

2002

Validity of the Mizes Anorectic Cognitions Questionnaire-Revised with a Racially Mixed, Nonclinical Population of 14- to 19-year-old Adolescents

Robert P. Guillard, Jr.

Philadelphia College of Osteopathic Medicine, guillard-robert@cooperhealth.edu

Follow this and additional works at: http://digitalcommons.pcom.edu/psychology_dissertations



Part of the [Clinical Psychology Commons](#)

Recommended Citation

Guillard, Jr., Robert P., "Validity of the Mizes Anorectic Cognitions Questionnaire-Revised with a Racially Mixed, Nonclinical Population of 14- to 19-year-old Adolescents" (2002). *PCOM Psychology Dissertations*. Paper 57.

This Dissertation is brought to you for free and open access by the Student Dissertations, Theses and Papers at DigitalCommons@PCOM. It has been accepted for inclusion in PCOM Psychology Dissertations by an authorized administrator of DigitalCommons@PCOM. For more information, please contact library@pcom.edu.

Philadelphia College of Osteopathic Medicine

Department of Psychology

THE VALIDITY OF THE MIZES ANORECTIC COGNITIONS
QUESTIONNAIRE-REVISED WITH A RACIALLY MIXED, NONCLINICAL
POPULATION OF 14-TO 19-YEAR-OLD ADOLESCENTS

By Robert P. Guillard Jr.

Submitted in Partial Fulfillment
Of the Requirements for the Degree of
Doctor of Psychology

August 2002

PHILADELPHIA COLLEGE OF OSTEOPATHIC MEDICINE
DEPARTMENT OF PSYCHOLOGY

Dissertation Approval

This is to certify that the thesis presented to us by Robert P. Guillard Jr. on the 12th day of March, 2002, in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been examined and is acceptable in both scholarship and literary quality.

Committee Members' Signatures:

Arthur Freeman, Ed.D., ABPP, Chairperson

Rosemary Mennuti, Ed.D.

Robert A. DiTomasso, Ph.D., ABPP

Arthur Freeman, Ed.D., ABPP, Chair, Department of Psychology

ACKNOWLEDGMENTS

I would like to express my appreciation to my committee members whose support and guidance enabled me to reach and succeed in completing a lifelong goal. To Dr. Freeman, many thanks for your direction and support in the development and completion of this project. Your encouragement and expertise within the areas of writing and clinical skills were invaluable to me during this period. To Dr. Mennutti, the timing of your involvement in this project and your expertise within the field of eating disorders helped to raise my level of understanding of those individuals whom we strive to support through therapy. Your support was instrumental in my success. Thank you. To Dr. DiTomasso, your continual support, expertise and even-mannered drive motivated me through the completion of this exercise. To you I wish to express my undying gratitude for your guidance and patience and for empowering me to complete this project. Your devotion to each of your students' is openly apparent. I am eternally grateful.

To my wife and son, I am unable to think of the words that would appropriately express how I feel toward you for enabling me to achieve this goal. Your support, sacrifice and understanding mean everything to me. I love you both.

LIST OF FIGURES

Figure	Page
1. Factor Structure of the MAC-A.....	44
2. MAC-A Total Scores Frequency Distribution.....	48

LIST OF TABLES

Table	Page
1. Descriptive Data of Student Age.....	33
2. Descriptive Data of Student Race.....	34
3. Descriptive Data of Student Gender.....	35
4. MAC-A Total Score Comparison by Gender.....	45
5. Correlation Coefficients Between MAC-A, GFFS, and BIA.....	47

TABLE OF CONTENTS

LIST OF FIGURES..... iii

LIST OF TABLES..... iv

CHAPTER

1. INTRODUCTION 1

 Adolescent Physical Development..... 4

 Secular Trends..... 6

 Adolescent Cognitive Development..... 6

 Anorexia Nervosa..... 7

 Bulimia Nervosa..... 8

 Epidemiology..... 9

 Cultural Issues..... 10

 Feminist Perspective..... 11

 Genetics..... 12

 Predisposing Factors..... 13

 Ethnicity..... 15

 Course of Eating Disorders..... 17

 Cognitive-Behavioral Model of Therapy..... 18

 Mizes Anorectic Cognitions Questionnaire..... 23

 Alternative Eating Disorder Questionnaire..... 25

 Purpose..... 28

 Hypotheses..... 29

 Planned Statistical Analysis..... 30

2. METHODOLOGY 31

 Participants..... 31

 Demographic Data..... 31

 Design..... 36

 Measures..... 36

 Procedures..... 40

3. RESULTS..... 42

 Factor Structure of the MAC-R..... 42

 MAC-A Gender Analysis..... 45

 MAC-A Factor Score Comparisons by Gender..... 45

 MAC-A Total Score Age Analysis..... 46

 MAC-A Total Score Race Analysis..... 46

MAC-A Convergent Validity: Correlation With Other Measures.....	46
4. Discussion.....	49
Cultural Factors.....	49
Age Factors.....	50
Clinical vs. Non-clinical Populations.....	51
Gender Comparisons.....	51
Validity.....	52
Limitations.....	53
Implications For Future Research.....	54
REFERENCES.....	56
APPENDICES	
A: Parental Permission Form.....	72
B: Student Assent.....	73
C: Smoking Questionnaire.....	74
D: The Fagerstrom Test.....	79
E: Body Image Assessment-Female.....	80
F: Body Image Assessment-Male.....	82
G: Goldfarb Questionnaire.....	84
H: MAC Questionnaire.....	85

CHAPTER 1

Introduction

The eating disorders of anorexia nervosa and bulimia nervosa have reached epidemic proportions in our population today (Casper, 1998; Mealy, 2000), especially among adolescent and adult women who comprise more than 90% of those diagnosed with either disorder (American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders (4th ed.), 1994). Both eating disorders occur in males and the disorders are believed to be similar in both genders (Strober, Freeman, Lampert, Diamond & Kaye, 2000; Woodside, Garfinkle, Lin, Goering, Kaplan, Goldbloom, & Kennedy, 2001). As the majority of those affected by these disorders are women, they will be the focus of the remainder of this study.

The most recent estimate of prevalence rates of eating disorders in adolescents were conducted one decade ago and indicated that between 5 and 10 million adolescent girls and women struggled with eating disorders and borderline conditions (Crowther, Lilly, Crawford & Shepherd, 1992). Of today's affected individuals, report the onset of the illness by the age of 20. The duration of the eating disorders varies; 77% report duration from 1 to 15 years (National Association of Anorexia Nervosa and Associated Disorders-N.A.A.N.A.D., 2000). Thinness in women has come to symbolize competence, control, success and sexual attractiveness (Wilfley & Rodin, 1995). The media in this and other Westernized countries has glorified the thinness, contributing to the focus on body image as a gateway to success in relationships, occupation and self-esteem

(Kilbourne, 1994). Often, these disorders go undiagnosed (and thus untreated) because patients rarely disclose their symptoms to their physician or therapist (Ressler, 1998). Because of a fear of discovery and embarrassment, or as a result of a personal need to remain within the role of the “good girl,” that of being silent and compliant, women refuse to divulge their secrets regarding their thoughts and eating related behaviors (Peters & Fallon, 1994).

The treatment of anorexia and bulimia is often extremely expensive and difficult. Large numbers of patients require extensive medical monitoring and treatment while therapy generally extends for more than 2 years. Medical complications of eating disorders include disturbances within the areas of neurological functioning, dermatological disorders, hematology, renal and metabolic dysfunction, dental complications, reproductive, gastrointestinal and cardiovascular complications. Both adults and adolescents with eating disorders also frequently exhibit symptoms of depression, anxiety, personality disorders and addictive behaviors, making therapy difficult (Zaider, Johnson & Cockell, 1999). The concomitant disorders are complex, and a challenge to professionals. The cost of inpatient treatment can be \$30,000 or more per month with many patients requiring repeated hospitalizations. The cost of outpatient treatment, including therapy and medical monitoring can extend to \$100,000 or more. (N.A.A.N.A.D., 2000.)

A variety of approaches to the treatment of eating disorders exist. Primary prevention, educating children about proper eating behaviors and normal growth patterns seem likely to be beneficial; however, the lack of knowledge surrounding

risk factors for the development of the disorders, together with the absence of research regarding the effectiveness of these methods, is concerning (Fairburn, 1995). Family therapy has garnered support in treating early onset (≤ 18 years old), anorexia, while individual therapy has been found more effective with those with a late onset (≥ 18 years old) of illness (Eisler, et.al., 1997).

Cognitive-behavioral therapy has garnered extensive support through controlled trials (Marcus & Levine, 1998; Agras, Walsh, Fairburn, Wilson & Kraemer, 2000), the likes of which other therapeutic approaches have yet to establish.

When combined, cognitive-behavioral therapy and anti-depressant medication serve to further reduce eating disorder symptomology, however this improvement diminishes with the elimination of the medications (Walsh & Devlin, 1998). It is generally accepted that all treatment should address the medical, nutritional and psychological needs of children and adolescents with eating disorders (Kohn & Golden, 2001).

Although the mean age of onset of eating disordered behavior has been determined to fall between the ages of 14 and 19, there are relatively few screening devices which have been developed to assess the cognitions or cognitive processes of the eating disordered pathology of adolescents. The importance of this study lies in determining the efficacy of the Mizes Anorectic Cognitions Questionnaire-Revised, MAC-R (Mizes, 1994), with a population of racially mixed adolescents as a tool to identify those individuals with cognitive beliefs associated with eating disorders. Once identified, those professionals within the fields of medicine and clinical psychology can work toward treating the

affected individual during the early stages of the development of the eating disorder(s) in order to enhance the opportunity for positive treatment effects, thereby reducing the overall cost of treatment through time.

An assessment tool such as the MAC-R must, however, be sensitive to the developmental issues, which set adolescents apart from the adult population. A more comprehensive understanding of these developmental issues - physical, cognitive and social development - may provide the basis for the early identification of eating disordered pathology.

Adolescent Physical Development

Adolescence can be defined as the period when movement is made from childhood to adulthood. Marked by major physical changes, puberty and important cognitive and psychosocial change, adolescence is best known as a period of turmoil and change for most. Many of the transitions that adolescents face are sources of risk to their physical and mental well-being. While adolescents in developed countries are healthy in that they experience a low incidence of disease, as early as two decades ago the World Health Organization (WHO, 1981) reported that adolescents were increasingly experiencing new health risks leading to mortality and morbidity. While morbidity in other age groups declined between 1970 and 1990, it has increased by 11% for adolescents (U.S. Office of Technology Assessment Congress, 1991). Threats to adolescent health and well-being include injury from accidents, suicide, substance abuse, sexually transmitted diseases, dieting, eating problems and eating disorders,

which are more common in girls (Millstein, Nightgale, Peterson, Mortimer & Hamburg, 1993).

One study within the past 34 years reported that compared to childhood, adolescence comprises less overall growth in height and weight, but significantly greater irregularity and unevenness in the pattern and pace of growth. At approximately 11 to 12 years of age, girls experience a growth spurt in height of approximately three inches, followed by a total increase in weight of approximately 38 pounds. Body fat is also reported to increase from about 21% to about 26% or 27%. Boys continue to grow in height at a relatively stable rate until the age of 14, when they experience a growth spurt of up to four inches, gain 42 pounds and show a decrease in body fat from 18% or 19% to 11%. Adolescents differ greatly in their rates and patterns of growth. While for some the change may be barely noticeable, it may be radically different for others. Complicating the matter further is the fact that different parts of the body, including feet, hands and the torso often grow at different rates. Overall, adolescents gain up to 50% of their adult weight, more than 20% of their adult height and 50% of their adult skeletal mass during this period (WHO, 1999).

The timing of puberty appears to be related to adolescent girls' feelings about their bodies. Findings suggest that girls who develop on time or late compared with their peers have more positive body images than do girls who develop early (Blyth, Simmons, & Zakin, 1985). This may be because girls who are early-maturing tend to be heavier than their peers. Early-maturing girls may

feel less comfortable with their bodies at a time when peer acceptance is important. Those adolescents who are considered to be most at risk are early-maturing girls with higher percentages of body fat (Graber, Brooks-Gunn, Paikoff & Warren, 1994). It may be that on-time development, occurring when others are concurrently negotiating similar physical changes, presents the least psychological challenge to adolescent girls (Swarr & Richards, 1996).

Secular Trends

During the past century, children have gradually begun the physical changes of adolescence earlier and have ended up growing taller and heavier than their parents, tendencies which are referred to as a secular trend. The average age at which girls experience menarche has dropped from between 15 and 17 a hundred years ago to between 12 and 14 in both the United States and Western Europe within the past 30 years. Also, while boys generally reach their full height by ages 18 to 20 and girls between 13 and 14, in 1880 the average male did not reach full height until between 23 and 25, and the average female between 19 and 20 (Tanner, 1972). These trends can be attributed to the continuing improvements in health care, diet and living conditions brought on by Westernized society.

