D.B., Whitehouse, & Platts, M. (1991). Sociocultural correlates of eating disorders among Asian schoolgirls in Bradford. *British Journal of Psychiatry*, 158, 222-228.
- Murnen, S., Smolak, L., & Levine, M. (1994). Development of a Scale to Measure Adherence to the "Superwoman" Construct. Unpublished Manuscript. Kenyon College, OH.
- Murnen, S.K., & Smolak, L. (1998). Femininity, Masculinity, and Disordered Eating: A Meta-Analytic Review. *International Journal of Eating Disorders*, 22, 231-242.
- Nagel, K.L., & Jones, K.H. (1992). Sociological factors in the development of eating disorders. *Adolescence*, 27, 107-112.
- Nichter, M., & Vuckovic, N. (1994). Fat talk: Body image among adolescent girls. In N. Sault (Ed.), *Many mirrors: Body image and social relations* (pp. 109-131). New Brunswick, NJ: Rutgers University Press.
- Orbach, S. (1978). *Fat is a feminist issue: The anti-diet guide to permanent weight loss*. New York: Paddington Press.
- Orbach, S. (1986). *Hunger Strike: The anorectic's struggle as a metaphor for our age*. New York: Norton.

- Parker, S., Nichter, M., Nichter, N., Vuckovic, N., Sims, C., & Ritenbaugh, C. (1995). Body image and weight concerns among African American and White adolescent females: Differences that make a difference. *Human Organization*, 54, 103-14.
- Paxton, S. J. (1993). A prevention program for disturbed eating in adolescent girls: A one-year follow-up. *Health Education Research: Theory and Practice*, 8, 43-51.
- Paxton, S. J. (1996). Prevention implications of peer influences on body image dissatisfaction and disturbed eating in adolescent girls. *Eating Disorder Journal of Treatment and Prevention*, 4(4), 334-347.
- Paxton, S. J. (1999). Peer relations body image disordered eating in adolescent girls: Implications for Prevention. In N. Piran, M.P. Levine, C. Steiner-Adair (Eds.) *Preventing Eating Disorders: A Handbook of Interventions and Special Challenges*. (pp. 134-147) Ann Arbor, MI: Brunner/Mazel - Taylor & Francis Groups.
- Paxton, S. J., Wertheim, E.H., Gibbons, K., Szmulker, G.I., Hillier, L., & Petrovich, J.L., (1991). Body image satisfaction, dieting beliefs, and weight loss behaviors in adolescent girls and boys. *Journal of Youth and Adolescence*, 20(3), 361-379.
- Palazzoli, M.S. (1974). *Self-starvation*. London: Chancer.
- Pedhazur, E.J. (1982). *Multiple regression in behavioral research: Explanation and prediction*. Fort Worth, TX: Holt, Rinehart & Winston.
- Pettinati, H. M., Franks, V., Kogan, L.G., & Wade, J.H. (1987). Distinguishing the role of eating disturbance from depression in the sex role self perceptions of anorexic and bulimic inpatients. *Journal of Abnormal Psychology*, 96(3), 280-282.
- Phelps, L. Sapia, J., Nathanson, D., & Nelson, L. (2000). An empirically supported eating disorder prevention program. *Psychology in the Schools*, 37(5), 443-452.
- Piran, N. (1999). The reduction of preoccupation with body weight and shape in schools: A feminist approach. In N. Piran, M.P. Levine, C. Steiner-Adair (Eds.) *Preventing Eating Disorders: A Handbook of Interventions and Special Challenges*. (pp. 148-162) Ann Arbor, MI: Brunner/Mazel - Taylor & Francis Groups.
- Polivy, J. & Herman, P. (2002). Causes of Eating Disorders. *Annual Review of Psychology*, 53, 187-213.
- Rabash, J., Prosser, R., & Goldstein, H. (1989). *ML2: Software for two-level analysis. User's Guide*. London: University of London, Institute of Education.

