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PILOT VALIDATION STUDY OF THE EATING ISSUES AND BODY IMAGE CONTINUUM

by

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STATEMENT BY AUTHOR

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DEDICATION

This work is dedicated to my husband, Don, who showed continued encouragement and patience during the writing process. It is also dedicated to my daughter, Rebecca, who was born during the writing of this thesis and who is now 20 months old, who provides comic relief and a continual reminder of what my true priorities are.

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ABSTRACT

The Eating Issues and Body Image Continuum is a tool used for presentations on and self-assessment of eating and body issues. This pilot study was undertaken to test the Continuum's criterion and content validity.

Female college students, 25 with diagnosed eating issues, and 25 without, self-assessed their eating/body issue levels with the Continuum. The EDI-2 was the criterion measurement. A Pearson's correlation of 0.73, and a distinct separation in self-assessment results between the two groups identified the efficacy of the Continuum.

The validity of the Continuum statements were assessed by female college students (n=100), and Mental/Nutritional health Professionals (n=20). Two-thirds of the statements were either placed correctly or within an adjacent column. The rest of the statements either needed changes in wording or represented cultural issues with interpreting body and food concerns.

Suggestions for changes to the Continuum were recommended. The Continuum was considered to be efficacious as an assessment tool.

INTRODUCTION

Eating issues (preoccupations with food, a heightened concern or importance placed upon food) are a serious concern for college students. They are a problem that is increasing steadily, as cultural standards continue to hold to an unrealistic ideal of thinness as the norm (Vervaet and Van Heeringen, 2000). Although frank eating disorders only effect 1 to 3 percent of teenaged girls and college women (Nichter, 2000), a preoccupation with food and with body image is pervasive in females and growing in males. There are few high school aged or young adults who do not know what bulimia and anorexia nervosa are, and in many communities there are few who do not know someone with an eating disorder (defined by DSM-IV guidelines, Appendix H) or serious food/body issues. This knowledge has become evident in presentations and through private practice with young adults done by this researcher. This is also reported by other professionals working in the field of eating disorders. These young adults bring their knowledge and concerns with them as they enter college. The underlying message and the perceived norm for college students is undeniable: you must be thin and muscular, you must avoid eating fat, and your present "good looks" are more important than any health risks associated with attaining and maintaining these looks. Female students are of particular concern in this area because there is a greater emphasis on obtaining the ideal body size for young women than there is for young men. It is anticipated that this trend may change and more young men will be revealed to have food and body image

concerns in the future, but at the present females predominate in this emphasis. For this reason college aged women were the target for this study.

There are a variety of reasons why eating issues and body image concerns frequently develop among this age group. These reasons include peer pressure, media influence, a self-esteem that may be in flux, and a tendency toward perfectionism and high achievement.

The College Population

The college years are a time of transition and change. Upon entering college a young adult is propelled into a world with an entirely new cultural perspective. The human body from an anthropological point of view becomes a symbol that represents the individual self and the culture to which it belongs (Smiley 1994). For a female college student, "culture" is represented by the college campus environment, and her fellow students. There are norms that are specific to the female college student that may not be shared by the public at large and often are more extreme than are found in the general population. Norms are established for ideal body type, attitudes toward food, alcohol, drugs, and sex (Upcraft, 1989). The norms for body type are reflective of the bodies viewed on television programs such as "Beverly Hills 90201," in fashion magazines such as Glamour, Shape, and Allure, and in advertising. This ideal is a very thin and toned body. Body fat is not acceptable. Attitudes toward food might vary somewhat depending upon the social group to which an individual belongs. In general, it is considered important to balance eating and exercise in

such a manner that the ideal body size is maintained. Low fat foods are considered for most individuals to be the optimal choices. For many women restricting food intake is a way of life. Eating is frequently a social experience, especially for students residing in residence halls. Exercise is also important to college students, and the daily schedule is often planned around workout sessions.

Other norms of this culture include attitudes toward alcohol and drugs that make "partying" a common event. Attitudes toward sex are open and relaxed. Some students in counseling sessions, report that the common attitudes toward alcohol and sex may be construed as pressure. Other individuals resist this pressure and follow a personal belief system that diverges from the norm.

The norms perceived as needing to be adhered to can be increasingly specified for the social group to which a young woman belongs. For example, attitudes toward sex and relationships will be significantly different for a woman who belongs to a religious group (such as Christian, Orthodox Jew, or Muslim) on the college campus as compared to the general college population (Banks, 1992). A sorority member will be strongly influenced by the attitudes toward the body that are prevalent within her sorority. Attitudes toward body image may be more relaxed for students who are studying art, theater, and music because there is more attention paid to artistic expression that physical appearance (Alexander, 1998).

College Years as Transition

Female college students enter their college careers with a host of beliefs and feelings about their bodies, self-concept, and abilities. Many of their beliefs and feelings were formed during the years preceding college, and their college years are a time of testing limits and for self-exploration that is unequalled in any other time in life (Upcraft, 1989). In addition, many of these young women are learning to perform tasks of adult life for the first time, such as managing money, living space, time, buying food, and most importantly establishing and affirming their own boundaries. Life in college tends to be chaotic and schedules quite varied. Because deadlines for projects and papers and exam schedules are erratic, there is often little consistency in a college student's life. This, coupled with inconsistent sleep and eating patterns, and a range of social activity, results in an unpredictable lifestyle. For many individuals this type of life can be taken in stride and may be invigorating. For some, however, such a life may seem to be "out of control."

With so many changes occurring during college, there can be a tendency to find means to control one's life. There are differing ways in which an individual goes about this such as frequent trips home, socializing using alcohol to relax, and joining an organized group. Often, females tend to focus on food and exercise as a means by which control can be gained (Schwitzer, 1998). College students today grew up in the fitness focused 80's and 90's and "working out" is for many a major part of the day. Exercise can be a good stress releaser and

serve as a welcome break from studies, however, for some it becomes a means by which some control is gained in a hectic life. Exercise and body preoccupation can overwhelm a student's life. Controlling food is another method of coping with anxiety and stress. On a college campus, a wide variety of food choices may not be available. Additionally a restrictive budget may limit choice even if variety is available (Stewart, 1993). Students, especially female students, sometimes feel self-conscious about going to the cafeteria alone, and limit food consumption to times when friends are available to accompany them to the dining hall. Finally, an individual may restrict food intake purely as a means of control when life is feeling uncontrollable. There are a variety of reasons for the use of food in such a manner. Primarily food is used as comfort, or as a means of disassociating from one's body and escape from the issues at hand (Roth, 1992)

Other issues a female college student faces include self-esteem, peer pressure, and body image. A student leaves the security and familiarity of high school and enters college where she is an "unknown," and must forge out an identity for herself. Self-esteem may waiver even for someone who was relatively confident in high school. Throughout the college years, an individual is making and dealing with changes in her identity and personality. It is a time of testing of her ideas and exploration of how she sees herself; it is a vulnerable time with many ups and downs (Smiley 1994).

Peers pose a challenge for the college student as well. The need to be part of a group is especially strong at this time in life as individuals are breaking out of their teen identities and exploring their adult identities. Although they are exploring "who they are" and want to be, there continues to be a great deal of pressure to conform. The type and amount of pressure varies from group to group. For example, among sorority women there is a strong pressure to dress a certain way, to maintain a certain social standing, and often pressure to restrict food intake. The pressure to restrict food arises from a need to maintain a low weight for many women, while they share clothes and compete for the lowest dress size (Schwitzer, 1998). In the sorority it is important to do as one's "sisters" do, and if restrictive eating is the norm it is important to follow this pattern, simply for the sake of fitting in and feeling accepted. Disordered eating is common among sorority women (Alexander, 1998). In certain academic departments there is pressure to maintain a specific body type. Dancers and those in the performing arts feel such pressure. On The University of Arizona campus, there tends to be an overall pressure toward thinness, perhaps because of the climate and the ability to wear summer clothing much of the year. Female students who visit the nutrition counseling office at The Campus Health Center at The University of Arizona report concerns about feeling self-conscious and pressure to obtain a model thin body as a result of observing other women on campus.

Finally, college students face a good deal of pressure from the media to conform to a specific appearance. The current generation, more than any before it, is bombarded with media influence. A wide variety of magazines, videos, television and the Internet reinforce a thin ideal. These issues are summarized in Chickering (in Delworth, 1989). The developmental changes that occur in college students during the freshman year transition are referred to as 7 "vectors of development." They include: developing competence, becoming autonomous, managing emotions, establishing identity, freeing interpersonal relationships, clarifying purposes, and developing integrity.

Food/Body Issues and the College Student

Food/body issues are feelings about one's body or eating that cause a lessened sense of self-worth, which result in a preoccupation or obsession with the body shape and size, and/or a preoccupation or obsession with food.

College students have a heightened vulnerability to developing food/body issues as compared to other developmental periods in life. Some of the factors that cause this increased vulnerability have been described previously, such as identity issues, and the difficulty of securing food either by shopping and cooking or eating in restaurants and dining halls.

When these factors are added to a college student's feelings about the body, eating, sense of self, and her reactions to the pressures and changes that occur when entering college, food/body issues can occur. Food/body issues are not unique to freshmen in college, because the college years are a time of

continuous change (Meyer, 1998). A young woman's identity is developing and attitudes toward herself and her body are in flux. In addition, the influences of her peers bear a considerable amount of weight. A student might cope well one year and in another year find her focus shifting to her body and food as added stresses are placed upon her. In addition, weight changes associated with maturity, changes in diet, sleep and exercise occur during this time (Smiley, 1994).

Food/body issues are serious because if they are not dealt with there is a risk of the development of eating disorders. There are a variety of elements that need to be present for an eating disorder to develop. Smiley (2001) describes the development of eating disorders as a multifaceted combination of risk factors, resulting anxiety, and methods of dealing with anxiety that work together toward an eating disorder. Table 1 (used with permission), illustrates the pattern of eating disorder development as described by Smiley.