Adolescent Cognitive Development

Cognitive changes occur during this period allowing the individual to move from the concrete operational thought of childhood to formal operational thought of adolescence. Formal operational thought is comprised of the individual's ability to formulate and test hypotheses regarding all possible outcomes of a potential event. They are able to evaluate social, personal and

political issues from a number of different perspectives and determine how these issues are related to a larger set of relationships. There is still a lingering egocentrism involved in the adolescent's evaluative logic. Adolescents are impressed with the power of thought and naively underestimate the practical problems involved in achieving an ideal future for themselves. This egocentrism will continue to decline, however, as the individual broadens his or her experiences and changes will continue to occur, not in the individual's structure of thought but its content and stability.

Anorexia Nervosa

As the prevalence of eating disorders increases, so has the scientific literature base and the interest in addressing the needs of those who suffer from the disorders. Anorexia Nervosa, which literally means the nervous loss of appetite, is diagnosed through a set of diagnostic criteria consisting of the refusal to maintain body weight at or above 85% of the expected level, an intense fear of gaining weight or becoming fat even though underweight, a disturbance in the way in which one's body weight or shape is experienced, and, in postmenarcheal females, the absence of at least three consecutive menstrual cycles (DSM-IV, 1994). In childhood or early adolescence there may be a failure to make expected weight gains while growing in height. In prepubertal females, menarche may be delayed by the illness. An alternative guideline for determining weight range consists of the use of a Body Mass Index calculated in weight in kilograms/height in meters squared. The suggested cutoff for individuals considered to be under recommended weight levels is 17.5kg/m². Subtypes of the disorder include a

restricting type in which weight loss is accomplished primarily through dieting, fasting or excessive exercise, while not engaging in binge eating or purging; and the binge-eating/purging type in which the individual may binge and then purge through self-induced vomiting or the misuse of laxatives, diuretics or enemas. The mean age of onset has been suggested to be 17 (DSM-IV, 1994), 19.2 ± 6.4 (Herzog, Sacks, Keller, Lavori, von Ranson & Gray, 1993), and 18 ± 6.7 (Rathasuriya, Eisler, Szmukler & Russell, 1991) with a prevalence rate of 0.5% to 1% (DSM-IV, 1994).

Bulimia Nervosa

The diagnostic criteria for Bulimia Nervosa, according to the *DSM-IV*, requires the presence of recurrent episodes of binge eating, recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting, misuse of laxatives, diuretics, enemas, medications, fasting or excessive exercise. It is also specified that binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months; self-evaluation is unduly influenced by body shape and weight; and, the disturbance does not occur exclusively during episodes of Anorexia. Two subtypes are specified; purging type, in which the person regularly engages in the use of self-induced vomiting or the misuse of laxatives, diuretics or enemas; and a non-purging type in which the person may engage in fasting or excessive exercise. The prevalence rate of Bulimia Nervosa is approximately 1% to 3% among adolescent and young adult females with the occurrence in males being approximately one-tenth of that in females (DSM-IV, 1994).

Subclinical problems are even more prevalent, with estimates of at least 20% of girls, totaling nearly 2.5 million will exhibit bulimic behaviors (Schwartz, Thompson, & Johnson, 1985). Although most evidence has suggested that bulimia is more prevalent in middle and upper middle class White girls, some evidence suggests that rates are increasing in other ethnic and social class groups (Hsu, 1987), especially for girls who experience more pressure to acculturate to White, middle-class standards (Pumariega, 1986).

Epidemiology

Epidemiological studies have resulted in no clear-cut evidence regarding exactly how adolescents actually develop Anorexia or Bulimia. Reasons for the limited available quantitative data consist of a lack of the following: appropriate definition of the disorder, assessment tools (Bryant-Waugh, Cooper, Taylor & Lask, 1996), and homogeneous studies. However, the incidence of eating disorders are reported to have doubled within the last two decades. Research has indicated that the numbers appear to have increased proportionally with the overall population of the region studied and that the documented increases may have been affected by the number of readmissions or referrals to hospitals and clinics for the same problems (Fombonne, 1995).

It is difficult to know whether the rates of eating disorders are increasing. Many researchers have argued that the apparent increases in incidence rates can be accounted for by a number of factors including changes in the structure of the

base population, changes in the use of health services and improved recognition of eating disorders over time and within different professions. As very few studies have reported on the incidence and prevalence rate of eating disorders in children, it is difficult to determine whether the rates in this age group are increasing (Doyle & Bryant-Waugh, 2000).

Cultural Issues

The increase of documented cases of eating disorders in countries other than the United States and the industrialized European nations may be due to the Westernization of their cultures (Wilfley & Rodin, 1995). Most of the recent reports of individuals with eating disorders from Africa, Asia, the Caribbean, China or Japan appear to be related to the adoption of Western values and the subsequent intrapersonal and intrafamilial conflicts. At present, it can still be stated that, in general, eating disorders have only been reported in societies where food is plentiful and thinness is valued (Bryant-Waugh & Lask, 1995).

Cultural factors appear to affect the manner in which individuals perceive themselves and how they believe they are perceived by others; both of which are factors that may be highly influenced by the mother (Hodes, Jones & Davies, 1996). Hodes et al. imply that a cultural variation in the acquisition of attitudes regarding body shape does exist. Despite the fact that mothers who participated in this study maintained a similar Body Mass Index and Eating Assessment Test scores, it was found that those from the United Kingdom found slimmer girls attractive, compared to mothers from South Asia, the Mediterranean or Caribbean regions and Sub-Saharan Africa.

A sociocultural propensity for extreme thinness and the prevalence of models with a skeletal look comprise one of the major etiological factors interacting within the psychosocial model of eating disorders (Mitchell & Eckert, 1987; Shisslak, Crago, Neal, & Swain, 1987). Thinness in women has come to symbolize competence, success, control and sexual attractiveness (Wilfley & Rodin, 1995). The authors assert that it is not really physical perfection that has become the ideal but rather an unnatural, unrealistic body size that is forcing young women to treat their bodies in an unnatural way. A healthy normal woman would have 22% to 25% body fat, whereas the current ideal is based on models that have 10% to 15% body fat. The average American woman is reported to be 5'4" tall, weighing 140 pounds. The average American model is 5'11" weighing 117 pounds. Most fashion models are thinner than 98% of American women (A.A.N.A.D., 2000). It can be demonstrated that many fashion models, as well as Playboy Centerfolds and Miss America contestants, would meet the body weight criteria for anorexia (Wilfley & Rodin, 1995; Wiseman, Gray, Mosimann, & Ahrens, 1992).

Feminist Perspective

The feminist perspective on eating disorders focuses on the development of a gender ambivalence as a cause of eating disordered pathology. Women striving to achieve in areas of society that have been traditionally available to

males suffer a loss of self-worth due to the devaluation of women choosing traditional roles or the recognition that women in nontraditional roles face great limitations because of their gender (Perlick & Silverstein, 1994). The authors report that these processes, which occur during a period of changing gender roles, are the causal factors of poor body image, depression, disordered eating and somatic complaints. The real cure for these problems then lies in the elimination of gender bias.

By refusing to put on a woman's body, which would be rated by males as a sexual object, women avoid the stereotypic control expected exerted by a male-dominated society (Wolf, 1994). The objectification of women's bodies by society, and also by women themselves, sustains the disembodiment and disempowerment that are believed to be the core issues of the female experience and the cause of the obsessive and destructive relationship that most women have with their bodies (Hutchinson, 1994).

Genetics

Generally, it is believed that Anorexia is a disorder with no single causative factor; but that a combination of circumstances and actions occur which predispose a person to the development of the disorder, precipitate its occurrence and perpetuate the symptoms that have developed over time to produce the condition (Wren & Lask, 1993). Genetics apparently play a role in Anorexia and Bulimia as early studies of twins found a greater concordance of Anorexia in monozygotic twins (33% to 56%) than dizygotic twins (0% to 11%), (Askevold & Heiberg, 1979; Vandereycken & Pierloot, 1981; Garfinkle & Garner, 1982;

Nowlin, 1983; Holland, Hall, Murray, Russell & Crisp, 1984). More recent research has indicated that approximately 50% to 83% of the variance in both anorexia and bulimia is due to genetic factors (Bulik, Sullivan & Kendler, 1998; Holland, Sicotte & Treasure, 1988; Kendler, et.al., 1991; Klump, Miller, Keel, McGue & Iacono, 1999). Additionally, in a study of 147 monozygotic and 99 dizygotic twins, Rutherford, McGuffin, Karz, and Murray (1993) found that the genetic contribution to the variance in Body Mass Index was estimated at 64%.

While research has demonstrated that eating disorders run in families (Lilenfield & Kaye, 1998), an examination of the relevant twin studies and methods used in their research reveals that the heritability of eating disorders remains unclear (Fairburn, Cowen, & Harrison, 1999), and it is not possible to draw firm conclusions regarding the precise contribution of genetic and environmental factors to eating disorders (Bulik, Sullivan, & Kendler, 1998).

Predisposing Factors

Trauma, as the result of sexual and physically abusive experiences, has been identified as a predisposing factor in eating disorders (Hall, Tyce, Berresford, Wooley, & Hall, 1989; Palmer, Oppenheimer, Dignon, Chaloner & Howells, 1990; Waller, 1991), while traumatic experiences are more frequently reported among bulimics, rather than restricting anorexics (Vanderlinden & Vandereycken, 1997). Hypothalamic dysfunction (Li, 1994), parental psychiatric difficulties, familial relationships, temperament and personality have all been identified as factors that interact with different weights for each individual child (Atkins & Silber, 1993). Interestingly, the same study also found a significant

relationship among the physical maturation of children ages 7-12, their entry into high school, and loss, or some combination of these. All three signify some form of transition out of the relatively protected world of childhood and place increased demands on the child's coping skills. If the coping system has been overtaxed by some predisposing factor, the child's developmental progression may be derailed into an eating disorder. Girls experiencing early menarche have been found to be particularly likely to diet, and early maturers have been described as being at overall risk for eating problems (Attie & Brooks-Gunn, 1989). The early occurrence of puberty creates a situation in which a young girl is faced with increasing body fat, breast development and menarche before her peers. Recent studies suggest that 30% to 50% of early and middle adolescent girls consider themselves overweight, while as many as 25% engage in subthreshold levels of disordered eating behaviors, including dieting, fasting, diet pill use, binge eating and purging (Felts, Parillo, Chenier & Dunn, 1996). The results have been shown to place a girl at an increased risk for eating disorders. A cumulative stressor model suggests that three aspects of early adolescence; weight/fat gains associated with the onset of puberty, the onset of dating and the intensification of academic demands interact with a slender body ideal to determine the onset of nonpathological dieting or eating disturbances in adolescent girls (Levine & Smolak, 1992). All three changes occur normatively during ages 11-14 years (Brooks-Gunn, Warren, Rosso & Gargiulo, 1987; Simmons & Blyth, 1987) and each appears to enhance the salience, of and dissatisfaction with, appearance, body shape, and body fat (Gralen, Levine, Smolak, & Murnen, 1990; Richards,

Boxer, Petersen & Albrecht, 1990; Striegel-Moore, McAvay & Rodin, 1986). It has also been reported that children who have been faced with an early medical condition that may threaten their lives, could suffer from a “vulnerable child syndrome,” characterized by increased parental anxiety which may help to create increased anxiety and disturbances in the child’s psychosocial development resulting in disordered eating behavior (Atkins & Silber, 1993).

Ethnicity

Racial differences in the drive for thinness, which is defined as the person’s desire to be thinner than their current state, were found suggesting that for Black girls the degree of overweight and criticism about being overweight accurately predicted the individual’s drive to be thin. In White girls, however, it was found that daughters of less educated women reported a greater drive for thinness than daughters of parents who held a college or advanced degree. Also, it was found that the satisfaction with physical appearance contributed significantly with White girls’ desire to be thin (Striegel-Moore, Schreiber, Pike, Wilfley & Rodin, 1995). The results of this study did not attempt to correlate the drive for thinness and Anorexia or Bulimia but did present a hypothesis that as Black girls mature, they are less sensitive to being overweight than White girls because of their racial groups’ acceptance of higher levels of body weight. White girls, however, may continue to be dissatisfied with their body images, and again it is hypothesized that this dissatisfaction is supported within their culture, resulting in increased dieting and subsequent eating disordered symptomology. Such information is important in determining the significance of parental and

cultural attitudes toward body adiposity and the possibility that these attitudes may be indirectly communicated, placing the individual at an increased risk for developing eating disorders (Streigel-Moore et al., 1995). In a study by Desmond, Price, Hallinan and Smith (1989), it was found that heavy White females were more likely to identify themselves as being overweight than did overweight Black girls. Similarly, 78% of heavy White males labeled themselves heavy as opposed to 36% of heavy Black males. In a study of National Health Interview Survey data (Dawson, 1988), White students tended to classify themselves as heavier than they actually were, while Black females were more likely to correctly identify their weight. White females were likely to be more dissatisfied with their appearance than Black females. While Black males were more likely to perceive themselves as thinner than they were, White males were more likely to accurately perceive their weight level.