- Rodin, J., Silberstein, L., & Streigel-Moore, R. (1988). Women & weight: A normative discontent. in S. Bem (Ed.) *Psychology of Sex Roles*. Littleton, MA: Copely.
- Rogers, L., Resnick, M. D., Mitchell, J.E., & Blum, R.W. (1997). The relationship between socioeconomic status and eating disordered behaviors in a community sample of adolescent girls. *International Journal of Eating Disorders*, 22, 15-23.
- Russell, J.D., & Beumont, P.J.V. (1995). Risk and prevention in eating disorders. In B. Raphael & G.D. Burrows (Eds.), *Handbook of studies of preventive psychiatry* (pp. 459-476). Amsterdam: Elsevier.
- Ryan, S.J. (1994). Relationship to food as to the world. In B. Kinoy (Ed.), *Eating Disorders: New directions in treatment and recovery* (pp. 80-91). New York: Columbia University Press.
- Shanler, S. (1999). *Ophelia Speaks: Adolescent girls write about their search for self*. New York: HarperCollins Publishers Inc.
- Shipton, G. (1999). Anorexic Space. *Journal of Community and Applied Social Psychology*, 9, 435-448.
- Shmurak, C. B. (1998). *Voices of Hope: Adolescent Girls at Single Sex and Coeducation High Schools*. New York: Peter Lang.
- Seigel, M. Brisman, J., & Weinshel, M. (1997). *Surviving and eating disorder: Strategies for Family and Friends*. New York, HarperCollins Publishers Inc.
- Silverstein, B., & Perlick, D., (1995). *The Cost of Competence. Why Inequality Causes Depression, Eating Disorders, and Illness in Women*. New York: Oxford University Press.
- Silverstein, B., & Perdue, L. (1988). The relationship between role concerns, preferences for slimness and symptoms of eating problems among college women. *Sex Roles*, 18(1/2), 101-112.
- Silverstein, B., Carpman, S., Perlick, D., & Perdue, L. (1990). Nontraditional sex role aspirations, gender identity conflict and disordered eating among college women. *Sex Roles*, 23, 687-695.
- Sitnick, T., & Katz, J.L., (1984). Sex role identity and anorexia nervosa. *International Journal of Eating Disorders*, 3, 81-87.
- Smolak, L., Levine, M.P., & Gralen, S. (1993). The impact of puberty and dating on eating problems among middle school girls. *Journal of Youth and Adolescence*, 22(4), 355-368.

- Smolak, L., Levine, M.P., & Schermer, K. (1998). A controlled evaluation of an elementary school primary prevention program for eating problems. *Journal of Psychosomatic Research*, 44, 344-354.
- Smolak, L., & Levine, M.P. (1996). Adolescent transitions and the development of eating problems. In L. Smolak, M. Levine, and R.H. Striegel-Moore (Eds.), *The developmental psychopathology of eating disorders* (pp. 207-233). Mahwah, NJ: Lawrence Erlbaum Associates.
- Spence, J., & Helmreich, R. (1978). *Masculinity and femininity*. Austin: University of Texas Press.
- Spitzer, R.L., Williams, J.B.W., Gibbon, M., & First, M.B. (1989). Instruction Manual for the Structured Clinical Interview for DSM-III-R (SCID, 5/1/89 Revision). New York: New York State Psychiatric Institute, Biometrics Research.
- Srikameswaran, S., Leichner, P., & Harper, D. (1984). Sex role ideology among women with anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 3(3), 39-43.
- Srinivasagam, N.M., Kaye, W.H., Plotnicov, K.H., Greeno, C., Weltzin, T.E., & Radhika, R. (1995). Persistent perfectionism, symmetry, and exactness after long-term recovery from anorexia nervosa. *American Journal of Psychiatry*, 152(11), 1630-1634.
- Steiger, H. (1993). Anorexia nervosa: Is it the syndrome or theorist that is culture and gender bound? *Transcultural Psychiatric Research Review*, 30, 347-358.
- Steiger, H., Fraenkel, L., & Leichner, P. (1989). Relationship of body image distortion to sex role identification, irrational cognitions, and body weight in eating disordered females. *Journal of Clinical Psychology*, 45, 61-65.
- Steiner-Adair, C. (1986). The body politic: Normal female adolescent development and the development of eating disorders. *Journal of the American Academy of Psychoanalysis*, 14, 95-114.
- Steiner-Adair, C. (1989). Developing the voice of the Wise Woman: College students and bulimia. *Journal of College Student Psychotherapy*, 3, 151-165.
- Stern, S.L., Dixon, K.N., Jones, D., Lake, M., Nemzer, E., & Sansone, R. (1989). Family environment in anorexia and bulimia. *International Journal of Eating Disorders*, 8(1), 25-33.