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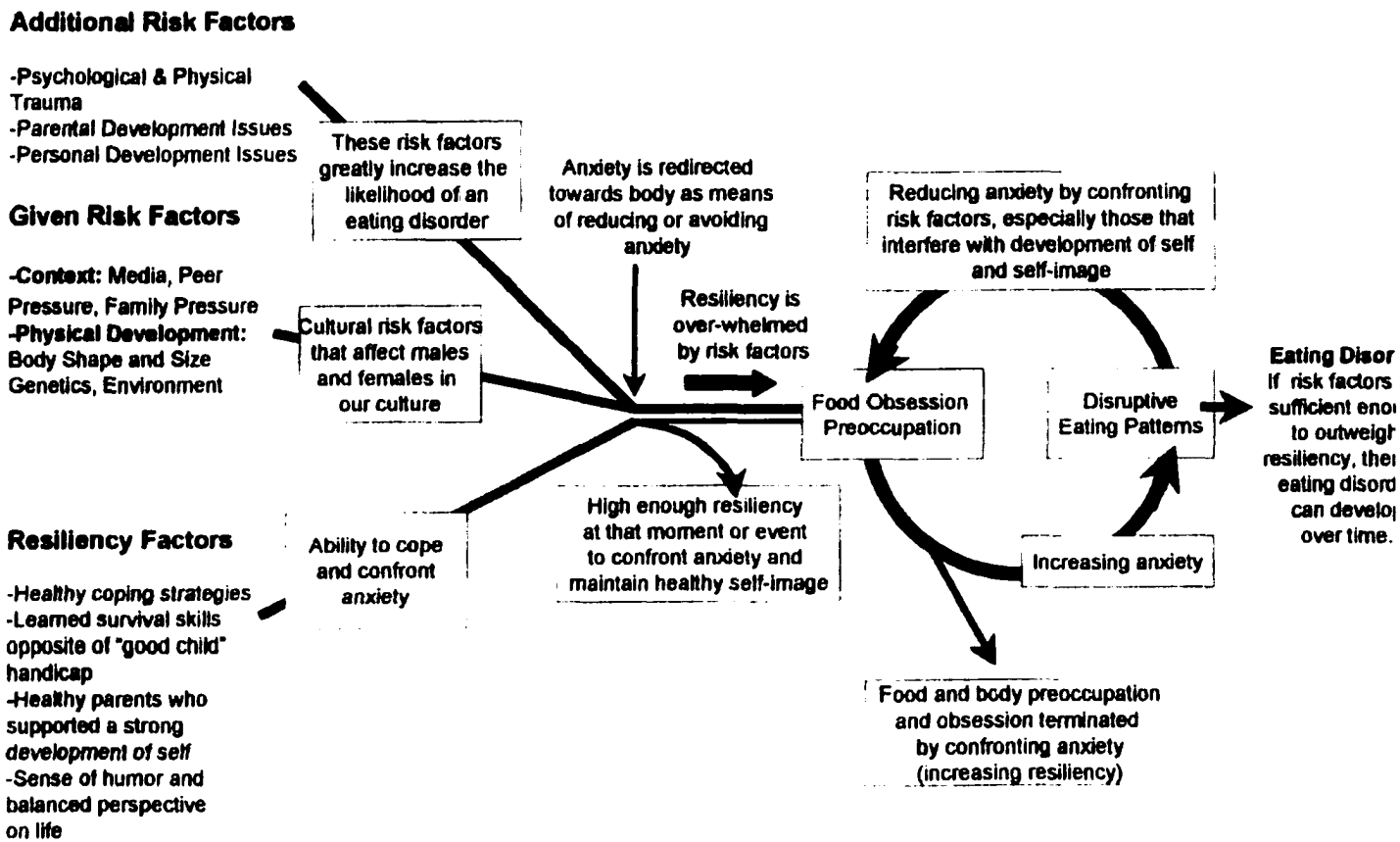


Lynne Smiley, PhD - UA Life & Work Connections

Media Influences

The message of thinness as the ideal is promoted through media sources such as magazines intended for young adults who portray very thin models as a standard, and television commercials that emphasize thinness as the ideal. The message is also conveyed through television and movies where female actors are predominately thin, and physical fitness is the norm for both male and female actors. Frequently what is portrayed in magazines is a body ideal that is unattainable for many women. Models in airbrushed pictures portray weights that are below healthy levels and display perfection that is not realistic. The average model is about 5'10" tall and about 100 to 110 pounds, where the typical woman is 5' 4" tall and 140 pounds (Kilbourne, 1994).

Educational Messages

The pressure to adhere to a thin ideal exists for both young women and men. Although the pressure for young men to conform to a specific body type is increasing in Western society, historically it has been women who must adhere to rigid physical norms.

Because eating issues and preoccupation with food and body are so prevalent; there are tools and education messages to help curtail the growth of this problem. Eating Disorders Awareness and Prevention (EDAP), for example, is an organization that promotes positive body image and an anti-eating disorder message through an annual "Eating Disorder Awareness Week" campaign on college campuses. Eating disorders prevention and awareness is a topic

presented in many middle and high school health classes in the greater Tucson area, as revealed in a phone survey of local school district curricula. Three large local school districts were surveyed: Marana Unified School District, Amphitheater School District, and Tucson Unified School districts. Information obtained at the high school level is incorporated into the thinking of college females.

Information available to the general public and students frequently focuses on signs and symptoms, dangers of eating disorders, and a information that promotes dieting to loose and maintain weight. Publishers of magazines and books, in an effort to "sell publications" frequently distort the incidence of eating disorders and sensationalize celebrity struggles with food and body issues. In addition there is an emphasis in popular magazines and books for dieting to be the norm to attain weight loss (People, June 1997; US, February 2001).

Traditional methods of eating disorder education use a "litmus test" approach with an individual "testing positive or negative" for an eating disorder. The methods used adhere to strict definitions of eating disorders, and focus on whether an individual has an eating disorder or not. Traditional approaches do not allow for areas between disordered and healthy, where a person might be struggling with eating issues or body image, but does not fit a diagnosis of an eating disorder. Hence, there is a need to look at the educational message being presented, to expand the scope, and to include prevention of eating disorders and information about eating patterns and body image in the message.

Eating Issues and Body Image Continuum Development

The *Eating Issues and Body Image Continuum* (Continuum) was developed to provide a new message about eating issues, eating disorders, and body image issues—to focus on eating problems and body image as a developmental issue, without an emphasis on eating disordered versus not-eating disordered (See Appendix A). There is an emphasis in the Continuum on a variety of eating patterns, spanning a continuum, with a lack of issues with eating described at one end and eating disorders reflected at the other end. There is also an emphasis on a wide range of attitudes about the body, again ranging from body security to body disassocation.

The Continuum has been developed primarily as a self-assessment tool and as an education tool for use in presentations. The Continuum approach differs from traditional educational methods regarding eating behaviors because the focus is not on eating disorders per se, but on a range of eating behaviors. The typical model for education describes a pathology of disordered eating, emphasizing the problematic behaviors and the harm they do. It causes individuals to become focused on what might be wrong with them and in need of correction. It does not take into account that disordered eating frequently grows out of eating patterns that were perceived as healthy at their onset. Often an eating disorder grows out of behaviors that were considered to be the norm. The traditional education model also ignores athletes for whom it is essential to pay careful attention to their diets is essential. It especially isolates athletes in

aesthetic sports such as dance, gymnastics, and swimming, where appearance as well as performance must be a focus. The traditional model also stigmatizes individuals who have eating disorders causing them to feel a need to hide the problem so they will not be singled out by someone trying to force them to eat. It also uses "scare tactics" with the belief that if someone with an eating disorder knew what was happening to her body she would certainly stop. This thinking is quite far from realistic, when someone has an eating disorder, being educated about the dangers of her behavior appears to have very little effect on her behavior. The disordered behavior tends to continue until she is emotionally ready to change her behavior. Frequently disordered eating continues after serious health problems have developed. "Scare tactics" are not usually an efficient deterrent (as noted through personal observation and discussion with professionals).

The traditional educational model may cause an individual attending an educational presentation who is experiencing disordered eating behavior to feel uncomfortable or singled out, while it may cause others to lose interest in the presentation because the topics do not apply to them. The goal is to bring the Continuum into a presentation on eating patterns and body perception and to use it as an illustrative device on these topics with the hope to encourage all the individuals in the audience.

The Continuum takes an approach to eating disorder education and assessment, which shows development of food/body issues as part of a range of

feelings and beliefs about food and the body that an individual can go through. A continuum approach to education shows disordered eating and body image at one end of the spectrum, and lack of issues about food and the body at the other end, with a range of attitudes and feelings in between. This model teaches that a person can move freely along this spectrum, in either direction.

Although movement between the levels on the Continuum can occur freely, the stages on the Continuum are not incremental. There is a degree of difference between each level with the far-left column being free of food/body issues and the far-right reflecting an eating disorder that includes a variety of pathopsychological issues. The two columns in the far left reflect healthy attitudes toward food and body. Columns three and four reflect a movement toward less healthy attitudes where distortion of body image occurs and a preoccupation with food and methods to control food intake occur. There is a significant gap between the far right column and the third and fourth columns that reflect a pathopsychology leading to a frank eating disorder.

Using the Continuum in a presentation on food/body issues, the audience can be introduced to a process of thinking about eating patterns and body image that does not focus on ideal body weight, dieting, and striving for fitness. Rather, there is an emphasis that individuals can have a variety of feelings and attitudes about food and their bodies. There is room for many weights, shapes, sizes, and levels of exercise. There is freedom to know that one can be healthy without fitting a specific (and possibly unrealistic) ideal.

Continuum Development Methodology

In the early nineties, at The University of Arizona, Campus Health educators, eating disorder therapists and nutritionists were using an eating disorder model for presentations that was developed by Catherine Shisslak, PhD. This model covered the range of eating behaviors from the normal eating to psychotic and neurotic eating behavior. This model, though useful for clinical presentations was not suitable for general college population presentations.

In 1996, Lisa King, MC, Lynne Smiley, PhD, and Holly Avey, MPH adapted the model (with permission) to be a tool that could be used in a prevention presentation or by itself as an educational display, and would be appropriate for any audience.

The new model (Eating Issues and Body Image Continuum) was developed based on the social norms theory. This theory states that...people will adapt their behavior to what they think their peers are doing. But when presented with the actual occurrence of that behavior, will voluntarily lessen their behavior to match the norm.

The Use of the Continuum With College Students

Even though the Continuum was developed for use with college-aged women and men for self-assessment and for group presentation. It can also help identify warning signs for attitudes and behaviors that are related to an increased risk of distorted body image and disordered eating. College-aged refers to the "traditional" college age of 18 to 25 year olds, although the Continuum has been

used with older and younger individuals. For the purpose of this study, a traditional college-aged group of women was investigated because that was the audience for whom Continuum was developed.