Both Black and White adolescents appear to hold distorted perceptions of their body weight. However, distortions for Black adolescents seem to be in a direction opposite of that for White adolescents. Blacks who are heavy or normal weight are more likely to perceive themselves as thinner, while White adolescents who are thin or normal weight perceive themselves as heavier (Desmond, Price, Hallinan & Smith, 1989).

The 1991 Youth Risk Behavior Survey (Centers for Disease Control, 1991) also found that ethnicity influences the way that adolescents perceive body image and weight control strategies as Whites (44%) and Hispanics (47%) were more likely to perceive themselves as overweight than Blacks (29%). In those

who considered themselves overweight, similar proportions were trying to lose weight (92% of Whites, 94% of Hispanics and 88% of Blacks). However, substantial ethnic differences were found among females who were attempting to lose weight but who considered themselves about the right weight (54% of Whites, 43% of Hispanics and 29% of Blacks).

Course of Eating Disorders

The course of both anorexia and bulimia is variable according to factors such as age of onset, initial time of treatment, comorbidity, and compliance to treatment regimens. Some anorectics recover completely, while more than one-third experience recurrent affective illnesses. Suicide has been reported in up to 5% of patients with chronic anorexia while mortality rates of 3% to 10% (Herzog et al., 1993; Sullivan, 1995; Herzog et.al., 2000), and 6% to 15% (Steinhausen, Rauss-Mason, & Seidel, 1991), have been reported. Eating problems such as dieting, preoccupation with weight and bingeing emerge during the adolescent years and are associated with several serious health problems. Dieting prior to puberty can result in the delay of pubertal development whereas dieting and weight loss postpubertally have been associated with amenorrhea and the reversion to prepubertal hormonal functioning (Sallis, 1993). As skeletal growth continues across adolescence into young adulthood in most women, dieting practices that result in inadequate calcium intake or disrupted hormonal functioning have been associated with skeletal problems and the increased likelihood of bone injuries (Warren, Brooks-Gunn, Hamilton, Hamilton, & Warren, 1986). The medical complications resulting from anorexia are well

documented and far-reaching. The most significant medical problems for adolescents, which differ from adults, are the potential for significant growth retardation, pubertal delay or interruption, and peak bone mass reduction (Steiner & Lock, 1998). The concomitant effects of bulimia include hypokalemia, esophageal tears, gastric disturbances, dehydration and orthostatic blood pressure changes (Kreipe, Golden, & Katzman, 1995).

The costs of treatment can be staggering as inpatient facility fees may reach \$30,000 per month. Additionally, outpatient therapy may be required for years, depending upon the individual's needs and comorbid disorders (N.A.A.N.A.D., 2000).

Cognitive-Behavioral Model of Therapy

The cognitive-behavioral model of therapy for eating disorders as proposed by Garner and Bemis (1982), posited the existence of three core cognitive distortions believed to be central to the disorders. The authors suggested that anorectic individuals maintain certain assumptions, which, lead them to avoid weight gain and eating, and others, which support weight loss and dieting as highly desirable.

More specifically Garner and Bemis (1982), proposed three assumptions that underlie anorectic cognitions. The first is the anorectic's conviction that a perfect balance between disparate elements should be striven for and can be achieved. This addresses the individual's tendency to view life as static and to strive to achieve a continual balance between the elements of hunger and satiety. The second proposed assumption is that weight, shape or thinness can serve as the

sole or predominant referent for inferring personal value or self-worth. The authors indicate that this assumption may be expressed as a fear of fatness or as an overvaluation of thinness, which is strongly reinforced by the values that the media place upon thinness in women. The third assumption suggests that anorexics believe that complete self-control is desirable. Perfection appears to become the goal with body weight and shape as the focus.

Cognitive-behavior therapy has been found to be an effective treatment for bulimia nervosa. A summary of 10 treatment studies found a mean reduction in purgings of 79%, with a 57% remission rate (Craighead & Agras, 1991). In a review of controlled studies by Fairburn, Agras and Wilson (1992), a mean reduction in binge eating ranging from 93% to 73% with comparable reductions in purging from 94% to 71%, was found. Mean remission rates for binge-eating range from 51% to 71% and for purging from 36% to 56% (Agras, Schneider, Arnow, Raeburn, & Telch, 1989; Agras et al., 1992; Fairburn et al., 1991; Garner et al., 1993). Beyond reductions in bingeing and purging, studies have shown reductions in dietary restraint (Fairburn et al., 1991; Garner et al., 1993; Wilson, Eldredge, Smith & Niles, 1991), with an increase in the amount of food eaten between bulimic episodes (Rossiter, Agras, Losch & Telch., 1988). Attitudes toward shape and weight are also found to improve (Fairburn et al., 1991; Garner et al., 1993; Wilson et al., 1991).

Overall both short- and long-term follow-up studies have shown a reasonably good level of maintenance and change after 6 months, 1 year and 5 years, with an average abstinence rate of 48% (Fairburn et al., 1995), while it is

believed that the younger the age of onset of the disorder the better the overall prognosis (Steinhausen, Bayadjieva, Grigoroiv-Serbanescy, Seidel & Metzke, 2000).

The Oxford Cognitive Behavioral Therapy Manual developed by Fairburn (1981), and later revised (Fairburn, Marcus & Wilson, 1993), is based on a model that emphasizes the critical role of both cognitive and behavioral factors in the maintenance of bulimia nervosa. Primary importance is placed upon the value attached to idealized body weight and shape. This leads individuals to restrict their food intake in rigid and unrealistic ways, which leads them toward periodic loss of control over eating and bingeing. Purging and other forms of weight control then become attempts to compensate for the effects of bingeing. The purging helps maintain the binge eating by reducing the individuals' anxiety about potential weight gain and disrupting learned satiety that regulates food intake. In turn, binge eating and purging cause distress and lowers self-esteem, thereby reciprocally fostering the conditions that inevitably lead to more dietary restraint and binge eating. Treatment in this model must therefore address not only the binge eating and purging, but also dietary restraint should be replaced with more normal eating patterns. Dysfunctional thoughts and feelings about the personal significance of body weight and shape must be altered (Wilson, Fairburn & Agras, 1997).

Treatment for Bulimia Nervosa as reported in the Oxford manual occurs in three stages and consists of 19 individual sessions spanning 20 weeks. Stage One is focused on behavior change and spans eight sessions, during which time a

therapeutic relationship is established along with weekly weighings, education regarding the disorder as well as the initiation of self-control strategies. Stage Two (sessions nine through sixteen), supplements the techniques of Stage One with a variety of procedures for reducing dietary restraint and developing cognitive and behavioral coping skills for resisting binge eating. An increasingly cognitive focus is acquired. Stage Three moves toward the development of relapse strategies to ensure the maintenance of change following treatment (Wilson et al., 1997).

Treatment for Anorexia Nervosa typically lasts from 1 to 2 years, a length of time, which is generally required to overcome motivational obstacles and achieve appropriate weight gain. Commonly accepted indications of required inpatient hospitalization is a weight that is more than 25% to 30% below ideal body weight, rapid and severe weight loss refractory to outpatient treatment, marked symptomatic hypotension or syncope, a pulse rate less than 35 to 40 beats per minute and arrhythmias (Comerci & Greydanus, 1997). Because of the litany of medical complications associated with anorexia, severely emaciated patients are best treated in a specialty inpatient unit for eating disorders. Patients with serious but less severe weight loss should be treated by a multidisciplinary outpatient team, which should include medical management together with behavioral and dietary therapy to prevent the inexorable decline and physiologic changes associated with weight loss. The invaluable role of the primary care physician is to point out the reality and severity of the chronic illness, while diligently monitoring the patient's physical status (Mehler, 2001).

The cognitive-behavioral model for anorexia nervosa is similar to that of bulimia nervosa as the cognitive restructuring process for both focuses on attitudes about weight and shape. Education about regular eating patterns, body weight regulation, starvation symptoms, vomiting and laxative abuse is also a strategic element of both. However, key distinctions can be made between the disorders in terms of motivation for treatment and weight gain as a target symptom; both of these require variations in the style, pace and content of therapy (Garner, Vitousek & Pike, 1997). The major content areas for cognitive therapy are reflected in three phases. In phase one, treatment consists of the following: building a positive therapeutic alliance; assessing key features of the eating disorder; providing education about starvation symptoms and other selected topics; evaluating and treating medical complications; explaining the multiple functions of anorexic symptomology; differentiating the “two tracks” of treatment; presenting the cognitive rationale for treatment; giving rationale and advice for restoring normal nutrition and weight; implementing self-monitoring and meal planning; prescribing normalized eating patterns; interrupting bingeing and vomiting; implementing initial cognitive interventions; increasing motivation for change; challenging cultural values regarding weight and shape; and determining optimal level of family involvement.

In phase two, treatment includes: continuing the emphasis on weight gain and normalized eating patterns; reframing relapses; identifying dysfunctional thoughts, schemas and thinking patterns; developing cognitive restructuring skills;

modifying self-concept; developing an interpersonal focus in therapy; and involving the family in therapy.

In phase three, the goals of treatment are: summarizing progress; reviewing fundamentals of continued progress; summarizing areas of continued vulnerability; reviewing the warning signs of relapse; and clarifying when to return to treatment (Garner & Garfinkle, 1979).

Cognitive-behavior therapy for children and adolescents with eating disorders must place a greater emphasis on working with parents and other important persons within the child's life (Reinecke, 1992). It has been suggested that the most appropriate therapy for children and adolescents with eating disorders is family therapy (Bowers & Anderson, 1994). Active attempts must be made to understand how parents may inadvertently contribute to the child's difficulties. Explicit attempts must be made to understand the parent's perceptions, beliefs, and expectations for their child, and whether they may be conveying maladaptive beliefs to their child (Bowers, Evans & Van Cleve, 1996).

A key issue in the treatment of eating disordered individuals involves the valid and reliable assessment of the constructs related to eating disordered attitudes and beliefs. To date there are but a few such assessment tools with strong empirical support available.

Mizes Anorectic Cognitions Questionnaire (MAC)

The Mizes Anorectic Cognitions Questionnaire (Mizes & Klesges, 1989), has been found to be a valid and reliable instrument in identifying the three cognitive distortions associated with eating disordered pathology in primarily

White, college-age individuals. The distortions have been found to exist within the cognitions of these individuals and affect their eating behavior. First, there is the need for approval of others based upon the perception of weight and eating. Second, the belief that self-worth is based on a belief of rigid self-control is quite strong. Third, without rigid weight regulation one will eat uncontrollably and rapidly, resulting in excessive weight gain. Consequently, individuals with eating disorders often believe that they must maintain complete and rigid control over what they eat in order to maintain their esteem. They believe that they are judged by others according to their weight and appearance only, so they must strive to maintain a weight that they believe, is appealing to others. In addition, an individual with such a disorder may believe that her worth as a person depends upon her ability to maintain her weight and appearance, despite her hunger and desire for food; and any deviation from a strict, self-imposed regimen of eating behavior would be viewed as a weakness by others. Through factor analysis the MAC has been demonstrated to show support for the presence of all three of these cognitive variables (Mizes & Klesges, 1989). The MAC possesses adequate test-retest reliability (Mizes, 1991), and excellent convergent and divergent validity (Mizes & Klesges, 1989). It has been correlated with the severity of eating disordered pathology (Mizes, 1991), and reported self-ideal weight (Mizes & Klesges, 1989). The MAC is sensitive to subclinical differences in eating related behavior and attitudes (Mizes, 1990), and has good concurrent validity with the Eating Disorders Inventory (EDI), (Garner & Olmstead, 1984). To date, no

research has been conducted to norm and analyze the factor structure of the Mizes Anorectic Cognitions Questionnaire in a nonclinical adolescent population.

A second or revised version of the MAC, the MAC-R (Mizes, 1994), consisting of 24 items was developed by Mizes who reported that the assessment maintained the same factor structure and psychometric properties as the MAC in a sample of eating disordered patients. Concurrent validity was demonstrated with the EDI total score. More specifically, Mizes reported the EDI correlated with the MAC-R total score ($r = .69, p = .001$), self-control subscale ($r = .55, p = .001$), approval ($r = .56, p = .001$), and fear of weight gain ($r = .58, p = .001$). A more recent study (Osman, Chiros, Gutierrez, Kopper & Barrios, 2001), reported that a preliminary confirmatory analysis of the three-factor oblique structure of the MAC-R provided a poor fit to the data from an undergraduate non-clinical sample.