- Stice, E. (2001). Risk factors for eating pathology: Recent advances and future directions. In R.H. Striegel-Moore, and L. Smolak (Eds.) *Eating Disorders: Innovative Directions in Research and Practice* (pp. 51-73). Washington DC: American Psychological Association.
- Stormer, S.M., Thompson, J.K. (1996). Explanations of body image disturbance: A test of maturational status, negative verbal commentary, social comparison and sociocultural hypotheses. *International Journal of Eating Disorders*, 19(2), 193-202.
- Story, M., French, S.A., Resnick, M.D., & Blum, R.W. (1995). Ethnic/racial and socioeconomic differences in dieting behaviors and body image perceptions in adolescents. *International Journal of Eating Disorders*, 18(2), 173-179.
- Striegel-Moore, R.H., Smolak, L. (2001). Conclusion: Imagining the future. In R.H. Striegel-Moore, and L. Smolak (Eds.) *Eating Disorders: Innovative Directions in Research and Practice* (pp. 271-278). Washington DC: American Psychological Association.
- Striegel-Moore, R.H., Silberstein, L.R., Grunberg, N.E., & Rodin, J. (1990). Competing on all fronts: Achievement orientation and disordered eating. *Sex Roles*, 23, 697-702.
- Striegel-Moore, R.H., Connor-Greene, P.A., & Shime, S. (1991). School milieu characteristics and disordered eating in high school graduates. *International Journal of Eating Disorders*, 10, 187-192.
- Striegel-Moore, R.H., Silberstein, L.R., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. *American Psychologist*, 41, 246-263.
- Strober, M. (1980). Personality and symptomatological features in young, nonchronic anorexia nervosa patients. *Journal of Psychosomatic Research*, 24(6), 353-359.
- Strober, M. (1981). A comparative analysis of personality organization in juvenile anorexia nervosa. *Journal of Youth and Adolescence*, 10, 285-295.
- Thomas, C.L., James, A.C., & Bachmann, M.O. (2002). Eating attitudes in English secondary school students: Influences of ethnicity, gender, mood, and social class. *International Journal of Eating Disorders*, 31, 92-96.
- Thompson, M.A., & Gray, J.J. (1995). Development and Validation of a New Body Image Assessment Scale. *Journal of Personality Assessment*, 64, 258-269.
- Thompson, J.K., & Smolak, L. (Eds.) (2001). *Body Image, Eating Disorders, and Obesity in Youth: Assessment, Prevention, and Treatment*. Washington DC: American Psychological Association.

- Thorton, B., Leo, R., & Alberg, K. (1991). Gender Role Typing, the Superwoman Ideal, and the Potential for Eating Disorders. *Sex Roles, 25*(7/8), 469-484.
- Tiggemann, M. (2001). Effect of Gender Composition of School on Body Concerns in Adolescent Women. *International Journal of Eating Disorders, 24*, 239-243.
- Timko, C., Streigel-Moore, R., Silberstein, L.R., & Rodin, J. (1987). Femininity/masculinity and disordered eating in women: How are they related? *International Journal of Eating Disorders, 6*(6), 701-712.
- Turner, B. (1996). *The Body and Society: Explorations in Social Theory*. London: Sage Publications.
- Tyrka, A.R., Waldron, I., Graber, J.A., & Brooks-Gunn, J. (2002). Prospective predictors of the onset of anorexic and bulimic syndromes. *International Journal of Eating Disorders, 32*(3), 282-290.
- Usmiani, S., & Daniluk, J. (1997). Mothers and their adolescent daughters: relationship between self esteem gender role identity, and body image. *Journal of Youth and Adolescence, 26*(1), 45-62.
- Vandereycken, W., & van Deth, R. (1994). *From Fasting Saints to Anorexic Girls: The history of self-starvation*. New York: New York University Press.
- Van Strein, T. (1989). Dieting, dissatisfaction with figure, and sex role orientation in women. *International Journal of Eating Disorders, 8*, 455-462.
- Wardle, J., & Marsland, L. (1990). Adolescent concerns about weight and eating: A social-developmental perspective. *Journal of Psychosomatic Research, 34*, 377-391.
- Way, K. (1993). *Anorexia Nervosa and Recovery: A Hunger for Meaning*. New York: Harrington Park Press.
- Why Think Small? [Special Issue] (2002). *Educational Leadership, 59* (5).
- Wolf, N. (1991). *The Beauty Myth: How Images of Beauty are Used Against Women*. New York: Doubleday.
- Wood, J.V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin, 106*(02), 231-248.
- Woodside, W.D., Bulik, C.M., Halmi, K.A., Fichter, M.M., Kaplan, A., Berrettini, W.H., Strober, M. Treasure, J., Lilenfeld, L., Klump, K., & Kaye, W.H. (2002). Personality, perfectionism, and attitudes towards eating in parents of individuals with eating disorders. *International Journal of Eating Disorders, 31*(3), 290-299.