The Continuum is used on The University of Arizona campus as an education and assessment tool. Presentations are regularly provided using the Continuum for sororities, in residence halls, and for classes in the Nutritional Sciences department, and other departments as requested such as the Dance Department. Presentations using the Continuum focus on eating patterns with an emphasis on the range of eating behaviors represented in the Continuum. Body image is also addressed using the range of behaviors represented in the Continuum. Information on healthy eating and exercise is sometimes provided as well.

The Continuum is also used as an assessment tool by the nutritionist and some of the mental health counselors at the Campus Health Center at The University of Arizona. A self-assessment is completed by clients, whereby statements that the client recognizes as being pertinent to her feelings about food and body image are identified. This enables her to identify where she currently is on the Continuum, whether it be with or without food/body issues. This validation study has been designed with these uses of the Continuum in mind.

INTRODUCTION TO STUDY

This study was conducted to preliminarily validate a tool used for education about and assessment of eating issues and body image that was developed at The University of Arizona, Tucson, AZ by Lynne Smiley, Ph.D. and Lisa King, MS, with the assistance of Holy Avey, MPH. The tool is entitled the *Eating Issues and Body Image Continuum* (Continuum), and is widely used at The University of Arizona for educational presentations to classes, sororities, fraternities and residence hall students. It is also used at the University of Arizona, Campus Health Center as a tool for assessment of eating behavior.

The Continuum has been presented at two national conferences: the American College Health Association (ACHA), San Diego 1998 and the Third annual conference on Eating Disorders on College Campuses, Penn State 1997. It has been distributed widely on college campuses throughout the United States. It was also been published in *Shape* Magazine (April 1999). It has been positively received in various workshops and presentations in the Tucson, AZ area. In spite of its wide appreciation and acceptance with educators, a study to validate the instrument has not been completed. Validation is an important step toward the use of this tool as a standard assessment and education tool. Validation of the Continuum statements was undertaken using content and criterion measurements.

For an instrument to be considered valid, evidence for both content and criterion-related validity must be demonstrated. The first step in validating the Continuum was to validate the statements.

Validity is the extent to which any instrument measures what it is intended to measure (Carmines and Zeller, 1979). *Content Validity* indicates that all relevant content is captured by the measurement tool. Carmines and Zeller state that there must be an empirical link between the data or tool to be validated and the inferences that are to be made from the data.

The content validity aspect of the study evaluated the statements of the Continuum for content validity. In order to ascertain content validity of the Continuum, the question was asked: Are the subjects able to correlate the statements on the Continuum to the concept identified in the headings category under which they fall? In this study, the phrasing of the statements within each category of the Continuum was evaluated for consistency of meaning between the statements within the categories and their respective headings.

Criterion Validity is defined by Carmines and Zeller as the use of an instrument to estimate some behavior that is external to the measuring instrument itself, the latter referred to as the criterion. In other words the criterion is the "standard" by which the behavior is being evaluated. In this study the "behavior" being measured is the degree of food/body issues, and the criterion measure was the Eating Disorder Inventory-2 (EDI-2).

Purpose of the Study

The primary purpose of this study was to validate the Continuum as a tool for assessing eating behavior. The Criterion validity was assessed by comparing scores of the criterion measure, the EDI-2 to the Continuum scores. The Continuum statements were evaluated for content validity by assessing how well subjects were able to match Continuum statements to their respective headings.

Aims and Hypotheses

Specific Aim # 1: To evaluate the Continuum as an assessment tool for eating behavior and body image attitudes. The following hypothesis was tested:

1) Individuals identified as having eating disorders by the DSM-IV will self-assess into the following columns of the continuum: "disruptive eating," "distorted body image," "eating disordered," and "body hate/disassociation."

Specific Aim #2: To test the Continuum for Criterion Validity. The following hypothesis was tested:

2) Eating disordered individuals as assessed by the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV, 1994), and subjects without eating disorders, will perform similarly on their self-assessment with the Continuum as they do on the Criterion measure, a modified version of the Eating Disorder Inventory-2, (mEDI-2).

Specific Aim #3: To test the Continuum for Content validity. The following hypotheses were tested:

3) The wording in each statement of the Continuum clearly and consistently communicates the attitudes and behaviors toward food and body image stated in the heading for its respective category.

4) Mental health and nutrition professionals who work with eating and body image issues can more accurately correlate the statements on the Continuum as they relate to their respective headings than non-professionals.

5) Individuals who score positive on an Exposure Index will more satisfactorily place the statements in correct categories than individuals who score negative on the Exposure Index.

A vital piece of information that arose from preliminary interviews was that individuals who had a better understanding of eating disorders could more accurately match the Continuum statements to the appropriate headings. Based on these findings, a series of questions referred to as an "Exposure index" were included in the Continuum Questionnaire. These questions provided some information about the subjects' "exposure" to food/body issues. It was assumed that subjects who have an understanding of food/body issues from experiences in their personal history would have a high "level of exposure" to food/body issues and thus arrange the Continuum statements under the headings with a high degree of accuracy.

Limitations

In this study some limitations must be recognized:

1. This pilot study was done with a small and primarily homogeneous validation sample. It is not intended to be a final validation study, but a preliminary study, which evaluated the Continuum as an assessment tool, and evaluated the Continuum statements as they relate to the headings on the Continuum. The findings of this study can be used to help clarify effective and ineffective approaches to validation.

2. The length and wording of the Continuum questionnaire may have led to confusion and fatigue during its completion, as subjects may have felt the need to rush to complete the questionnaire in the time allocated.

3. All of the data collected in this study is self-report, which may indicate some inaccuracies, both under- and over- emphasis of issues related to food and body image. With self-reported data there is always the risk that a subject will attempt to answer in a manner that she feels is "expected" by the researcher. This is especially a concern with eating disordered individuals as they generally have a need to please others.

4. Levels of knowledge and understanding of food/body issues vary from individual to individual.

5. The EDI-2 utilizes a Likert-type scale, which is limited in that not all statements will fall within a specific level for all subjects.

6. The subjects chosen for the mental health and nutrition professional group used for Content validity were expected to represent a "gold standard" in terms of expertise with eating issues. The subjects in this group, however, did not meet the expected standard, which results in a flaw in the study design.

Assumptions:

The following assumptions were made in this study:

1. Participants in this study followed directions, both oral and written, and completed questionnaires accurately.

2. Participants were honest about their feelings and attitudes related to eating and body image and answered questions truthfully.

Strengths:

Some strengths of this study can be identified:

1. The Continuum is used routinely at The University of Arizona in presentations on eating issues and as a tool to help with assessment of eating issues and body image concerns of students. This study has helped to bring out areas where the education message comes across clearly, and has also revealed areas where some change may need to occur to present a clearer message during presentations.

2. The collection of data from three sources, The University of Arizona students, Pima Community College students, and mental health and nutrition

professionals, helped to provide a more heterogeneous sample than originally anticipated.

Definitions:

For the purpose of this study, the following terms shall be defined as follows.

Food/body issues--Food/body issues are feelings about one's body or eating that cause a lessened sense of self-worth, and a heightened anxiety about food and eating, which result in a preoccupation or obsession with the body shape and size, and/or a preoccupation or obsession with food.

Eating Disorders—An eating disorder is defined according to the DSM-IV (1994) guidelines.

Eating Issues—Eating issues are preoccupations with food, a heightened concern or importance placed upon food. They can be considered at times a subclinical eating disorder.

Content Validity—a measurement or tool that captures all information or data that is relevant to a given subject or tool.

Criterion Validity—information or a tool that is evaluated by a measurement that is outside of the information itself, the latter being the criterion measure.

LITERATURE REVIEW

This literature review includes the current understanding of food/body issues, their relationship with culture, their development, assessment, prevention of, and why they need to be addressed with college students.

In section 1, Food/Body issues as a cultural phenomenon, anthropologists, sociologists, and other experts in food/body and culture provide an understanding of how the relationship to food and body are influenced by culture. A basic understanding of food/body issues as they relate to cultural influences is relevant to understanding the manner in which subjects evaluated the Continuum.

In section 2, Factors influencing eating disorder development, a discussion of the pathopsychological roots of eating disorders is undertaken. In addition, eating disorders are evaluated from sociocultural and environmental perspectives. An understanding of eating disorders clarifies the intent of the far-right column of the Continuum, which is the point at which eating behavior and body perception are driven by a pathopsychological state.

In section 3, Body image and body preoccupation, literature that evaluates the relationship between self-esteem and body image is discussed. Body image is evaluated from a historical perspective and among college females. Twenty-four statements on the Continuum deal exclusively with body image, therefore an understanding of body issues is essential to this literature review.

Section 4, Methods of education and prevention of eating issues and eating disorders, provides a discussion of educational tools and their efficacy for prevention of food/body issues. Because the Continuum has a key use as an educational tool, information on educational tools previously and currently in use is relevant.

In section 5, College students and the development of food/body issues, factors that contribute to the development of food/body issues for college students are discussed. This is a time in life of increased risk for the development of food/body issues, which was one reason prompting the creation of the Continuum.

Section 6, Review of selected body image and eating assessment tools provides an overview of tools in use for evaluating food/body issues. Validation and use of assessment tools is discussed.

In section 7, Discussion and validation of the Eating Disorder Inventory-2, the EDI-2 is described and a variety of validation studies undertaken when this tool was created are included.

Food/Body Issues as a Cultural Phenomenon

There are a variety of sociocultural and psychological factors that contribute to the preoccupation with the body and food that are strongly evident in Western society today. There are also biological and pathological factors that contribute, which are mentioned elsewhere in this literature review. Although

frank eating disorders are relatively rare, eating *issues* are quite common and frequently problematic among teenaged girls and women. In the Western culture there is a subliminal message that physical perfection is attainable by anyone who is willing to work hard enough or spend enough money. Bordo, (1993), describes a primarily cultural foundation to eating issues and disorders. In her essay, "Whose body is this?" (Bordo 1993) she makes the point that the perceptions of body image in eating disordered women reflect a culturally imposed model for body size. She identifies that the ideal body reflected in magazines has decreased significantly in size over the last few decades, citing for example a comparison of ads for Maidenform bras that were found in magazines in the 1950's compared to the 1990's. The model in a 1990's ad for a "full-figure" woman's bra had physical dimensions that were identical to the model in an ad for a "typical" woman's bra in the 1950's. Bordo mentions that there is a considerable amount of distorted thinking around food myths, control of eating, and control in general: for example a perception that if one is not in complete control she loses all control, or if one eats a single cookie she will eat all the cookies. She states that such thinking is not pathologically oriented, but reflects a cultural bias toward standards of perfection. She argues that the woman does not incorrectly process information, nor are her perceptions flawed, but rather each of these "distorted attitudes" are a fairly accurate representation of the cultural attitudes toward slenderness or the biological realities involved in dieting. In other words these attitudes reflect a cultural norm.