Alternative Eating Disorder Questionnaires

Other questionnaires that assess eating disorders are available, such as the Eating Attitudes Test (EAT) (Garner & Garfinkle, 1979). The EAT is a self-report 40-item measure that employs a 6-point Likert rating scale. Designed to measure attitudes and behaviors associated with anorexia nervosa, the EAT can also be used to measure anorectic symptoms. Following factor analysis, a shorter 26-item version the EAT-26 was developed and found to be correlated with the original version ($r = .98$), (Garner, Olmstead, Bohr & Garfinkle, 1982). Seven factors - food preoccupation, body image for thinness, vomiting and laxative abuse, dieting, slow eating, clandestine eating and perceived social pressure to gain

weight - make up the measure which has proven to have high internal consistency for both an anorexia group (coefficient alpha = 0.79), and for a mixed group of anorexia nervosa and normal controls (coefficient alpha = 0.94), (Garner et al., 1982). High test-retest reliability was also shown ($n = 56$, $r = 0.84$), (Carter & Moss, 1984). The EAT has also been found to differentiate between binge eaters, and those with anorexia or bulimia (Prather & Williamson, 1988), and between normal controls and eating disordered groups (Garner & Garfinkle, 1979). The test however does not discriminate between anorectics and bulimics (Williamson, Cubic, & Gleaves, 1993).

The EAT has been found to be sensitive to therapeutic change and has been moderately correlated with the Bulimia Test (Bulit: $r = 0.67$; Smith & Thelan, 1984) and the Bulimic Investigatory Test (BITE: $r = 0.70$; Henderson & Freeman, 1987).

Mizes, however, reports that while the Eating Attitudes Test has extensive reliability and validity research support (Mizes, 1992) the significant proportion of the items on the EAT appear to focus on the client's report of eating behavior symptoms rather than on cognitive elements relating to these behaviors. Consequently, while the EAT assesses the presence or frequency of disordered eating symptoms, Mizes argues that it does not adequately measure the cognitive aspects of eating disorders.

The Eating Disorder Inventory (EDI) (Garner, Olmstead, & Polivy, 1983), is a 64-item measure consisting of eight subscales : three to assess attitudes and behaviors toward weight, body shape and eating (Drive for Thinness, Bulimia,

and Body Dissatisfaction) and five to assess psychological characteristics common to anorexia and bulimia (Ineffectiveness, Perfection, Interpersonal Distrust, Interoceptive Awareness and Maturity Fears). A revised version, the EDI-2 (Garner, 1991), was created adding 27 additional items forming three additional subscales; Asceticism, Impulse Regulation and Social Insecurity. Adolescent norms are available for this assessment (Rosen, Silberg & Gross, 1988), and the measure has been used in groups with an age range of 11- to 18-year-olds. The EDI and EDI-2 are used as screening measures and as measures of treatment outcome. The concurrent validity between the EDI and the EAT is good as scores on all of the EDI subscales have been found to be positively correlated with scores on the EAT (Garner et.al, 1982). In a sample of 11- to 18-year-olds good reliability was found for both the EDI and the EAT (Garner, 1991).

The Children's Eating Attitudes Test or ChEAT (Maloney, McGuire, & Daniels, 1988), is a modified version of the Eating Attitudes Test. It asks about perceived body image, and obsessions/preoccupations with food and dieting practices. The ChEAT contains 26 questions and rates each question on a six-point Likert scale. The questionnaire was normed on a sample of 318 children ages 8 to 13, 92% of whom were White, and all of whom came from upper socio-economic backgrounds. The ChEAT has been found to assess attitudes toward eating and diet behavior making it a useful tool to screen for children potentially at risk for developing an eating disorder but not as a diagnostic tool to assess eating disorders (Lask & Bryant-Waugh, 2000). Both internal consistency and

and Body Dissatisfaction) and five to assess psychological characteristics common to anorexia and bulimia (Ineffectiveness, Perfection, Interpersonal Distrust, Interoceptive Awareness and Maturity Fears). A revised version, the EDI-2 (Garner, 1991), was created adding 27 additional items forming three additional subscales; Asceticism, Impulse Regulation and Social Insecurity. Adolescent norms are available for this assessment (Rosen, Silberg & Gross, 1988), and the measure has been used in groups with an age range of 11- to 18-year-olds. The EDI and EDI-2 are used as screening measures and as measures of treatment outcome. The concurrent validity between the EDI and the EAT is good as scores on all of the EDI subscales have been found to be positively correlated with scores on the EAT (Garner et.al, 1982). In a sample of 11- to 18-year-olds good reliability was found for both the EDI and the EAT (Garner, 1991).

The Children's Eating Attitudes Test or ChEAT (Maloney, McGuire, & Daniels, 1988), is a modified version of the Eating Attitudes Test. It asks about perceived body image, and obsessions/preoccupations with food and dieting practices. The ChEAT contains 26 questions and rates each question on a six-point Likert scale. The questionnaire was normed on a sample of 318 children ages 8 to 13, 92% of whom were White, and all of whom came from upper socioeconomic backgrounds. The ChEAT has been found to assess attitudes toward eating and diet behavior making it a useful tool to screen for children potentially at risk for developing an eating disorder but not as a diagnostic tool to assess eating disorders (Lask & Bryant-Waugh, 2000). Both internal consistency and

test-retest reliability are reasonably high, with a coefficient alpha of 0.76 and 0.81 respectively (Maloney et al., 1988). Smolak and Levine (1994), also found the ChEAT to have high internal consistency, coefficient alpha = 0.87. Concurrent validity tests showed the ChEAT to be significantly correlated with weight management behavior, ($r = 0.36, p < .001$), and with body dissatisfaction ($r = 0.39, p < .001$), (Smolak & Levine, 1994).

In sum, there are a variety of eating disordered measures available. The distinguishing feature of the MAC is that it measures cognitive aspects of eating disordered pathology. Given the importance of schema and beliefs in shaping the thoughts and behavior of eating disordered individuals, the MAC-R represents a significant contribution to the field. To date, no research has attempted to address the possible use of the MAC-R as a screening device in a nonclinical adolescent population.

Purpose

The purpose of this study has been to assess the validity of the Mizes Anorectic Cognitions Questionnaire-Revised (MAC-R) with a racially mixed population of adolescents ranging in age from 14 to 19, in order to determine its usefulness with the identified population. The MAC has been found to adequately assess the eating disordered cognitions of a population of older, college-age individuals, while no research has yet been reported on its utility with adolescents. The contribution of this study lies in the identification of a quick, easily administered assessment tool, which could ultimately be used to support physicians and therapists in their effort to identify adolescents suspected of eating

disordered pathology. The screening device could be a valuable tool in assisting therapists in identifying the distortions in the individual's cognitions, which are related to eating disordered pathology.

Hypothesis

1. Given that the three-factor structure of the MAC-R has been found to remain stable throughout previous research with a population of older, college-age individuals, the three-factor structure (Self-Control and Self-Esteem, Weight and Approval From Others, and Rigid Weight Regulation and Fear of Weight Gain) will be replicated with the nonclinical adolescent sample in this study.
2. As research in both clinic and population samples has demonstrated that 90% of individuals with Anorexia Nervosa and Bulimia Nervosa are female, the second hypothesis proposes that female scores will be significantly higher than males on the MAC-R Total score.
3. Female scores will be significantly higher on each of the three MAC-R factors: Self-Control and Self-Esteem; Weight and Approval From Others; and Rigid Weight Regulation and Fear of Weight Gain.
4. Given that females experience a significant increase in the amount of body fat during the period of adolescence (believed to be a major factor in the development of body dissatisfaction), the female participant's total score on the MAC-R will increase significantly with each successive year.
5. With the prevalence of eating disorders reportedly higher in White than Hispanic and Black females, White females will score significantly higher than

Hispanic females and both groups will score significantly higher than Black females on the MAC-R Total score.

6. Given that the Mizes Anorectic Cognitions Questionnaire (MAC) has previously demonstrated a moderate correlation with the Goldfarb Fear of Fat Scale in clinical samples of college-age females, and the Body Image Assessment (BIA), the MAC-R Total score will demonstrate a statistically significant positive correlation with the Goldfarb Fear of Fat Scale and the Body Image Assessment in a nonclinical population of adolescents.

Planned Statistical Analysis

To test hypothesis one, a principal components varimax rotated factor analysis (rotated according to Kaiser's criterion), will be conducted. For hypothesis two, an independent samples t-test comparing males and females on the MAC-R total score was conducted. To evaluate hypothesis three, a MANOVA with gender as the independent variable and MAC-R factors as the dependent variable was performed. To test hypothesis four, a one-way ANOVA and post-hoc Scheffe' will be used. To evaluate the effect of race on MAC-R total scores (hypothesis five), a one-way ANOVA will be used. Finally, to test the relationship between the MAC-R, GFFS, and BIA Pearson, correlations were calculated.

CHAPTER 2

Methodology

Participants

Students from the Downingtown Area High School in Pennsylvania and from the Gloucester Township and Pennsauken Campuses of the Camden County Technical School located in New Jersey were offered the opportunity to participate in this study. A graduate student in the Philadelphia College of Osteopathic Medicine Clinical Psychology Doctoral program, co-collecting data for his dissertation, and the writer approached the students in their regularly scheduled classes to recruit voluntary participants. Those interested in participating in this study were provided with assent and parental consent forms and were instructed to discuss their participation in the study with parent or guardian. Those who received parent or guardian consent and returned the signed assent and consent forms were permitted to participate in the study.

Demographic Data

The demographic data reflect the total number of respondents as it is categorized by Age (Table 1), Race (Table 2), and Gender (Table 3). There were 206 White, Black, Hispanic, Asian and American Indian students between the ages 14 and 20 participating in this study. One individual chose not to identify his/her race, accounting for the discrepant frequency totals across domains. Statistical analyses were used to compare Total MAC-R scores by Gender, Age, and Race and to determine the correlation coefficients between the MAC-R, Body Image Assessment and the Goldfarb Fear of Fat Scale.

Table 1 reflects the total number of participants by age. A total of 206 participants responded with the majority, or approximately 91%, falling between the ages of 15 and 18.

Table 2 displays the frequency of respondents categorized by Race. A total of 206 individuals responded to the questionnaire, while one individual chose not to report his/her race, resulting in the elimination of that protocol from the data pool. Significantly more Caucasians, (79, 38.5%), participated in the study followed by 64 Hispanics (31.2%), 58 African Americans (28.3%); 3 Asian (1%); and 1 individual who considered him/herself American Indian (.5%).

Table 3 reflects the number of participants by Gender. A total of 146 females (70.9%), participated in this study. Sixty (29.1%), of the respondents were male. The data gathered from the Downtown Area High School by the co-researcher who conducted research related to eating and smoking, was compiled along with that acquired from the Camden County Technical School by the writer. The data was then shared by the researchers for use within their respective projects.

Table 1

Descriptive Data of Student Age

Age	Frequency	Percent	Cumulative Percent
14	7	3.4	3.4
15	46	22.1	25.7
16	50	24.0	50.0
17	54	26.0	76.2
18	43	20.7	97.1
19 *	4	1.9	99.0
20	2	1.0	100.0
Total	206	100.0	

Table 2

Descriptive Data of Student Race

Race	Frequency	Percent	Cumulative Percent
African American	58	28.3	28.3
Hispanic	64	31.2	59.5
Asian	3	1.5	61.0
Caucasian	79	38.5	99.5
American Indian	1	0.5	100.0
Total	205	100.0	

Table 3

Descriptive Data of Student Gender

Sex	Frequency	Percent	Cumulative Percent
Female	146	70.9	70.9
Male	60	29.1	100.0
Total	206	100.0	

Design

The current study employed a correlational research design to assess the psychometric properties of the Mizes Anorectic Cognitions Questionnaire-Revised, and a between groups design to compare the Mizes Anorectic Cognitions Questionnaire-Revised scores across gender, race and age groups.

Measures

Mizes Anorectic Cognitions Questionnaire (MAC) (Mizes & Klesges, 1989). This 33-item questionnaire assesses three specific cognitive variables based on the conceptualization of anorexia nervosa and bulimia nervosa as proposed by Garner and Bemis (1982). These cognitive variables are: Need for approval of others based on the perception of weight and eating; that self-worth is based on a belief of rigid self-control; and without rigid weight regulation one will eat uncontrollably and rapidly resulting in excessive weight gain. Through factor analysis the MAC has been demonstrated to show support for the presence of all three of these cognitive variables (Mizes & Klesges, 1989). The MAC possesses adequate test-retest reliability (Mizes, 1991), and excellent convergent and divergent validity (Mizes & Klesges, 1989). It has been correlated with the severity of eating disordered pathology (Mizes, 1991), and reported self-ideal weight (Mizes & Klesges, 1989). The MAC is sensitive to subclinical differences in eating-related behavior and attitudes (Mizes, 1990), and has good concurrent validity with the Eating Disorders Inventory (EDI) (Garner & Olmstead, 1984).

A second or revised version of the MAC, the MAC-R (Mizes, 1994), consisting of 24 items was developed by Mizes, who reported that the assessment maintained the same factor structure and psychometric properties as the MAC in a sample of eating disordered patients. Concurrent validity was demonstrated with the EDI total score. More specifically, Mizes reported the EDI correlated with the MAC-R total score ($r = .69, p = .001$), self-control subscale ($r = .55, p = .001$), approval ($r = .00, p = .001$), and fear of weight gain ($r = .58, p = .001$). A more recent study (Osman, Chiros, Gutierrez, Kopper & Barrios, 2001), reported that a preliminary confirmatory factor analysis of the three-factor oblique structure of the MAC-R provided a poor fit to the data from an undergraduate non-clinical sample.

This study employed a version of the MAC that combined the common questions of the two forms and adds those which are unique to the other; however, only data relating to the MAC-R was utilized in this study. The remaining data will be utilized in future research. The MAC-R factor scores were empirically examined in order to determine their psychometric adequacy. The Total MAC-R score was utilized to determine the convergent validity with the Body Image Assessment and Goldfarb Fear of Fat Scale, and in an age, race and gender analysis.

Goldfarb Fear of Fat Scale (GFFS), (Goldfarb, Dykens & Gerrard, 1985). The Goldfarb Fear of Fat Scale, a self-report questionnaire assesses fears related to weight gain. Each of the 10 questions is rated on a 4-point Likert scale ranging from 1 (very untrue) to 4 (very true). A score of 40 corresponds to an extreme

fear of fat while a score of 10 indicates no fear of fat. The GFFS has been found useful in discriminating between anorectics and normals ($t(79) = 9.84, p < .01$), with a test retest reliability of $r = .88$. It was also found to be useful in discriminating between bulimics, dieters and nondiet groups ($M_s = 30.0, 23.9$ and 17.3 , respectively; $F(2, 60) = 28.7, p < .01$), bulimics' fear of fat was found to be significantly greater than repeat dieters ($t(41) = 3.84, p < .01$) and repeat dieters' fear of fat to be greater than the nondiet groups ($t(38) = 3.65, p < .01$).

Body Image Assessment (BIA; Williamson, Davis, Bennett, Goreczny & Gleaves, 1989). The Body Image Assessment presents nine silhouettes of body sizes ranging from very thin to obese. The assessment uses female silhouettes for the female version of the test and a series of male silhouettes for the male version. The subjects are asked to: "Please select the silhouette which most accurately depicts your current body size," and to "Select the silhouette which most accurately depicts the body size that you would most prefer" (ideal body size). The resulting difference between the current and ideal body sizes is the discrepancy score, which has been found to be significantly higher in anorectics and bulimics than in normal controls.

Additional Measures Unrelated to Current Study. The Smoking Questionnaire and the Fagerstrom Test for Nicotine Dependence were being administered in a cooperative effort between the writer and co-researcher to share data gathered from a similar population sample. The co-researcher utilized these

assessments to examine behavior related to smoking and eating in 14- to 19-year-old adolescents, making the sharing of data a mutually beneficial endeavor.

Smoking Questionnaire. This 57-item questionnaire (See Appendix C) was developed by Bevilaqua and Mizes (1999), to assess the smoking status of each participant and gather demographic information. Some of the demographic information included age, gender, grade level, height, weight, race, number of siblings living at home and away, as well as number of family members who smoke. A primary focus in this questionnaire was the responses to such questions as: “How many cigarettes do you smoke a day;” number of previous quit attempts; and “How often have you smoked to control your eating or to control your weight?” Other questions assessed quit attempts and factors contributing to reinstating smoking. Most of the questions involved a dichotomous answer. Other questions require a response on a Likert scale.

The Smoking Questionnaire data were not utilized in this study but were gathered for the purpose of research conducted by the co-researcher.

Fagerstrom Test for Nicotine Dependence (FTND) (Heatherton, Kozlowski, Frecker & Fagerstrom, 1991). The FTND is a revision of the Fagerstrom Tolerance Questionnaire. It contains six of the original items with a revised scoring for two items (time to first cigarette and cigarettes per day). The FTND shows good test-retest reliability with an internal consistency (Cronbach’s alpha) of .64 (Pomerleau, Carton, Lutzke, Flessland, & Pomerleau, 1994).

The data from the FTND were also not utilized in this study but were gathered for use by the co-researcher.

Procedures

The participants in this study were approached by the examiners during their regularly scheduled classes. Both examiners explained their involvement in the Philadelphia College of Osteopathic Medicine's Doctoral program in Clinical Psychology and reviewed their interest in collecting data regarding the health-related behaviors of high school students. Detailed explanations were provided regarding the confidentiality of the individual's responses. It was explained that no individual's responses would be shared in isolation and that the information would be presented on a collective basis only. Those individuals who reported an interest in participating in this study were provided with Student Assent Form (See Appendix B) and Parental Permission Form (See Appendix A), and were instructed to discuss their participation in the study with their parent(s) or guardian. Those who received parental or guardian consent, and returned both of the signed forms, were permitted to participate in the study.

After providing the examiners with the signed assent and consent forms the participants were given a stapled packet of the five self-report measures to complete. The examiners met with the group of participants and reviewed the standardized directions for each assessment. The participants were then instructed to begin and were offered the opportunity to ask questions on an individual basis during the administration of the assessments. After completing the assessments,

the participants placed their stapled packet into a business envelope and returned them to the examiner. The total time required for completion of the measures was approximately 20 minutes.

The completed assessments from the Downtown Area Schools were scored by the co-researcher, while the remaining packets were scored by the writer. The resulting data were compiled and shared by the examiners for use in their respective projects.

CHAPTER 3

Results

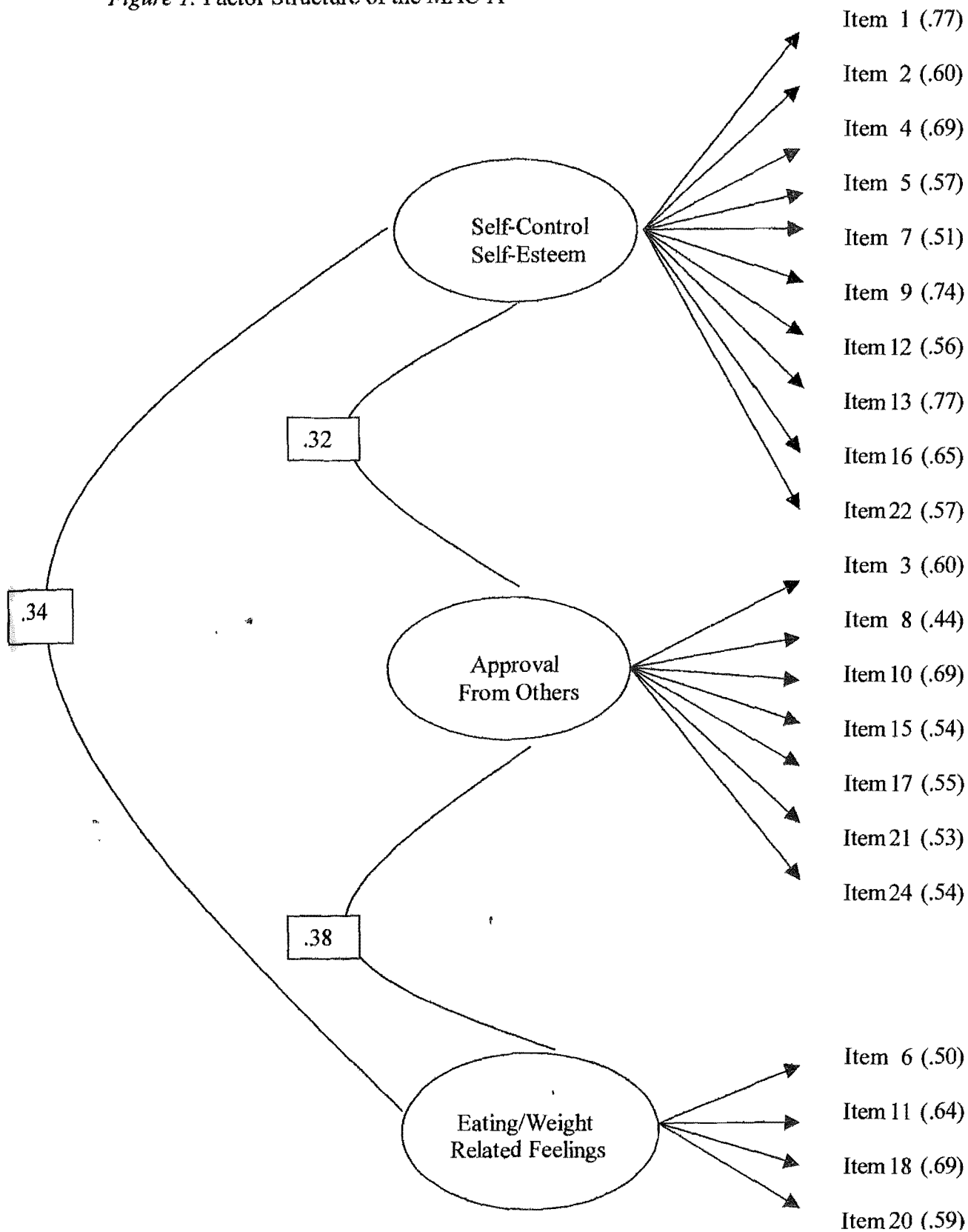
The analysis of data from this study finds the MAC-R items may take on a new meaning to the population sample, which resulted in a change within the three-factor design of the questionnaire. The data are presented in a manner that will reflect the changes within the three-factor structure, results of age, race and gender analysis and the correlation coefficients between the MAC-R, Goldfarb Fear of Fat Scale and the Body Image Assessment.

Factor Structure of the MAC-R

The first hypothesis dictated that the 24 items of the MAC-R be examined empirically to determine their psychometric adequacy and to reveal the factor structure of this scale on a nonclinical sample of adolescents. Items that loaded on factors at a value of at least $r \pm .43$, a level ensuring each item loaded on only one factor, were retained. The MAC-R (Figure 1), did not retain its original three-factor structure and a reduced set of items was observed. Items 14, 19 and 23 did not significantly load on any factor of the MAC-R. The Self-Control/Self-Esteem factor was retained. However, for this sample the Self-Control/Self-Esteem factor' also included items 2, 5, 7, 12, 16 and 22, which originally loaded on the Rigid Weight Regulation factor, for a total of 10 items. The second factor, Approval From Others, was retained and consists of 7 of the original 8 items (Items 3, 8, 10, 15, 17, 21 and 24). Based on earlier research (Mizes & Klesges, 1989), the third factor, which appears to be related to Eating

and Weight Related Feelings, is comprised of 4 items, 3 of which originally loaded on the Self-Control/Self-Esteem factor (Items 11, 18 and 20) and one from the Approval From Others factor of the MAC-R (Item 6). Coefficient alpha for the Self-Control/Self-Esteem factor was high at .86 and moderate for both Approval From Others at .70 and Eating/Weight Related Feelings at .61.

Figure 1. Factor Structure of the MAC-A



MAC-A Gender Analysis

An independent samples t-test was used to examine hypothesis two, to determine if females scored significantly higher than males on the Total Score of the MAC-A. As can be observed in Table 4, with equal variances assumed, no significant differences between male and female MAC-A total scores was observed ($t = -1.637$ $df = 204$ $p > .05$).

Table 4

MAC-A Total Score Comparisons by Gender

Sex	Number	Mean	Standard Deviation	Standard Error Mean
Female	146	58.4247	16.3597	1.3539
Male	60	54.4667	14.2025	1.8335

MAC-A Factor Score Comparisons by Gender

A multivariate analysis of variance (MANOVA) was used to determine the effects of gender on the MAC-A factor scores. An overall Wilk's Lambda was significant (Wilk's Lambda = .851, $F = 11.783$, $p < .001$). The one-way post hoc ANOVA was calculated to compare the effects of gender on each of the three factors. Females scored significantly higher than males on the Self-Control/Self-Esteem factor ($F = 15.048$, $df = 1$, $p < .001$). Males were found to be significantly more concerned with issues related to weight and its effects on receiving the approval of others ($F = 7.069$, $df = 1$, $p < .008$). No significant effect was observed for the Eating/Weight Related Feelings factor ($F = .075$, $df = 1$, $p = .784$).

MAC-A Total Score Age Analysis

A one-way ANOVA and post hoc Scheffè test was used to assess whether or not student's MAC-R total score increased with age. Due to the small number of subjects in the age categories of 14 ($n = 7, 3.4\%$), 19 ($n = 4, 1.9\%$) and 20-year-old students ($n = 2, 1\%$), these categories were eliminated from the data pool. The results indicate that no significant differences across the age categories (15, 16, 17 and 18) were observed.

MAC-A Total Score Race Analysis

The sample pool for race was adjusted, eliminating the protocol of one individual who chose not to identify race, as well as the Asian ($n = 3, 1.5\%$) and American Indian ($n = 1, .5\%$) participants due to the small number of subjects in those categories. The results reflect that no significant effects were observed for Race on the MAC-A total score ($F = 1.126, df = 2, 198, p = .326$).