In her essay "Hunger as ideology" (Bordo, 1993), Bordo points to advertisements and weight loss programs aimed at women to be contributing factors in the development of food/body issues. She describes contemporary advertisements that appear in women's magazines and comments on how they reflect and manipulate women's attitudes toward their bodies and appetites. The ideal is for perfect control over the body and hunger, while simultaneously acknowledging many women's secret battles with appetite. Some ads normalize bingeing behavior. Other ads use sex to sell their products—glorifying again the "ideal" (thin, toned) body. Not only must one be thin; one must also have good muscle tone. There must not be any flesh that jiggles, including the flesh on a very thin woman. Still other advertisements use food as an object of sex, or a participant in a sexual encounter. For example, the author points to some ads for Betty Crocker frosting where a male actor says "You butter me up, I can't resist, you leave me breathless" while speaking to a can of frosting. Bordo describes the attitude that having good self-control today is evidenced in the ability to resist food, where several decades ago it was evidenced by the ability to resist pre-marital sex. She describes an ad for Jell-O products in which the model states "I am a woman who can't say no (to dessert)." It used to be that a woman who "can't say no" was speaking about a sexual escapade, not the ability to resist food.

Rodin (1993), comments that although there have been societal standards for beauty throughout the ages, in contemporary Western society technology has

allowed physical concerns to reach new heights. In recent decades there has been an increasing trend toward thinness as the ideal, and today the look is to be both thin and fit. Perceived attractiveness acutely effects feelings of self worth.

Rodin, et al (1985) comment on societal pressures for women to be thin, as they are increasingly visible in the professional workplace. These authors discuss the changing roles of women and the increasingly unrealistic ideals of physical perfection. With self-worth so keenly tied to physical attractiveness and with ideals of physical attractiveness becoming increasingly difficult to attain or maintain it comes as little surprise that the prevalence of eating disorders and eating issues are increasing. Individuals will go to great lengths in their efforts to achieve the ideal body.

Veron-Guidry, et al (1998) studied body dysphoria and eating disorders in preadolescent girls from a developmental perspective. They discuss the strong sociocultural emphasis on thinness as it is linked to self-esteem and depression in the development of body image issues and eating disorder symptoms. These researchers developed a measurement tool to assess the construct of social pressure for thinness. This measure assessed social pressure to be thin, social comparison, and peer group pressure, and was administered along with certain other standard measures, which included Body Image Assessment (BIA-P), Children's Eating Attitudes (ChEAT). Their findings indicated that social pressure for thinness was found to be significantly associated with body dysphoria, and that the relationship between body dysphoria and eating disorder symptoms was

also significant, which indicated that as body dysphoria increased, eating disorder symptoms increased. The underlying factor of increased body dysphoria is associated with cultural influences.

Interestingly, Lee (1996) argues that eating disorders are not limited to *Western* societies, but are a part of the culture of "modernity", which is characterized by socioeconomic state found in many urban areas of the world. He comments that fat phobia and eating issues are a concern in Hong Kong, Chongqing and Shanghai, China. He studied female college students in China and Taiwan and found reports of eating disorder symptoms that were similar to what is commonly found in Western society.

A review of case studies by Banks (1992) draws attention to the spiritual aspect of eating disorders, and limited her study to the Judeo-Christian religions. This author investigated links between religious ideals and self-starvation. While it is true that there is an aspect of food ritual—such as communion for the Christian, Celebratory meals for the Jew, and fasting as part of the Judeo-Christian culture—the subjects she studied seemed to be extreme examples of individuals who distort religious commands. This author also discussed historical examples of eating disorders linked to religion, such as the "holy anorectics" of the medieval period.

Nichter, in her book *Fat Talk* (2000) cites findings from "The Teen Lifestyle Project." This project followed a cohort of teenaged girls from middle school into high school, in Tucson Arizona. It summarized their attitudes toward

body, eating, and the implications of the body in pursuing popularity or social acceptance. The interviews conducted in Nichter's research began with 8th and 9th grade girls in urban Tucson, AZ schools. A total of 240 girls participated in the project. The topics of the interviews were advertisements, peer pressure, eating habits, and body image.

In her discussion of the project results, Nichter comments on the current ideal of thinness, and discusses the roles advertising and the media play in contributing to the setting of this standard. She states, "A growing number of American females cannot measure up to the image of beauty that pervades television and advertisements. More than half of teen-aged girls are size thirteen or larger. Paradoxically, injunctions to look thin and be 'in control' of one's appetite are juxtaposed with the directives to indulge..." The goal for young women is to embrace the thin ideal and strive for physical perfection in spite of the seemingly mixed messages received.

Girls who were interviewed described ads in magazines such as *Seventeen*, and on television as setting the standard for appearance. The implication is that one's life would be better if she looked like the model in the ad.

These girls expressed concerns relating to eating and their bodies that can only be culturally motivated. Concerns included heightened consciousness of what she is eating—whether it is a "good" or a "bad" food, complaints about being fat, tending to be off and on diets, and fear of eating in front of boys. One girl describes her experience; "Well, I mean, everybody thinks they're fat. Well

not everybody, but, you know, most people...sometimes I think I'm fat or something. After usually I get weighed...I never really do anything about it. I just say, "I'm going on a diet. Other girls resist dieting, and support their consciousness of their eating by claims that they are watching what they eat. The resistance to using the word diet prevents others from being critical of them when they choose a food that would not be considered a "good diet food."

Nichter describes the "perfect" girl that was repeatedly portrayed by the subjects. She was 5'7" tall and between 100 and 110 pounds, has long legs, a flat stomach, and good clothes. This ideal beauty was defined in very narrow terms and did not represent real people. It reflected the airbrushed, computer modified faces and bodies of models in magazines. Other girls mention ads for diet products. One very insightful girl who the author described as thin, stated that ads for diet products on television that use thin models displaying their product cause an individual to think that she must diet even though she is thin because the thin model needs to diet. Competition between girls is also addressed. Many of the subjects expressed animosity toward the girl that closely resembles the ideal, describing such a girl as "stuck-up" and "unfriendly." There is a pervasive theme of striving to obtain the ideal body portrayed by the media, while simultaneously disliking individuals who achieve the ideal, and resisting the efforts that must be taken to create a body that meets this ideal.

White (1992a) addressed cultural norms, rules and ideals referred to as sociocultural factors which shape the views and beliefs of a cultural group. White

believed there were factors that put women at greater risk for developing eating issues and disorders. These factors included the value placed on a slender body, dieting, and the desire for perfection as a norm. The influence of the media was indicated as a promoter of these standards. He states that the impact of the media has been a major factor in encouraging thinness, promoting the obsession with weight control, and in determining the standard for body size.

Eldredge, et al. (1990) evaluated the relationship between failure, self-evaluation and feeling fat in restrained and unrestrained eaters. The hypothesis of this study was that women who feel fat have self-schemas in which body weight is a central component, and any experience that causes self-evaluation will lead to an evaluation of body and weight. The goal was to duplicate research in the literature around schema theory. Schema theory focuses on cognitive processes related to personality and the influence of cognitive organization upon self-perception and behavior. This theory hypothesizes that prior experiences cause a self-schema or cognitive generalizations about oneself, and that the processing of self-related information occurs under the influence of these generalizations. This study randomized a group of non-eating disordered college women into a success or failure group. The women had been previously assessed as being restrained or unrestrained eaters. Testing was done to evaluate their responses to the situation into which they were randomized. It was found that restrained subjects were significantly more depressed and had significantly lower self-esteem than the unrestrained subjects. The results also

indicated that restrained subjects were not negatively affected by the experience of failure. In fact, restrained women who experienced success expressed levels of dissatisfaction with their bodies equivalent to those of unrestrained women who experienced failure.

Bordo (1988), discusses anorexia nervosa in terms of culture and pathopsychology. She looks at eating issues as being a pathopsychology that has grown out of a culture that idolizes thinness. She states that the unrelenting desire for thinness that is common today is a post-1960's and post-feminist phenomenon. She points out that although historically women's bodies have been manipulated, it has been in the last century that the manipulation of a woman's body has become an issue of power relations between the sexes. Some statements this author makes about the anorexic's perception of herself, and of her body follow.

"The body is experienced as alien, as a confinement and limitation, and as the enemy. Hunger is as much of an obsession for the anorexic as the body is. She lives in constant dread that hunger will consume her, that she will give in to it, and if she begins eating she will not be able to stop eating. The body as alien is a significant element of an eating disorder. There is frequently a disassociation from the body that occurs with eating disorders; that the individual does not own her body".

Factors Influencing Eating Disorder Development

An area of importance for the anorexic is the issue of control. She typically sees her life and her hunger as being out of control. Controlling her body, or mastering her body is key. The body is controlled through exercise, by restrictive eating, and by continual negative thoughts about one's self that cause and individual to strive for perfection. Societal pressures, media influences and chronic low self-esteem were the factors that repeatedly appeared as influences on eating disorder development. Although such influences are considered to be a common thread leading to eating disorders, limiting an investigation of eating disorder development to these factors provides an incomplete picture of development of frank eating disorders. A frank eating disorder involves a pathopsychology that is often overlooked in research studies. Eating disorders are not *caused* by societal pressures and media influences, (Smolak, 1996) for if this were the case the incidence of eating disorders would be greater than it is. Nor are eating disorders caused by low self-esteem. Self-esteem problems are symptomatic of individuals who have eating issues or are eating disordered, along with personality traits such as perfectionism, a desire to please others, and the need to "perform" to prove oneself. In actuality there is an underlying pathology that causes an individual to be prone to eating issues and other factors such as family dynamics, societal pressure and media influence contribute to their development. Without this pathological predisposition, the development of

an eating disorder would be unlikely (Smolak, 1996). Eating issues and body image distortion may develop secondary to the influences noted previously.