MAC-A Convergent Validity: Correlation With Other Measures

To examine the convergent validity of the MAC-A, Pearson product moment correlation coefficients were computed between the MAC-A Total Score, the Body Image Assessment and the Goldfarb Fear of Fat Scale. The results, shown in Table 5 revealed that the MAC-A total score is moderately correlated with both the GFFS and BIA at the .01 level of significance. Such a result suggests that the more the individual is afraid of becoming fat the higher his or her score will be on the MAC-A. Also, the more distorted the person's body image, the higher his or her MAC-A score. The coefficient of determination

reveals that 16.8% of the variability in Body Image Assessment scores is attributable to differences in MAC-A total scores while 44.89% of variability on the GFFS is attributable to differences in the MAC-A total score.

Table 5

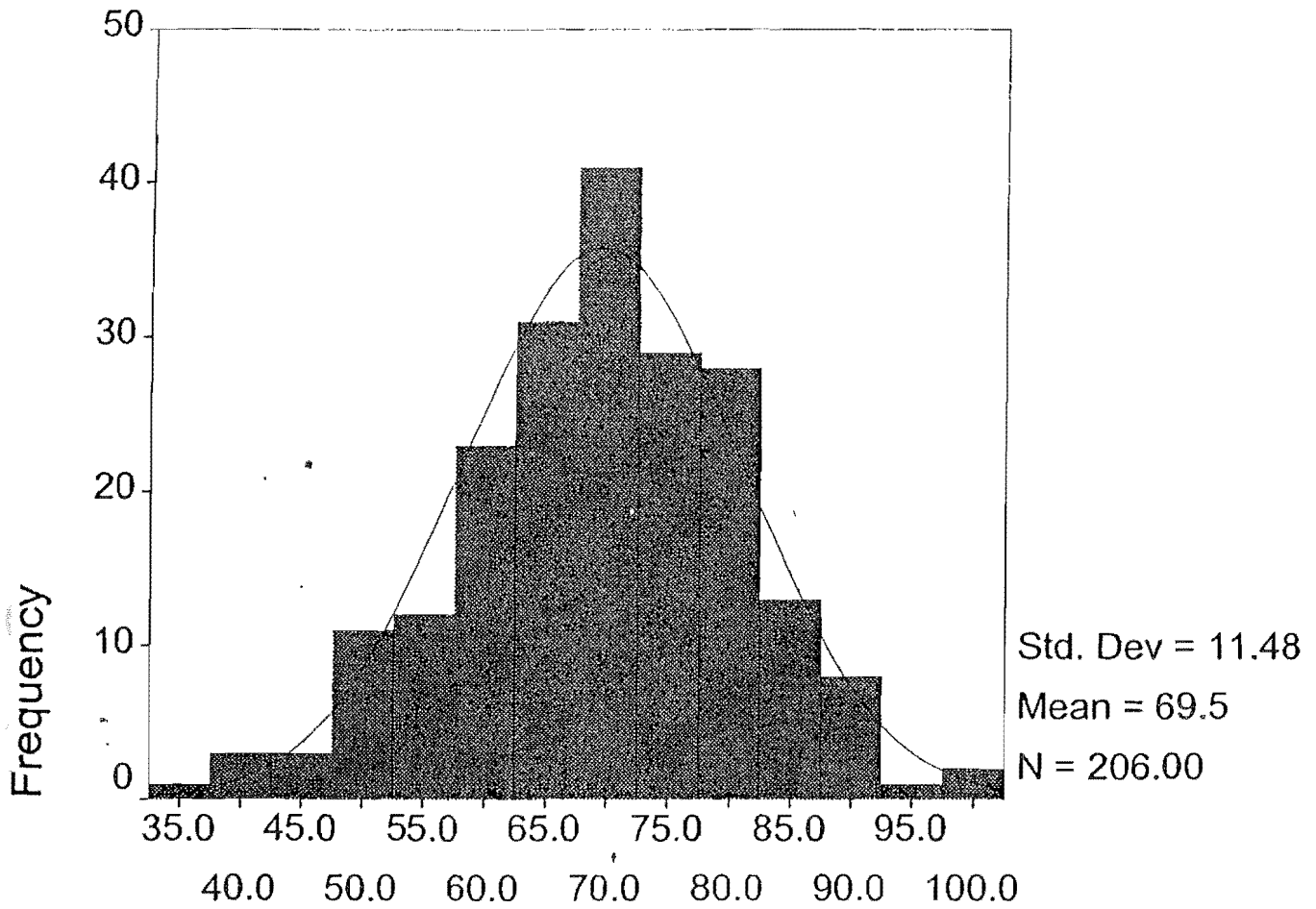
Correlation Coefficients Between MAC-A, GFFS and BIA

	Body Image Assessment	Goldfarb Fear of Fat Scale
MAC-A Pearson Correlation	.409**	.666**

** . Correlation is significant at the 0.01 level (2-tailed).

A frequency distribution of the MAC-A total scores reveals the presence of a near normal distribution curve (Figure 2).

Figure 2. MAC-A Total Scores Frequency Distribution



CHAPTER 4

Discussion

Previous research has determined that both the MAC and the MAC-R are valid and reliable instruments in identifying the cognitive distortions associated with eating disordered pathology in primarily White, college age and older individuals. The findings of this study have determined, however, that when assessing the psychometric properties of the MAC-R with a racially mixed population of adolescents, the results are not as promising.

Given that the MAC-R has been developed primarily through research on a clinical population of White, college-age females, variations in the results of this study as compared to prior research, are not unexpected. The fact that the three-factor structure of the MAC-R was not retained unchanged, suggests that the questionnaire may not be applicable to this mixed population of adolescents, or perhaps it should not be interpreted as it has been in the past. In examining the results of this study many factors need to be considered including: the effects of gender, race, and cultural variables on participant responses; and the effect that participant age may play in the development of a disordered belief system, as well as, the overall impact of the utilization of the MAC-R with a non-clinical sample.

Cultural Factors

Accumulating evidence suggests that race and culture significantly impact upon the development and maintenance of eating disordered pathology. Black girls are reported to have higher rates of eating disorders than previously reported and exhibit similar prevalence rates of eating disorders as Whites (Mullholland & Mintz, 2001).

However, Whites continue to report higher rates of both eating disorders and body dissatisfaction than Blacks and Hispanics. An ethnocultural perspective suggests that African Americans are more tolerant of a diversity of body weight and shape than European Americans (Harris & Kuba, 1997), and that they are more satisfied with their overall appearance than Whites. It may be that as Blacks focus on such factors as personal style and presentation, in addition to body size and weight, that this multifaceted definition of beauty may produce a greater satisfaction with overall appearance regardless of body weight (Smith, Thompson, Raczynski & Hilner, 1997). As such, weight and questions regarding weight and body satisfaction may carry a different meaning to African Americans making current eating disorder surveys invalid with the given population. Given this growing body of evidence, the MAC-R has been determined to be unaffected by racial beliefs or cultural factors, which supports the questionnaire's validity in assessing a variety of racial groups.

Age Factors

Research on populations of adolescents has drawn direct correlations between the development of eating disordered pathology and the early onset of menarche with consequent increases in body adiposity. The concurrent fluctuations in cognitive maturity and increasing focus upon interpersonal relationships result in a developing personal identity. The perception of self in relation to others becomes a dominant factor in the adolescent's every decision. The increasing social awareness driven by self-evaluation causes some to develop cognitive distortions, related to schema, which holds that the individual is unacceptable to others and incapable of meeting the demands of his or her environment. It is apparent from this study that those adolescents within a

non-clinical population do not exhibit significant increases in cognitive distortions related to eating disordered pathology over time. Consequently, measures which assess eating disordered pathology may provide us with little valuable information especially in a non-clinical population. The results do not appear to generalize to the overall population of adolescents.

Clinical verses Non-clinical Populations

Individuals within a non-clinical population, who have not yet developed a rigid and/or distorted pathological belief system toward weight and eating related behaviors, may still have feelings related to their behavior and appearance but, not to the degree of those who have been diagnosed with an eating disorder. The difference in the presence, or intensity of these feelings, may account for the splitting of the factor structure of the MAC-R when it is used with non-clinical populations of adolescents. Many items which originally loaded on one factor migrated to another factor indicating that while these items are still related to concerns surrounding beliefs associated with eating, they do not have the same meaning to those who do not meet the criteria for eating disorders. Simply put, the factor structure of the MAC-R differed when comparing the present non-clinical sample to a clinical sample.

Gender Comparison

In the present study females were found to be more concerned with issues regarding self-control as it relates to self-esteem. The higher the level of self-control in eating related behavior, the better the individuals felt about themselves. It makes sense that more females than males are concerned with weight-related issues during this period of physical development, as on average, females' adiposity increases, while males tend to

become leaner, by adding weight in muscle mass. Males, on the other hand, were more concerned than females about their own weight and appearance, and the effect it had upon receiving the approval of others. Being thin, according to the males in this study, was more important than personality features, being a good person, or being considered for who you are, when being liked by friends or when attracting members of the opposite sex. Overall, males tend to underestimate their own weight and are generally heavier than they perceive themselves to be. The females in this non-clinical population tend to think more appropriately about their weight and eating-related behaviors than the males. These results suggest that when attempting to attract others, non-clinical males are more one-dimensional, believing that weight and appearance are the most significant factors, while non-clinical or normal females believe that efforts to attract or be accepted by others are based upon other factors, in addition to appearance.

Validity

Even in a non-clinical sample, those adolescents who score higher on surveys that assess the individual's fear of fat also exhibit more unrealistic cognitions related to eating behaviors. Similarly, those adolescents who exhibit increased dissatisfaction with their body image will also exhibit an increased level of cognitive distortion related to eating behavior. These results support the need for programs emphasizing early education for all individuals regarding the normative physical changes that occur during adolescence. The overall goal of such a program should focus on the development of more positive cognitions and behaviors related to weight, shape and self-esteem.

Limitations

This study has included the methodological strategy of surveying a population that had yet to be included in the standardization sample of the MAC-R. The results suggest that many items on the questionnaire may take on a different meaning for this population, who do not exhibit significant eating disordered pathology. There are, however, limitations within this research that need to be considered in this regard.

The population surveyed in this study was small, 206 students from three schools geographically located within 50 miles of one another. It is likely that the sample may not be representative of the geographical region and the results may not generalize to all adolescents.

The data for this study were gathered via self-report questionnaires. Although a large portion of research is conducted in this manner the results are completely dependent upon the participants' willingness to report information accurately. Reliable self-disclosure is an issue of great importance and concern within the field of eating disorders, as those affected individuals generally choose not to disclose their behaviors because of their fear, shame or embarrassment. It may be that those individuals who suffered from symptoms of eating disordered pathology chose not to participate in this study due to the perceived threat to themselves. Such practice may drastically underestimate the incidence of reported symptomology and may have affected the validity of this research. Similarly, research regarding the issue of self-disclosure and race (Richards, 1992; Golden, 1981), suggests that these results may underestimate the

participants' true level of cognitive distortion, as members of minority groups generally do not openly disclose their feelings to non-group members. Both examiners in this study were White.

Finally, in this study the presentation of the questionnaires required that each individual, regardless of his or her smoking status, receive and minimally ignore the surveys related to smoking prior to completing the questionnaires on eating disorders. This process may have negatively impacted upon the participants' level of interest and attention when completing the surveys. Consequently, the results may be an inaccurate representation of the participants' cognitions and behaviors, which are related to eating disordered pathology.

Implications for Future Research

The results of this study suggests that while the MAC-R correlates with measures that assess an individual's fear of fat and body image distortion, its items take on a different meaning when completed by a non-clinical, racially diverse population of adolescents. Future research should focus on the cross-validation of the MAC-R with new, racially-mixed samples of adolescents of the same ages to determine if the observed group differences and correlations of items hold up. Comparisons of clinical and non-clinical sample data would be important in determining the usefulness of the MAC-R in differentiating between clinical and non-clinical groups, and in assessing the potential difference in the type and intensity of responses between groups. It may be that the eating-related cognitions of those individuals who meet the criteria for a diagnosis of eating disorders differs significantly from a non-clinical sample. The validation of the MAC-R as a reliable tool capable of determining these differences would assist therapists

in developing treatment strategies for those individuals identified with Anorexia or Bulimia Nervosa, and early education programming for those who may be considered at-risk for later diagnosis.

REFERENCES

- Agras, S.W., Walsh, T.B., Fairburn, C.G., Wilson, T.G., Kraemer, H.C. (2000). A multi-center comparison of cognitive-behavior therapy and interpersonal psychotherapy for bulimia nervosa. *Archives of General Psychiatry*, 57(5), 459- 466.
- Agras, W.S., Rossiter, E.M., Arnow, B., Schneider, J.A., Telch, C.F., Raeburn, S.D., et.al. (1992). Pharmacological and cognitive-behavioral treatment for bulimia nervosa: A controlled comparison. *American Journal of Psychiatry*, 149, 82-87.
- Agras, W.S., Schneider, J.A., Arnow, B., Raeburn, S.D., & Telch, C.F. (1989). Cognitive-behavioral treatment with and without exposure plus response prevention in the treatment of bulimia nervosa: A reply to Leitenberg and Rosen. *Journal of Consulting and Clinical Psychology*, 57, 778-779.
- American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders (4th Ed.)*. Washington, D.C.: American Psychiatric Association.
- Askevold, F., & Heiberg, A. (1979). Anorexia nervosa: Two cases in discordant MZ twins. *Psychotherapy and Psychosomatics*, 32, 223-228.
- Association of Anorexia Nervosa and Associated Disorders (2000). *ANAD Ten-Year Study*. Retrieved June 28, 2001, from <http://www.edeo.org/edinfo/factstats.htm>.
- Atkins, D.M., & Silber, T.J. (1993). Clinical spectrum of anorexia nervosa in children. *Journal of Developmental and Behavioral Pediatrics*, 14(4), 211-216.

- Attie, I. & Brooks-Gunn, J. (1989). Development of eating problems in adolescent girls: a longitudinal study. *Developmental Psychology*, 25, 70-79.
- Bevilaqua, L., & Mizes, J.S. (1999). Smoking questionnaire. Unpublished screening device.
- Blyth, D.A., Simmons, R.G., & Zakin, D.F. (1985). Satisfaction with body image for early adolescent females: The impact of pubertal timing within different school environments. *Journal of Youth and Adolescence*, 14, 207-225.
- Bowers, W.A., & Andersen, A.A. (1994). Inpatient treatment of anorexia nervosa: Review and recommendations. *Harvard Review of Psychiatry*, 2, 193-203.
- Bowers, W.A., Evans, K., and Van Cleve, L. (1996). Treatment of adolescent eating disorders. In M.A. Reinecke, F.M. Dattilio, and A. Freeman (Eds.). *Cognitive Therapy with Children and Adolescents*, (pp.227-250). Guilford Press, NY.
- Brooks-Gunn, J., Warren, M.P., Rosso, J., & Gargiulo, J. (1987). Validity of self-report measures of girls' pubertal status. *Child Development*, 58, 829-841.
- Bryant-Waugh, R., Cooper, P., Taylor, C., & Lask, B. (1996). The use of the eating disorder examination with children: A pilot study. *International Journal of Eating Disorders*, 19, 391-398.

- Bryant-Waugh, R., & Lask, B. (1995). Eating disorders in childhood and adolescence. Annotation. *Journal of Child Psychology and Psychiatry*, 36, 191-202.
- Bulik, C.M., Sullivan, P.F., & Kendler, K.S. (1998). Heritability of binge-eating and broadly defined bulimia nervosa. *Biological Psychiatry*, 44, 1210-1218.
- Carter, P., & Moss, R. (1984). Screening for anorexia and bulimia nervosa in a college population: Problems and limitations. *Addictive Behaviors*, 9, 417-419.
- Casper, R.C. (1998). Recognizing eating disorders in women. *Psychopharmacology Bulletin*, 34(3), 267-269.
- Centers for Disease Control (1991). Body-weight perceptions and selected weight management goals and practices of high school students. United States, 1990. 40(43), 747-750. Washington D.C.
- Comerci, G.D., & Greydanus, D.E. (1997). Eating disorders: Anorexia nervosa and bulimia. In A.D. Hofman, & D.E. Greydanus (Eds.). *Adolescent Medicine, 3rd ed.* p. 683-702. Stamford, CT: Appleton and Lange.
- Craighead, L.W., & Agras, W.S. (1991). Mechanisms of action in cognitive-behavioral and pharmacological interventions for obesity and bulimia nervosa. *Journal of Consulting and Clinical Psychology*, 59, 115-125.
- Crowther, J.H., Lilly, R.S., Crawford, P.A., & Shepherd, K.L. (1992). The stability of the eating disorder inventory. *International Journal of Eating Disorders*, 12(1), 97-101.

- Dawson, D.A. (1988). Ethnic differences in female overweight: Data from the 1985 National Health Interview Survey. *American Journal of Public Health, 78*, 1326-1329.
- Desmond, S.M., Price, J.H., Hallinan, C., & Smith, D. (1989). Black and white adolescents' perceptions of their weight. *Journal of School Health, 59*(8), 353-358.
- Doyle, J., & Bryant-Waugh, R. (2000). Epidemiology. In B. Lask & R. Bryant-Waugh (Eds.). *Anorexia nervosa and related eating disorders in childhood and adolescence. 2nd Ed.* UK: Psychology Press Ltd.
- Eisler, I., Dare, C., Russell, G.F., Szmukler, G., LeGrange, D., & Dodge, E. (1997). Family and individual therapy in anorexia nervosa: A 5-year follow-up. *Archives of General Psychiatry, 54*(11), 1025-1030.
- Fairburn, C.G. (1981). A cognitive behavioral approach to the management of bulimia, *Psychological Medicine, 11*, 707-711.
- Fairburn, C.G. (1995). The prevention of eating disorders. In K. D. Brownell & C.G. Fairburn (Eds.), *Eating disorders and obesity*, pp. 289-293. New York: Guilford Press.
- Fairburn, C.G., Agras, W.S., & Wilson, G.T. (1992). The research on the treatment of bulimia nervosa: Practical and theoretical implications. In G.H. Anderson & S.H. Kennedy (Eds.), *The biology of feast and famine: Relevance to eating disorders*, (pp. 318-340). New York: Academic Press.

- Fairburn, C.G., Jones, R., Peveler, R.C., Carr, S.J., Solomon, R.A., O'Connor, M.E., et.al. (1991). Three psychological treatments for bulimia nervosa. *Archives of General Psychiatry*, 48, 463-469.
- Fairburn, C.G., Marcus, M.D., & Wilson, G.T. (1993). Cognitive-behavior therapy for binge eating and bulimia nervosa: A comprehensive treatment manual. In C.G. Fairburn & G.T. Wilson (Eds.), *Binge eating: Nature, assessment, and treatment*, (pp. 361-404). New York: Guilford Press.
- Fairburn, C.G., Norman, P.A., Welch, S.L., O'Connor, M.E., Doll, H.A., & Peveler, R.C. (1995). A prospective study of outcome in bulimia nervosa and the long-term effects of three psychological treatments. *Archives of General Psychiatry*, 52, 304-312.
- Felts, W., Parrillo, A., Chenier, T., & Dunn, P. (1996). Adolescents' perceptions of relative weight and self-reported weight-loss activities: Analysis of 1990 YRBS national data. *Journal of Adolescent Health*, 18, 20-26.
- Fombonne, E. (1995). Anorexia nervosa: No evidence of an increase. *British Journal of Psychiatry*, 166, 462-471.
- Garfinkle, P.E., & Garner, D.M. (1982). *Anorexia nervosa: A multi-dimensional perspective*. New York: Brunner/Mazel.
- Garner, D. (1991). *Eating disorders inventory 2: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Garner, D.M., & Bemis, K.M. (1982). A cognitive-behavioral approach to anorexia nervosa. *Cognitive Therapy and Research*, 6, 123-150.

- Garner, D.M., & Garfinkle, P.E. (1979). The eating attitudes test: An index of the symptoms of anorexia nervosa. *Psychological Medicine*, 9, 1-7.
- Garner, D.M., & Olmstead, M.P. (1984). Eating Disorder Inventory. Odessa, FL, Psychological Assessment Resources, Inc.
- Garner, D., Olmstead, M., Bohr, Y., & Garfinkle, P. (1982). The eating attitudes test: Psychometric features and clinical correlates. *Psychological Medicine*, 12, 871-878.
- Garner, D.M., Olmstead, M.P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2(2), 15-34.
- Garner, D.M., Rockert, W., Davis, R., Garner, M.V., Olmsted, M.P., & Eagle, M. (1993). Comparison between cognitive-behavioral and supportive-expressive therapy for bulimia nervosa. *American Journal of Psychiatry*, 150, 37-46.
- Garner, D.M., Vitousek, K.M., & Pike, K.M. (1997). Cognitive behavioral therapy for anorexia nervosa. In D.M. Garner and P.E. Garfinkle (Eds.), *Handbook of treatment for eating disorders*, (pp. 94-144). New York: Guilford Press.
- Golden, D.A., (1982). Race effects and self-disclosure. Retrieved January 15, 2002 from Digital Dissertations.
- Goldfarb, L.A., Dykens, E.M., & Gerrard, M. (1985). The Goldfarb Fear of Fat Scale. *Journal of Personality Assessment*, 49, 329-332.

- Graber, J.A., Brooks-Gunn, J., Paikoff, R.L., & Warren, M.P. (1994). Prediction of eating problems: An 8-year study of adolescent girls. *Developmental Psychology*, 30(6), 823-834.
- Gralen, S.J., Levine, M.P., Smolak, L., & Murnen, S.K. (1990). Dieting and disordered eating during early and middle adolescence: Do the influences remain the same? *International Journal of Eating Disorders*, 9, 501-512.
- Hall, R., Tyce, M., Berresford, T., Wooley, B., & Hall, A. (1989). Sexual abuse in patients with anorexia and bulimia. *Psychosomatics*, 1, 73-79.
- Harris, D.J., & Kuba, S.A. (1997). Ethnocultural identity and eating disorders in women of color. *Professional Psychology: Research and Practice*, 28(4), 341-347.
- Heatherton, T., Kozlowski, L., Frecker, R., & Fagerstrom, K. (1991). The Fagerstrom Test for Nicotine Dependence: A revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction*, 86, 1119-1127.
- Henderson, M., & Freeman, C. (1987). A self-rating scale for bulimia: The BITE. *British Journal of Psychiatry*, 150, 18-24.
- Herzog, D.B., Sacks, N.R., Keller, M.B., Lavori, P.W., von Ranson, K.B., & Gray, H.M. (1993). Patterns and predictors of recovery in anorexia nervosa and bulimia nervosa. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 835-842.
- Herzog, D.B., Greenwood, D.N., Dorer, D.J., Flores, A.T., Ekeblad, E.R., Richards, A., et.al. (2000). Mortality in Eating Disorders: A descriptive study. *International Journal of Eating Disorders*, 28, 20-26.

- 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.
- Holland, A. J., Hall, R., Murray, R., Russell, G. F. M., & Crisp, A. H. (1984). Anorexia nervosa: A study of 34 twin pairs and one set of triplets. *British Journal of Psychiatry*, 145, 414-419.
- Holland, A., Sicotte, N., & Treasure, J. (1988). Anorexia nervosa-evidence for a genetic basis. *Journal of Psychosomatic Research*, 32, 549-554.
- Hsu, L.K.G. (1987). Are the eating disorders becoming more common in Blacks? *International Journal of Eating Disorders*, 6, 113-124.
- Hutchinson, M.G. (1994). Imaging ourselves whole: A feminist approach to treating body image disorders. In P. Fallon, M.A. Katzman, & S.C. Wooley (Eds.), *Feminist perspectives on eating disorders*, pp. 152-170. New York: Guilford Press.
- Kendler, K.S., MacLean, C., Neale, M.C., Kessler, R.C., Heath, A.C., & Eaves, L.J. (1991). The genetic epidemiology of bulimia nervosa. *American Journal of Psychiatry*, 148, 1627-1635.
- Kilbourne, J. (1994). Still killing us softly: Advertising and obsession with thinness. In P. Fallon, M.A. Katzman, & S.C. Wooley (Eds.). *Feminist perspectives on eating disorders*, pp. 395-418. New York: Guilford Press.

- Klump, K.L., Miller, K.B., Keel, P.K., McGue, M., & Iacono, W.G. (1999). A population-based twin study of anorexia and bulimia nervosa: Heritability and shared transmission with anxiety disorders. (Manuscript submitted for publication).
- Kohn, M., & Golden, N.H. (2001). Eating disorders in children and adolescents: Epidemiology, diagnosis and treatment. *Pediatric Drugs*, 3(2), 91-99.
- Kreipe, R.E., Golden, N.H., & Katzman, D.K. (1995). Eating disorders in adolescents: a position paper of the Society for Adolescent Medicine. *Journal of Adolescent Health*, 1b, 476-479.
- Lask, B., & Bryant-Waugh, R. (2000). Anorexia nervosa and related eating disorders in childhood and adolescence, 2nd edition. U.K.: Psychology Press Ltd.
- Levine, M., & Smolak, L. (1992). Toward a model of the developmental psychopathology of eating disorders: The example of early adolescence. In J.H. Crowther, D.L. Tennenbaum, S.E. Hobfoll, & M.A. Stevens (Eds.). *The etiology of bulimia nervosa: the individual and familial context*, (pp. 59-80). Washington: Hemisphere.
- Lilenfeld, L., Kaye, W., Greeno, C., Merikangas, K., Plotnikov, K., Pollice, C., et.al. (1998). A controlled family study of restricting anorexia and bulimia nervosa: Comorbidity in probands and disorders in first-degree relatives. *Archives of General Psychiatry*, 55, 603-610.
- Li, B.K. (1994). Anorexia nervosa: Medical issues. In R.A. Olson, L.L. Mullins, J.B. Gillman, & J. Chancey (Eds.). *The sourcebook of pediatric psychology* (pp. 322-333). Needham Heights, Massachusetts: Allyn and Bacon.