Bruch (1973) conducted groundbreaking research in the development of eating disorders. Her research lead to an understanding of the psyche of anorexic patients that included disturbances of body image considered to be delusional, little regard to the cachetic state, and an intense fear of fat. Bruch stated that the anorexic does not accurately perceive stimuli about the body, nor are her cognitive interpretations accurate. This is illustrated by an altered perception of hunger whereby an anorexic feels she does not need to eat. In addition there is a significant perception of ineffectiveness on the part of the anorexic. Tasks are performed to please others and are not self-motivated.

Rosen (in Smolak, et al 1996) discussed the principles of developmental pathopsychology in general and laid some groundwork for the understanding of eating disorder development. She points to a transactional model to describe the initiation of eating problems. Certain factors operate as potentiating or risk factors and increase the likelihood of a pathopsychology developing, while compensatory factors decrease vulnerability and increase resilience. It was also stated that problems in early life do not necessarily indicate similar problems in later life, however if potentiating factors occur at critical times in development, developmental problems can occur. A potentiating factor might include abuse (sexual or otherwise), family dynamics that include rigidity, enmeshment, and

parents who overprotect. Other factors include emotional trauma, and a drive for perfection.

Smolak and Striegel-Moore (in Smolak, et al,1996) applied principles of developmental pathopsychology to eating disorders with a goal in mind of searching out some causes of eating disorder development. In this chapter the authors state that many women fear fat, diet, and tie shape and weight to self esteem and do not have eating disorders. They state that dieting is normative behavior for U. S. teens and young adults. In fact 40% of elementary children claim to have been on a diet. (Gustafson-Larson, and Terry, 1992). It was also stated that there is some research into a genetic influence to eating problems. Individuals are born with a genetic predisposition to a certain temperament, however environment has influence as well and may override the temperament of origin. The environmental influence can be both positive and negative. For example an insecure, somber child could be born into a highly supportive family and thrive, or may be a part of an emotionally distant family resulting in the negative aspects of her temperament becoming stronger. A stable environment will produce stability in an individual's temperament, however changes in environment may produce changes in an individual's functioning or intensify personality strengths and weaknesses. With this idea transposed to eating disorders one would find that an eating disordered individual may have a temperament that makes her predisposed to developing eating problems. This accompanied with environmental factors that may result in the development of an

eating disorder. Environmental factors include the dynamics of the family of origin, peers, the media, and culture in general. Another theory stated that genes that affect temperament may be "turned on" during a time of development (such as in the teen years), and the expression of a genetic characteristic might change during development.

Rend (in Smolak, et al 1996) also pointed to genetics as a causal factor in pathopsychologies. He stated that there are both environmental and genetic causes to pathopsychologies, to argue the "nature vs. nurture" theme. He points to quantitative genetic research as a key in that it provides evidence for a dual causality between environment and genetic influences. Using twin and family studies it can be possible to investigate behavior that may be both genetically and environmentally influenced. This research looks at twins raised apart and also at families with adopted children to find links between genetic influence and environmental influence. He believes that a single gene may be responsible for more than one pathopsychology effecting and individual. In the case of eating disorders it is common for an individual with bulimia nervosa to also be depressed, and it is possible that there is a genetic influence contributing dually to both of these issues.

With this information in mind it is fair to look at some literature that evaluates eating disorder development from the point of view of society and media as an influence. Nemeroff, et al (1994) studied the influence of media on eating issues, and point out that the media promotes standards that are

impossible for most women to achieve. They state that the resulting pursuit of thinness has important consequences in terms of lowered self-esteem, excessive dieting practices, and the increased prevalence of eating disorders.

A study by Tiggermann and Pickering (1996) specifically addressed the role of television in adolescent women's body image and drive for thinness. These researchers looked at a group of 15-year old girls (N=94), and rated their body satisfaction correlated with watching television. Their measure was the Drive for Thinness subscale of the EDI. They found a significant positive correlation between body dissatisfaction and watching serials and movies, and a positive correlation between drive for thinness and time spent watching music videos.

An article by Silverstone (1992) addressed chronic low self-esteem as a cause of eating disorders. He postulates that chronic low self-esteem is a prerequisite for eating disorders, and in essence that eating disorders should be viewed as a 'symptom' of low self-esteem. He also states that treatment for eating disorders should focus primarily on the underlying issues with chronic low self-esteem.

Kirkley, et. al (1991), used the MMPI, a commonly utilized assessment tool of mental disorders, as a basis for comparison of binge-purgers, obese binge eater, and obese nonbinge eaters. This study compared the MMPI score distributions obtained by these three groups and found significant differences emerged among the groups. Binge-purgers consistently obtained the highest

scores—ie determined to have the "most psychological disturbance," while the obese nonbingers had the lowest. The results suggest that these groups were distinct, with the binge-purgers to be the most disturbed. This study concluded that these finding indicate reasons why binge eaters do poorly in traditional weight loss programs. It also indicates that the development of eating disorders has a psychological component that can be determined with testing that is not specifically designed to assess eating disorders.

Bordo, in her essay "Whose body is this?" (1993) also addresses the issue of development of eating disorders. She looks at this development from a sociocultural and a pathopsychological reference. She states that although what appeared to be eating disorders have been documented historically in medical literature, the problem did not gain significance until the second half of the nineteenth century and cases have escalated in the present time. The author makes a link between eating disorders and symptoms of hysteria, a common complaint for women in the nineteenth century, stating that like hysteria, eating disorders are high among females with approximately 90% of sufferers being female. In addition, like hysteria, eating disorders are culturally and historically rooted, and found in industrialized societies in the past 100 years. This author leans toward a belief that eating disorders have a primarily cultural origin and believes that they represent a coping mechanism for women who feel powerless in their lives. The author denies a pathopsychological root stating that many of the biological markers of eating disorders are the result of starvation or food

restriction. The non-sociocultural contributors to eating disorders include: "deficits" in autonomy, a tendency toward obesity, perfectionistic personality traits, defective cognitive patterns, perceptual disturbances, biological factors, and repressed familial interactions. The biologically rooted behaviors resulting from food restriction include hoarding food, bingeing, and food rituals. The author states, "Virtually every proposed hallmark of 'underlying pathopsychology" in eating disorders has been deconstructed to reveal a more widespread cultural disorder." (Bordo,1993). Although the author makes a good argument from a feminist point of view, the fact that personality traits such as perfectionism, a desire to please, and the need to set high standards of performance cause her argument to lose some momentum. Personality traits such as these are present from birth, and although the culture or the family of the individual can influence it, the personality itself is still present. In addition, certain biological factors cannot be denied, such as a tendency toward obesity, which would lead an individual toward food restriction in the face of the present day thin ideal. Indeed, there appears to be a combination of factors leading to eating disorder development. Among these are a pathopsychological predisposition, cultural and familial influences, and biological influences

Engel (1977) outlined a theory that included somatic and psychological factors in evaluating disease. This theory is applicable to eating disorders and valid today. There were six assumptions made by Engel in his theory. 1)The first assumption was that the presence of a biochemical defect indicating disease

is one of many factors that will contribute to the development of disease. 2) The second assumption established that a relationship between particular biochemical processes and the clinical data of illness needs a scientifically rational approach to behavioral and psychological data, as most clinical concerns are stated in such a way by patients. 3) The third assumption was that psychophysiologic responses to life change can interact with existing somatic factors to change susceptibility of developing an illness. 4) The fourth assumption was that psychological and social factors are important in determining how quickly, if at all, the patient or those around her view herself as being ill. 5) The fifth assumption was that treatment directed at only the correction of a biochemical abnormality does not necessarily return the patient to health. 6) The sixth assumption discusses the influence that relationship between patient and health care provider has on therapeutic outcomes. Although this theory was originally intended for use with disease in general. It is clear to see how these assumptions can be applied to an individual who is in the process of, or has developed an eating disorder. It gives weight to the concept that eating issues and disorders have a root in a variety of causes, and are not simply a psychological or physical issue.

It is also a well known fact that parents have significant influence over their children, and that their children's behavior is often patterned after their own. Gross (2000) looked at perceptions of parental messages regarding eating and weight and their impact on disordered eating. Participants in this study were 221

female college students who completed the Eating Disorder Inventory-2 and the Parental Eating and Weight Messages Survey. The results indicated that there is a perception by young women who report elevated eating disturbance and body image issues, and who report a dissatisfaction with their current weight, that their mothers communicated negative verbal messages about eating and weight. It was found that young women with a lower level of eating disturbance perceived that their mothers communicated positive verbal messages about weight and eating. In addition there appeared to be a relationship between the perception of negative messages made by fathers to mothers about the mothers' weight, and the daughters' elevated disordered eating scores.

Zerbe (1999) discusses family dynamics as a causal factor for eating disorders. Young women who develop anorexia often grow up in a household where conflict is severe, but is kept hidden. The individual is placed in a premature adult role, where she attempts to resolve conflict, calm the chaos, and may also take on many household duties, becoming a "surrogate parent." She may take on the role as a confidant to one or both parents who exhibit neediness. Such experiences of a childhood denied may cause a young woman to resort to self-starvation as a means of asserting her individuality and separating from her family. This was a significant article because it makes the point that preventing a young woman from moving through all her developmental stages by taking on a premature adult role can lead to eating disorders. It is important to note that some common personality traits for a woman with eating

issues are the desire to solve problems, make peace, and please others. It could be that these personality traits are potentiating factors that can lead to eating issues when coupled with difficult family dynamics.

Polvy (1996) discussed the connection between dietary restraint and binge eating, and the cycle of restricting and bingeing. Under experimental conditions, subjects who were dieters displayed different eating behaviors than those who were not dieting. It was found that those who were restrained eaters typically ate more when they felt they deviated from their diet by eating a high calorie food. This is contrasted by the eating behavior of non-restrained eaters in that the non-restrained eaters displayed a spontaneous regulation of food intake to meet their energy needs.

Robinson (1997) determined gastric responses to starvation to be one of several physiological events that sustain an eating disorder after its inception. He theorized that an eating disorder originates from psychosocial events that lead to dieting, and "peripheral" physiological events, such as gastric responses to dieting sustain the eating disorder. A pathophysiological response to starvation gives the individual a sensation of fullness that leads to increased efforts to sustain dieting, and also to fear and depression.

Strober (1995) states that anorexia nervosa and bulimia nervosa appear to be more common among biological relatives of individuals with eating disorders. This implies that there may be some sort of "transmissibility" of the disorder between family members. It is not clear whether there is a genetic link

or a environmental link between individuals with eating disorders. It is likely that it is a combination of the two.