- Maloney, M., McGuire, J., & Daniels, S. (1988). Reliability testing of a children's version of the eating attitudes test. *Journal of American Academy of Child and Adolescent Psychiatry*, 28, 541-543.
- Marcus, M.D., & Levine, M.O. (1998). Eating Disorders treatment. An update: *Current Opinion in Psychiatry*, 11(2), 159-163.
- Mealey, L. (2000). Anorexia: A "losing" strategy? *Human Nature*, 11(1), 105-106.
- Mehler, P.S. (2001). Diagnosis and care of patients with anorexia nervosa in primary care settings. *Annals of Internal Medicine*. Vol. 134 (11) pp. 1048-1059.
- Millstein, S. G., Nightingale, E. O., Petersen, A. C., Mortimer, A.M., & Hamburg, D. A. (1993). Promoting the Healthy Development of Adolescents. *Journal of the American Medical Association*. 269(11):1413-1415.
- Mitchell, J.E., & Eckert, E.D. (1987). Scope and significance of eating disorders. *Journal of Consulting and Clinical Psychology*, 55(5), 628-634.
- Mizes, J.S. (1990). Criterion-related validity of the anorectic cognitions questionnaire. *Addictive Behaviors*, 15, 153-163.
- Mizes, J.S. (1991). Construct validity and factor stability of the anorectic cognitions questionnaire. *Addictive Behaviors*, 16(1), 89-93.
- Mizes, J.S. (1992). Validity of the mizes anorectic cognitions scale: A comparison between anorectics, bulimics, and psychiatric controls. *Addictive Behaviours*, 17, 283-289.

- Mizes, J.S. (1994). The Mizes Revised Anorectic Cognitions Questionnaire. Unpublished Inventory, Metrohealth Medical Center, OH.
- Mizes, J.S., & Arbitell, M.R. (1991). Bulimics' perceptions of emotional responding during binge-purge episodes. *Psychological Reports*, 69, 527-532.
- Mizes, J.S. & Klesges, R.C. (1989). Validity, reliability, and factor structure of the anorectic cognitions questionnaire. *Addictive Behaviors*, 14, 589-594.
- Mulholand, A.M. & Mintz, L.B. (2001). Prevalence of eating disorders among african american women. *Journal of Consulting Psychology*, 48(1), 111-116.
- National Association of Anorexia Nervosa and Associated Disorders (2000). Eating disorder education organization: Facts about eating disorders. Retrieved June 28, 2001, from <http://www.edeo.org/edinfo/factstats.htm>.
- Nowlin, N.S. (1983). Anorexia nervosa in twins. Case report and review. *Journal of Child Psychiatry*, 44, 101-105.
- Osman, A., Chiros, C.E., Gutierrez, P.M., Kopper, B.A., & Barrios, F.X. (2001). Factor structure and psychometric properties of the brief mizes anorectic cognitions questionnaire. *Journal of Consulting and Clinical Psychology*, 57(6), 785-799.
- Palmer, R., Oppenheimer, R., Dignon, A., Chaloner, D., & Howells, K. (1990). Childhood sexual experiences with adults reported by women with eating disorders: an extended series. *British Journal of Psychiatry*, 156, 699-703.

- Perlick, D., & Silverstein, B. (1994). Faces of female discontent: Depression, disordered eating, and changing gender roles. In P.A. Fallon, M.A. Katzman, & S.C. Wooley (Eds.), *Feminist perspectives on eating disorders*, pp. 77-93.
- Peters, L., & Fallon, P. (1994). The journey of recovery: Dimensions of change. In P. Fallon, M.A. Katzman, & S.C. Wooley (Eds.), *Feminist perspectives on eating disorders*, pp. 339-354. New York: Guilford Press.
- Pomerleau, C., Carton, S., Lutzke, M., Flessland, K., & Pomerleau, O. (1994). Reliability of the Fagerstrom Tolerance Questionnaire and the Fagerstrom Test for Nicotine Dependence. *Addictive Behaviors*, 19(1), 33-39.
- Prather, R., & Williamson, D. (1988). Psychopathology associated with bulimia, binge eating, and obesity. *International Journal of Eating Disorders*, 7, 177-184.
- Pumariega, A.J. (1986). Acculturation and eating attitudes in adolescent girls: A comparative and correlational study. *Journal of American Academy of Child and Adolescent Psychiatry*, 25, 276-279.
- Rathasuriya, R.H., Eisler, I., Szmukler, G.I., & Russell, G.F.M. (1991). Anorexia nervosa: Outcome and prognostic factors after 20 years. *British Journal of Psychiatry*, 158, 495-502.
- Reinecke, M.A. (1992). Childhood depression. In A. Freeman & F.M. Dattilio (Eds.), *Comprehensive casebook of cognitive therapy* (pp. 147-158). New York: Plenum Press.

- Ressler, A. (1998). A body to die for: Eating disorders and body-image distortion in women. *International Journal of Fertility*, 43(3), 133-138.
- Richards, M.J.S. (1992). Attitudes of middle-class African Americans toward therapy. Retrieved January 15, 2002 from Digital Dissertations.
- Richards, M.H., Boxer, A.M., Petersen, A.C., & Albrecht, R. (1990). Relation of weight to body image in pubertal girls and boys from two communities. *Developmental Psychology*, 26, 313-321.
- Rosen, J., Silberg, N., & Gross, J. (1988). Eating attitudes test and eating disorder inventory: Norms for adolescent girls and boys. *Journal of Consulting and Clinical Psychology*, 56, 305-308.
- Rossiter, E.M., Agras, W.S., Losch, M., & Telch, C.F. (1988). Dietary restraint of bulimic subjects following cognitive-behavioral or pharmacological treatment. *Behavior and Research Therapy*, 26, 495-498.
- Rutherford, J., McGuffin, P., Karz, R.J., & Murray, R.M. (1993). Genetic influences on eating attitudes in a normal female twin population. *Psychological Medicine*, 23, 425-436.
- Sallis, J.F. (1993). Promoting healthful diet and physical activity. In S.P. Millstein, A.C. Peterson, & E. Nightingale (Eds.), *Promotion of health behavior in adolescence*, pp. 209-241. New York: Oxford University Press.
- Schwartz, D.M., Thompson, M.G., & Johnson, C.L. (1985). Anorexia nervosa and bulimia: The sociocultural context. In S.W. Emmett (Ed.), *Theory and treatment of anorexia nervosa and bulimia*, pp. 95-112. New York: Brunner/Mazel.

- Seifert, K.L., & Hoffnung, R.J. (1987). *Child and adolescent development*. Boston: Houghton Mifflin Co. p. 596.
- Shisslak, C.M., Crago, M., Neal, M.E., & Swain, B. (1987). Primary prevention of eating disorders. *Journal of Consulting and Clinical Psychology*, 55(6), 660-667.
- Simmons, R.G., & Blyth, D.A. (1987). *Moving into adolescence: The impact of pubertal changes and school context*. Hawthorne, NJ: Aldine.
- Smith, M.C., & Thelen, M.H. (1984). Development and validation of a test for bulimia. *Journal of Consulting and Clinical Psychology*, 52, 863-872.
- Smith, D.E., Thompson, J.K., Raczynski, J.M., & Hilner, J.E. (1997). Body image among men and women in a biracial cohort: The cardia study. *International Journal of Eating Disorders*, 25, 71-82.
- Smolak, L., & Levine, M. (1994). Psychometric properties of the children's eating attitudes test. *International Journal of Eating Disorders*, 16, 275-282.
- Steiner, H., & Lock, J. (1998). Anorexia nervosa and bulimia nervosa in children and adolescents: A review of past ten years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37(4), 352-359.
- Steinhausen, H.C., Bayadjieva, S., Grigoriu-Serbanescy, M., Seidel, R., & Metzke, C.W. (2000). A transcultural outcome study of adolescent eating disorders. *Acta Psychiatrica Scandinavica*, 101(1), 60-66.

- Steinhausen, H.C., Rauss-Mason, C., & Seidel, R. (1991). Follow-up studies of anorexia nervosa: A review of four decades of outcome research. *Psychological Medicine*, 21, 447-454.
- Striegel-Moore, R.H., Schreiber, G.B., Pike, K.M., Wilfley, D.E., & Rodin, J. (1995). Drive for thinness in black and white preadolescent girls. *International Journal of Eating Disorders*, 18(1), 56-59.
- Striegel-Moore, R.H., Silberstein, L.R., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. *American Psychologist*, 41(3), 246-263.
- Strober, M., Freeman, R., Lampert, C., Diamond, J., & Kaye, W. (2000). Controlled family study of anorexia nervosa and bulimia nervosa: evidence of shared liability and transmission of partial syndromes. *American Journal of Psychiatry*, 157(3), 393-401.
- Sullivan, P.F. (1995). Mortality in anorexia nervosa. *American Journal of Psychiatry*, 152, 1073-1074.
- Swarr, A.E., & Richards, M.H. (1996). Longitudinal effects of adolescent girls pubertal development, perceptions of pubertal timing, and parental relations on eating problems. *Developmental Psychology*, 32(4), 636-646.
- Tanner, J. (1972). Sequence, tempo and individual variation in growth and development of boys and girls aged twelve to sixteen. In J. Kagan and R. Coles (Eds.), *Twelve to sixteen: Early adolescence*. New York: Norton.
- U.S. Congress, Office of Technology Assessment. (1991). *Adolescent health: Vol. I. Summary and policy recommendations*. Washington, D.C.: U.S. Government Printing Office.

- Vandereycken, W., & Pierloot, R. (1981). Anorexia nervosa in twins. *Psychotherapy and Psychosomatics*, 35, 55-63.
- Vandereycken, W. & Pierloot, R. (1983). Long-term outcome research in anorexia nervosa. *International Journal of Eating Disorders* 2, 237-242.
- Vanderlinden J., & Vandereycken, W. (1997) Trauma, dissociation, and impulse dyscontrol in the eating disorders. Bristol, PA: Brunner Mazel.
- Waller, G. (1991). Sexual abuse as a factor in eating disorders. *British Journal of Psychiatry*, 159, 664-671.
- Walsh, T., B., & Devlin, M. J. (1998). Eating disorders: Progress and problems. *Science*. 280(5368), 1387-1390.
- Warren, M.P., Brooks-Gunn, J., Hamilton, L.H., Hamilton, W.G., & Warren, L.F. (1986). Scoliosis and fractures in young ballet dancers: Relationships to delayed menarcheal age and secondary amenorrhea. *New England Journal of Medicine*, 314, 1348-1353.
- Wilfley, D.E., & Rodin, J. (1995). Cultural influences on eating disorders. In K.D. Brownell & C.G. Fairburn (Eds.), *Eating disorders and obesity: A comprehensive handbook* (pp. 78-82). New York: Guilford.
- Williamson, D. A., Cubic, B. A., & Gleaves, D. H. (1993). Equivalence of body image disturbances in anorexia and bulimia nervosa. *Journal of Abnormal Psychology*. 102(1), 177-180.

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

Williamson, D.A., Gleaves, D.H., Watkins, P.C., & Schlundt, D.G. (1993). Validation of self-ideal body size discrepancy as a measure of body dissatisfaction. *Journal of Psychopathology and Behavioral Assessment*, 15(1), 57-68.

Wilson, G.T., Eldredge, K.L., Smith, D., & Niles, B. (1991). Cognitive behavioral treatment with and without response prevention for bulimia. *Behavior Research and Therapy*, 29, 573-583.

Wilson, G.T., Fairburn, C.G., & Agras, W.S. (1997). Cognitive-behavioral therapy for bulimia nervosa. In D.M. Garner and P.E. Garfinkle (Eds.), *Handbook of treatment for eating disorders*, (pp. 67-93). New York: Guilford Press.

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

Wolf, N. (1994). Hunger. In P.A. Fallon, M.A. Katzman, & S.C. Wooley (Eds.), *Feminist perspectives on eating disorders*, pp. 94-114. New York: Guilford Press.

Woodside, D. B., Garfinkel, P. E., Lin, E., Goering, P., Kaplan, A., Goldbloom, D. S., & Kennedy, S. H. (2001). Comparisons of men with full or partial eating disorders, men without eating disorders, and women with eating disorders in the community. *American Journal of Psychiatry, 158*(4), 570-574.

World Health Organization. (1981). *Global strategy for health by the year 2000*. (Geneva, Switzerland: World Health Organization).

World Health Organization. (1999). *Adolescent nutrition: a neglected dimension*. Retrieved June 28, 2001, from <http://www.who.int/not/ado.htm>.

Wren, B., & Lask, B. (1993). An etiology. In B. Lask & R. Bryant-Wough (Eds.), *Childhood onset anorexia nervosa and related disorders* (pp. 69-89). Hillsdale (USA): Lawrence Erlbaum Associates, Publishers.

Zaider, T.I., Johnson, J.G., & Cockell, S.J. (1999). Psychiatric comorbidity associated with eating disorder symptomology among adolescents in the community. *International Journal of Eating Disorders, 28*, 58-67.