There is evidence that indicates a dysfunction of neurotransmitter systems that regulate eating behavior may be a factor in eating disorder development. Kaye (1991) states that bingeing behavior is related to decreased serotonin levels and anorexia nervosa is related to increased serotonin activity. Brain serotonin abnormalities may contribute to pathopsychological elements that are evident with eating issues and disorders. These include dysphoria and depression, and obsessional thinking and behavior. Selective Serotonin Reuptake Inhibitors (SSRI's) are the current medications of choice for the treatment of eating disorders. A question arises that is not addressed in this article, that is eating disorders do not take on the form of anorexia and bulimia nervosa exclusively, and very often the disorder is a combination of the two. If varying levels of serotonin activity lead to different manifestations of eating disorders, how is a combination disorder explained? In fact eating disorders are complex, and a wide range of physiological, pathopsychology, and sociocultural elements are involved. Research is needed into the causes of eating problems.

Johnson, (1992) discussed reasons why women develop anorexia nervosa. It has been stated that individuals with eating disorders have a desire to die, and that the eating disorders are a form of suicide. This author argues that eating disorders are a form of adaptation and the motivation of an anorexic is to survive. Eating disorders are seen as a adaptation mechanism in the

presence of difficulties that grow out of biopsychosocial variables. Anorexics are described as being fearful of spontaneity, and reluctant to take risks. This author describes the anorexic as typically coming from a family that is enmeshed and overprotective. The eating disorder becomes a survival mechanism that aids a young woman in separation and individuation. The eating disorder becomes a means in which she can assert her own will and have control over her own life. While this article does describe what is frequently observed in young adolescent restrained (non-bingeing, non-purging) eaters, it does not encompass the full span of eating disorder behavior. The article is included because it is a classic model of viewing an eating disorder, however, it represents a small faction of eating disorder sufferers.

Body Image and Body Preoccupation

Body image is an issue of heightened importance in Western society in recent decades. Attaining a specific body type in paramount to many individuals, both men and women. The ideal body type for women is thin, toned, with a flat stomach, and in addition perfect skin that is free of wrinkles or blemishes is expected. The ideal is to be tall and long-legged as well. A small percentage of women are born with a body type that meets the ideal, but most women struggle to achieve an ideal that may be physically unattainable for them.

In her book *The body project: and intimate history of American girls,* Brumberg (1997) discusses how the ideal body has changed over time for women in the United States. This author compared diaries of young women

growing up in several periods of American history and discovered striking differences in self-perception and the relationship with their bodies between the women in the varying periods. She states that girls prior to World War I rarely mentioned their bodies in terms of self-improvement or as a focus of personal identity. The means to becoming a better person during this period in history was to become less focused on self and more focused on giving to others. A nineteenth century girl would strive to become a better person by developing inner character and an awareness of how this character was reflected in outward behavior.

In the second half of the twentieth century and into the twenty-first century, the emphasis has shifted to physical appearance as a measure of self-worth. The body is regarded as something to be managed and maintained, usually though exercise, diet, and expenditures on clothes and grooming aids. In the diaries of modern girls, the body is a consistent preoccupation, along with peer relationships. The author describes a shift in attitude appearing in the 1920's. Women's hair was cut short for the first time, hemlines rose, corsets were removed, and a shift toward a thinner body began.

During this period of history, the "calorie as energy" was discovered and the first diets appeared causing "slimming" to become popular. The first home scales appeared as well, although a somewhat robust figure was still acceptable. In the 1920's and into the 1930's makeup became popular and a variety of undergarments and hosiery were advertised in magazines, reflecting and

increasing emphasis on physical appearance as important for self-worth. In recent decades a new freedom has come upon young women. There is a heightened emphasis on sexual expression, and the body has become the center of identity for the majority of young women.

Salzman (1997) evaluated narrative data from the ambivalent attachment subgroup of a larger attachment investigation, in order to reveal differences between secure and ambivalent attachments among a group of young college women (aged 18 – 22 years). Twenty-eight college students were classified as secure, ambivalent, or avoidant in their primary attachments. Subjects were classified based on coded results from a two-hour interview that focused on attachment to mother and experience of self. Two results that were not anticipated are relevant to an investigation of college students and eating issues. They were 1) reports of affective instability in 9 of 11 ambivalent subjects, and 2) histories of anorexia and bulimia nervosa in 7 of 11 ambivalent subjects. This data is significant because it supports the concept that difficulty in separation from primary attachments can influence the development of eating issues in college freshman.

Lindholm and Wilson (1998) conducted a study evaluating perceived body images among three groups of women—those with bulimia nervosa, and two groups of controls--restrained eaters, and unrestrained eaters. Each group consisted of 12 subjects. A video image distortion technique was used for self-evaluation of body shape and size. It was found that the bulimic subjects and

restrained eaters differed from the unrestrained eaters in that they showed body image disturbance. Interestingly, the bulimics were the most accurate in estimating their actual body size as compared to the controls, however they did tend to overestimate.

The unrestrained eaters tended to underestimate body size. Individuals without body image issues and who are unrestrained may have underestimated their body size because they feel comfortable in their bodies and view themselves as "thin" regardless of what their actual body size was. Such a self-perception has been observed in this researcher's nutritional practice.

Size perception and body image can vary with the level of comfort one experiences in her body. Ignacek (2000) examined the relationship between eating disordered behaviors and body image and body size. Questionnaires were provided for 130 female college subjects that assessed eating behaviors, body image, perception of body size. It was revealed that subjects who reported higher levels of disordered eating behavior were less satisfied with their bodies that those who did not report such behaviors. Eating disordered subjects perceived their body size as larger than did the other subjects.

Methods of Education and Prevention of Eating Issues and Disorders

The cultural pressure for thinness may be a significant predisposing factor for the development of eating disorders. Research into prevention and methods

for education about body image is limited, but awareness of the need for research in this area may be increasing.

In an article on education for healthy body weight, Collins (1988) discusses the need for changing American standards of ideal body shapes and sizes. She recommends some strategies for helping adolescents balance the cultural pressure for thinness and the importance of good health. She emphasizes the importance of education about normal growth and development, and the diversity of body shapes and sizes that develop in adolescence. This author also feels educators should take and active role in informing young people about the dangers associated with extreme dieting. Certainly this author has made some good points, although most of this seems to be simple solutions to difficult problems. Also, the emphasis on pointing out the dangers of extreme dieting is an illustration of the common approach to education and prevention, and using 'scare tactics' may not always be the solution.

McBride (1986) emphasizes the importance of making efforts toward prevention of body image problems, rather than focusing on ways to manage the by-products of a negative body image. Her study presents a threefold approach to body image improvement that focuses on body image and self-acceptance, stress management and competition, and nutrition and weight management. She presents a model called the "Body Image Check-up" that utilizes this threefold approach as the basis for an exercise to perform in the classroom. In this exercise students write down a list of what they feel are positive and negative

attributes of themselves, and on index cards which are passed around in a small group, write one positive comment about each member of their group. The comments on the cards and the paper can be compared and possibly used for a group discussion.

Another program for preventing eating disorders to be used in a school setting is presented by Neumark-Sztainer (1996) in a plan that uses a comprehensive school-based intervention. Central to this program is looking at sociocultural influences and increasing adolescents' awareness of unrealistic attributes of social norms concerning body image. Knowledge about nutrition and weight loss behavior is also emphasized. This author outlines a protocol for a school-wide program that includes participation of teachers, staff (including counselors, coaches, and lunchroom workers), parents, and students. This protocol includes lesson-plans for classroom activities and methods for raising awareness in staff and parents, as well as intervention measures for teachers and staff to implement.

Killen, et al (1993) conducted a study that evaluated the effectiveness of a prevention curriculum designed to modify the eating attitudes and dieting practices of sixth and seventh grade girls. A randomized experimental group received preventive education while a control group received no education on eating issues. The education focused on the harmful effects of unhealthful weight regulation, basic nutrition, and coping skills for resisting sociocultural influences that emphasize thinness. However, the intervention did not show a

significant impact on eating attitudes and dieting behavior. These results may have occurred because emphasis was on "harmful effects of dieting" rather than emphasizing positive aspects of healthful eating and treating their changing bodies with respect.

A study by Carter, et al (1997) questions whether school-based eating disorder prevention programs are helpful or harmful. These researchers implemented an intervention with 13- and 14-year-olds that consisted of eight weekly sessions on sociocultural pressures on women, body image, and eating disorder development, as part of their school curriculum. They administered pre- and post-questionnaires, and found an initial improvement in eating attitudes and body image, but at six months found that there was a decrease in target behavior and attitudes. These researchers concluded that intervention might be counterproductive since their findings showed an increase in restrictive eating behaviors and eating issues at follow-up evaluations.

Shisslac, et al (1990) implemented a pilot project locally in Tucson aimed at preventing eating disorders at the high school level. The goal of the project was to evaluate the feasibility of implementing a prevention program that included education of students, faculty and staff about eating disorder symptoms and consequences, and to also provide consultation and referral services for students requiring them. In this program, students received weekly educational sessions on eating disorders, and a follow-up questionnaire was administered to evaluate the success of the educational intervention. The results were positive

for increased knowledge and awareness of eating disorders. Six students participated in the consultation segment of this project that consisted of a two-hour session with a therapist and the school nurse. Two students were referred for eating disorder treatment. The authors concluded that the feasibility of implementing such a program is strong. A study on college females produced similar results.

Mann, et al (1997) conducted a dual intervention study aimed at preventing new eating disorder cases from arising and providing early treatment for individuals who exhibited eating issue behavior. These researchers found that students who attended prevention programs showed slightly more symptoms of eating disorders than those who did not attend even though there were no differences in the groups before they attended. They also found that very few high-risk individuals (those who were currently exhibiting eating disorder behavior) who attended the secondary intervention program actually followed up for help with their disorder. These researchers commented that the interventions "normalized" eating disorders and caused an increased awareness and interest in "experimenting" with eating disorder behaviors.

Schwitzer, et al (1998) also looked at prevention, education and treatment of eating disorders with college women. These researchers developed a model for use in campus health facilities that includes utilizing the "Eating Disorders Not Otherwise Specified" category form DSM-IV as a basis for determining individuals to target, and the Drum and Lawler Model applied to eating disorders

as the intervention tool. This model incorporates the use of preventive measures, psychotherapeutic interventions and passive education (such as posters), to encourage students to make behavioral changes.

Mann, Hoeksems, Burgard, Wright, and Hanson (1997) did a study asking the question "Are two interventions worse than none?" with the goal of evaluating methods of prevention of eating disorders in college females. The goal of prevention programs for eating disorders attempt to both prevent new cases of eating disorders from arising (primary prevention) and to encourage students who have symptoms to seek early treatment for their eating issues (secondary prevention). This study is an evaluation of an eating disorder prevention program that was offered on a college campus. The methods consisted of administering questionnaires to 509 students at the beginning of their freshman year, at four weeks, and at 12 weeks. In addition at three months into the year, half of the participants were invited to participate in an eating disorder prevention program. The Intervention consisted of a 90-minute discussion attended by 10-20 participants at a time, let by students who had histories of eating disorders. The panel leaders provided information on eating disorders including signs, symptoms, and psychological/physiological consequences of eating disorders. The results of this study determined that the interventions "normalized" disordered eating behaviors, and follow-up information determined that the levels of eating disorder issues had increased overall. The implication is that discussing eating issues in this manner causes a heightened

awareness, and normalization of eating issues that can lead to increased symptoms. Perhaps the approach was not the most effective, because the focus was educating individuals on eating disorders rather than on healthy body image and positive attitudes toward food.

Swartz (1987) discusses the relationship between professional writing on eating disorders and the occurrence of symptoms. The author takes the position that if popular culture affects eating disorders, then professional understanding must be evaluated in the same way. She states that professional writing and educative material may serve a function similar to material in the popular culture that is seen as exploitative in educating women into developing eating disorders. The author states that attention must be paid to the way in which professional understanding of eating disorders is marketed both for other professionals and for the public.

College Students and the Development of Food/Body Issues

The college years are a vulnerable time for most young women. This is a time of self-exploration and experimentation with ideas, principles, and social interactions. It is a critical time for the development of food/body issues. Individuals come to college with perceptions of themselves that were formed during their teen years. Conversations with nutrition counseling clients has shown that these self-perceptions may reflect a security formed by positive familial and peer relationships as well as academic and extracurricular accomplishments. Conversely, self-perceptions may have been formed from

less than positive experiences in the past and may reflect an inadequate sense of self. Regardless of how a young woman is situated emotionally when she comes to college, she will most likely go through numerous changes in personality and self-perception.

At this time in life many young women are learning to become self-reliant for the first time. It is a time of transition and adjustments to life in a residence hall, changes in food, sleep patterns, academics, and relationships. In addition to learning basic life skills such as shopping, cooking and doing laundry, they must learn to manage time, and deal with a wide variety of personalities as they develop acquaintances and friends. Many women pursue involvement in sororities, which adds an additional dimension of stress.

At this time in life, many young women have left home for the first time and may experience profound loneliness, or a newfound freedom for experimentation. College years are also a time of susceptibility to peer pressure (Upcraft, 1998).

These factors in a college woman's life cause her to be in a place of vulnerability to the development of food/body issues. Eating can become a challenge because one must go to a dining hall, restaurant, or shop for foods that can be prepared in a residence hall room. Or, if she lives off-campus, she must be fully in control of planning her meals and selecting foods (Stewart, 1993). Some young women report feeling insecure about eating in a dining hall alone, or may be self-conscious about eating in her residence hall room. Others report

being influenced by peers who are dieting or experimenting with weight management methods such as purging or diet pills. Women who choose to join a sorority have the additional pressure of adhering to a body type that is acceptable to their particular sorority.

This is a time in life when experimentation with food can be pursued without parental scrutiny. There is the freedom to lose weight or exercise without restriction. In addition, a young woman is surrounded by many other women and has an opportunity to compare her body to theirs while she is on campus, in the locker room or in the residence hall room.

When the stresses, insecurities, peer pressures, and newfound freedoms combine, many women develop food/body issues. Food/body issues can develop out of an innocent desire to improve eating habits in which healthful eating becomes increasingly restrictive. They can also develop as an individual patterns her eating behavior after a friend's, or they can be a reaction—a coping mechanism—in response to the heightened stresses of college life.

Toray and Cooley (1997) conducted a study on weight fluctuation and self-efficacy for control of eating in college women. Using the EDI subscales of bulimia, body dissatisfaction, drive for thinness, and interoceptive awareness, along with the Situational Appetite Measure, 161 men and 301 women were evaluated for weight fluctuation or stability, as compared to scores on the tools. It was reported that subjects whose weight had fluctuated most strongly related to greater body dissatisfaction and lower levels of self-efficacy for control of

eating. These results are not surprising, but what is significant is that weight was closely tied to self-worth, and there was an importance placed by these college students on their body size. It is obvious that the individuals whose weight fluctuated would have less control over eating, but the underlying issue was that their body satisfaction was linked to their weight.

A study conducted by Rotenberg and Flood (1999) evaluated loneliness, dysphoria, and dietary restraint in college students. Fifty-eight female college students were evaluated for depression, loneliness, and history of dieting. They were subjected to neutral, sad, or loneliness mood induction and then ate cookies under the pretext of participating in a taste test. The subjects who reported a history of being restrained eaters ate more cookies when subjected to loneliness stimuli, while the subjects who reported having low levels of dietary restraint responded by eating fewer cookies when subjected to loneliness stimuli. What is significant in this study is the way the subjects who typically try to control food intake and have a history of dieting tended to overeat in the presence of loneliness. College students frequently experience periods of loneliness, which can be caused by the stress of academics, relationship issues, and developing dynamics with the family and friends left at home. This study illustrates why some individuals might develop eating issues in response to difficulties in their college life.

Exercise motivation and body image satisfaction among college students was evaluated in a study by Smith, Handley, and Eldredge (1998). This study

compared males and females in their associations between reasons for exercise, frequency of exercise, and body image satisfaction. It was found that the motivation of good health and fitness were good predictors of exercise frequency. Interestingly, dissatisfaction with specific body parts was not significantly related to exercise, however situational body dissatisfaction was related to increased exercise frequency. Situational body dissatisfaction is related to comparisons of one's body to others with whom they are associated. It was found that women reported higher situational body dissatisfaction than did men. This is not surprising given that women much more frequently than men derive their self-worth from their physical appearance. This study supports the concept that female college students develop eating issues secondary to factors relating to physical appearance.

Smiley (1994), in her dissertation study on the concept of weight gain during the freshman year of college described areas in which students had to make emotional and physical adjustments. These areas included developmental stage adjustments (changes in identity), academic, residence hall living, and lifestyle behavior adjustments (which include alcohol and drug behavior as well as food and eating patterns). In the transcribed interviews with college students, it was clear that they felt there were few healthy food choices they could make while living on campus, and that a major barrier to grocery shopping was access to a car. The limited food choices were considered to be a problem in gaining weight. In addition the students describe changes in eating patterns such as

"grabbing" food on the way to class, eating pizza late at night, and not having readily available nutritious foods that they had at home. There was considerable anxiety around obtaining food and frequently the impression of lack of control over eating. There were additional stresses and adjustments to contend with. The students described the transition to adulthood that had to be faced during the freshman year as a major area of stress. In addition the adjustment to residence hall life including roommates and limited living space were difficult. What is significant about this study is that is focused on freshman transitioning into college. The freshman year can be a pivotal time for a young woman who may be struggling with identity and body image concerns. Through the experiences during the freshman year, eating issues often develop either as a means of coping with difficulties or inadvertently, as the result of trying to improve one's eating habits.

Stewart (1993) in a dissertation study on the eating habits of young adults, identifies the lack of cooking skills, financial difficulties, and grocery shopping as barriers to establishing adequate eating habits during the college years. She also points to childhood eating habits as having an influence at this time in life. Food/body issues can develop out of the stress of obtaining and preparing food where eating is erratic. Students in nutrition counseling sessions report that the increased focus on obtaining food has lead to restriction of food intake and then to the development of food/body issues.

Raudenbush (1997) evaluated the effects of abnormal eating behaviors and weight on body image satisfaction in college students. Using the Eating Attitudes Test, a Body Image Questionnaire, and height/weight data as measurement tools, eating behavior and body image perception were studied. It was found that women whose weight fell within the normal limits perceived themselves as overweight and wanted to be thinner, while men whose weight fell within the normal limits wanted to be heavier. The study determined that college women have a heightened level of body dissatisfaction overall.

Meyer (1998) investigated the relationship between cognitive and behavioral indicators of eating disorders and characteristics of codependency among college students. Female college students (n=95) completed assessments of codependency, psychological separation, and eating disorders. It was revealed that subjects who displayed more codependent characteristics evidenced higher levels of eating disordered behavior and expressed difficulty in separation from their parents. A key factor for college, especially freshmen, is the separation from family and the familiarity of home. This study suggests that the experience of separation may result in increased incidence of disordered eating among college students. Additionally it is suggested that codependency may play a role in the issue of separation from family, and may be an additional contributor to eating disorder development.

Alexander (1998) studied the prevalence of disordered eating in sororities. Using dance or athletic teams (considered "activity groups"), and a control group

for comparison, scores for eating disorder measures for sorority women were evaluated. It was hypothesized that sorority women would report more disturbed eating than the control group, and that they would differ from activity participant only on psychological dimensions of eating disorders. The hypotheses were not statistically supported. The activity group reported more eating disordered behaviors than sorority participants who in turn exhibited more eating disordered behaviors than controls did. These results suggest that sorority women exhibit fewer disruptive eating patterns than dancers and athletes. It is important to note, however, that certain athletes such as gymnasts and swimmers as well as dancers tend to display a high level of disturbed eating behavior. Sorority women as well generally report higher than normal levels of disturbed eating behavior. What is surprising in this study is that athletes had a higher incidence of eating problems. It would have been anticipated that the original hypotheses would have been met. The authors did not provide possible explanations for the results being as such.

College students frequently report eating more during times of stress. During midterm and final exams students will often eat more frequently and increase the amount of snack food taken in. The increased amount of study time required during exams compels a student to eat more late at night with the hope of staying awake. This increased amount of eating can be associated with heightened levels of stress.

Oliver (1999) investigated stress eating in college students. The frequency of stress-induced hypophagia and hyperphagia, with a goal of determining if hyperphagia is more common with highly palatable foods, and also if it is more likely to be reported for snack-type foods rather than for meal-type foods. Self-reported effects of stress on eating behavior and food were assessed in a questionnaire completed by 212 college students. Snacking behavior was reportedly increased by stress in 73% of the respondents regardless of their gender or dieting status. It was reported that snack-type food were the foods of choice and meal-type foods (such as meat, vegetables, and fruit) intakes decreased during times of stress. While increased snacking during times of stress is not considered by this researcher to be a problematic form of eating behavior, it could for some individuals cause an increased preoccupation with food and body after the period of stress has ended.

Depression is common among college students as they cope with the stresses of academic pressure and relationship development. Oates-Johnson (1999) evaluated weight preoccupation, personality, and depression in college students. This study investigated whether personality traits of sociotropy and autonomy interacted with weight preoccupation in their contribution to depressed mood in college students. Two-hundred fifty-one undergraduates completed the revised Sociotropy-Autonomy Scale, the Beck Depression Inventory, the Eating Disorders Inventory-2, and the Restraint scale. Results indicated that weight-preoccupied individuals experienced depressed mood to the extent that they

were characterized as highly sociotropic. For men a depressed mood developed in relation to the desire for weight or muscle gain, and for women in relation to the desire for weight loss.

Upcraft (in Delworth, 1989) reviews a variety of theories that explain transition and development for college students during their early years of college. Theories established by four scholars: Chickering, Erikson, Kohlberg, and Perry are described. Each of these theories include a list of developmental tasks a young woman or man must undertake in order to move from a dependant teenager to an independent adult. The developmental changes that must occur included: developing autonomy, managing emotions, establishing identity, and understanding one's purpose. Although each of these theorists uses different language to describe the developmental changes, the processes are similar. Upcraft describes a theory by Gilligan, a feminist scholar, who criticizes earlier theories because they do not take into consideration certain characteristic elements of female thinking and development. She states that men achieve individuation though separation (primarily from the mother), while women achieve individuation through attachment. This results in men having difficulty with relationships and women having difficulty with being an individual. This author also criticizes Erikson for considering a female's need for attachment rather than separation as being a developmental impediment. Regardless of which theory is believed, it is clear to see that there are changes that must occur in order to become individuated. Food/body issues are likely to develop as a young woman

is struggling with developmental changes and situational issues of college life. She will have an even greater propensity for developing food/body issues if she has a pathological predisposition toward developing eating issues, and/or a history of poor family dynamics and social success (Rosen, in Smolak, 1996).

Review of selected Body Image and Eating Assessment Tools

There are several evaluation tools that were developed to assess body image and eating. Because this research concerns a validity test of a model used for eating disorder assessment and prevention, some studies have been evaluated that discuss development and validation of tools to use for the same purpose. One tool is called the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ). This tool was developed to assess women's awareness and level of acceptance of societal standards for body shape and size. An initial 44-item questionnaire was cross validated in two studies conducted by Heinberg, et al (1994), and questions were eliminated as criteria standards were established, resulting in a 14-item questionnaire. The questions are arranged in a five point Likert scale and give indications of attitudes and beliefs about sociocultural influences such as media influence and the need to be thin to be successful. The intended use of this questionnaire is for clinicians to use as an assessment tool.

A body rating scales for adolescent females was developed and validated by Sherman, et al (1995). The Body Rating Scale (BRS) is similar to

the Figure Rating Scale (FRS), a commonly used model, but is appropriate for young adults. There are two scales used in the BRS, one for use with preteens and one for use with teenagers. In this study the BRS was administered to a group of 11-year-olds, 17-year-olds and the FRS was administered to their mothers to determine the compatibility between the two scales. The compatibility was determined to be high, and the model appeared to be a reliable, valid measure of body image satisfaction.

A very well documented "gold standard" tool for assessing eating disorders is the Eating Attitudes Test (EAT) developed by Garner and Garfinkel in 1979. The EAT is a self-report measure of Anorexia nervosa and Bulimia Nervosa.

Button and Whitehouse (1981) found that there is considerable evidence that individuals without eating issues score low on the EAT, while those with eating issues or eating disorders score higher. On clinical, interview, however, some individuals who scored high on the EAT did not have a full-blown eating disorder, but had a subclinical disorder.

Williams, Schaefer, Shisslack, Gronwaldt, and Comerci (1986) performed a discriminant function analysis on the Eating Disorder Inventory (EDI) (Garner, 1984)) and the EAT to determine the combination of items in the tools that best classified students as normals, dieters, or suspected bulimics. In this study the authors used a clinical interview as a criterion measure. Findings in this study

revealed that subjects scoring higher on these tests were determined to have an eating disorder (bulimia) or a subclinical eating disorder.

In a study by Thompson and Gray (1995), a body-image assessment tool known as the Contour Drawing Rating Scale was discussed and validated. This tool consists of nine male and nine female contour drawings that are of graduated sizes and can be split from the waist for upper- and lower-body-size comparisons. Subjects for this study were female undergraduate psychology students (N=51), who were unaware they were participating in a body image study. The subjects were given each of the nine female and male drawings on individual sheets of paper and instructed to arrange them in order from thinnest to heaviest. Results indicated that the drawings were arranged correctly as indicated by the percentages obtained using the placement method and ascending sequence method for evaluating accuracy. The process was repeated with improvement upon each trial.

Discussion and Validation of the Eating Disorders Inventory-2 (EDI-2)

The EDI-2 is a tool used for assessment of eating disorders that was developed by David M. Garner, Ph.D. in 1990. It was initially published as the EDI in 1983, and later updated. Because the EDI-2 was one of the tools utilized in this study, attention is being paid specifically to articles associated with this tool. (Please see the "methods" section of this thesis for a detailed description of the EDI-2). Studies are included that describe the development and validation of this tool. The EDI-2 has been extensively evaluated and validated. The EDI-2

Professional Manual (1990) provides extensive information reflecting research that has been done to validate the EDI. References are cited concerning various aspects of validation, such as descriptive information about the sample populations used to validate the tool, the internal consistency of the EDI, construct and criterion validity, and information on each of the subscales that make up the EDI-2. A good deal of additional research has been done utilizing the EDI as the primary tool for data collection. A number of these studies are described here. Some normative information was collected for specific groups including data for various ages, sex, and for athletes and dancers. There are general trends in responses on the EDI-2 for these and other normative groups. Shore and Porter (1990) for example indicate that younger samples differ from older samples, and it is therefore important to use norms that apply to the target sample in terms of age and sex.

Garner, Garfinkel, Rockert, and Olmested (1987) determined that differences exist between the normative samples and special populations. In this study, groups exposed to heightened pressures to diet in order to maintain a thin shape reveal high scored on the EDI-2. Scores of ballet students, professional dancers, wrestlers, swimmers, skaters, and gymnasts are included in this group.

Rosen, Silberg, and Gross (1988) evaluated the EDI for consistency in mean scores across samples of similar age, sex, and diagnostic status. Again, findings indicate that there was consistency in scoring among individuals with specific descriptors.

Bennett (1997) studied non-eating disordered women to evaluate the internal structure of the EDI, with a goal of determining the efficacy of the subscale structure of the tool. The results of the factor analyses demonstrated that there were differences between the original subscales and the EDI's internal structure as measured by the factor analysis. The first factor accounted for 33.5% of the variance, with items from all subscales of the EDI except body dissatisfaction contributed to this factor and four subscales were represented on this factor by more than half their items: maturity fears, ineffectiveness, interoceptive awareness, and bulimia. This indicates that over half of the items measures some common aspect of psychological distress. This showed low specificity on the EDI subscales.

Olsen, Williford, Richards, Brown, and Pugh (1996) used the EDI as an assessment tool in their study of female aerobic dance instructors. In this study, 30 dance instructors were evaluated for the possibility of eating disorders. Biographic information revealed that 23% (n=7) of the participants reported a history of bulimia, and that 17% (n=5) reported a history of anorexia nervosa. Based on all 30 participants, the mean scores associated with Body Dissatisfaction, Drive for Thinness, Ineffectiveness, and Perfectionism were high, and could be compared to previous data for individuals with anorexia nervosa. Based on the results, a number of the aerobic dance instructors possessed scores suggesting behaviors and attitudes consistent with other female athletes whose emphasis on leanness causes them to have eating disorders.

In a study by Schoemaker, Verbraak, and Breteler (1997) the EDI-2 was used to evaluate bulimia nervosa patients compared to general psychiatric outpatients, with the goal of assessing the discriminant validity of the EDI-2. In this study, the scores of 78 bulimia nervosa patient and 67 general psychiatric patients were compared in a multivariate discriminant analysis. Results indicated that the bulimia scale was found to correctly classify 97% of all cases. The bulimic group scored significantly higher on the interoceptive awareness scale than the general psychiatric group, however on the other scales there was no discrimination between the two groups.

In a study by Phelps and Wilczenski(1993), the EDI-2 was used as a means to assess the cognitive-behavioral dimensions of a group of nonclinical adolescents. For this study, the EDI-2 was administered to 122 nonclinical females aged 12 and 18 years. Results as mean scores indicated that the scores one the EDI-2 were within normal range, which was expected. However, a sizable proportion of the subjects selected items on the EDI-2 that indicated negative feelings about their body and obsession with weigh as compared to anorexic and bulimic patient statistics. It was found that 30% of the subjects would be characterized as abnormally preoccupied with their bodies i.e. body dissatisfaction score at or above the eating disordered population mean score), and 4% were pathologically weight fixated (i.e. drive for thinness score at or above eating disordered means). These results are not surprising given the population being evaluated. It is interesting, though, that although the overall

scores were at "normal" levels, there were significant "abnormalities" among the population that were revealed after scrutinizing the EDI-2 results.

METHODS

The specific aims of this pilot study were to evaluate the Continuum as an assessment tool for eating and body image issues, and to validate the Continuum statements for criterion and content validity. A self-assessment with the Continuum was the basis of the evaluation as an assessment tool. The tool utilized as a criterion measure for the criterion validation was a modified version of the Eating Disorder Inventory (mEDI-2). .

A preliminary investigation was done to ascertain a viable method for collecting data for content validation. Following the preliminary investigation, the Continuum Questionnaire was developed for data collection relating to content validity.

Continuum Self-Assessment Validity Methods

Selection of Subjects

The methodology for evaluation of specific aim #1 involved the use of the Continuum as a self-assessment tool. Subjects for this phase of the study were recruited through The University of Arizona Campus Health Service. After approval by The University of Arizona Human Subjects Committee, subjects were recruited by invitation by therapists, physicians, and the nutritionist (investigator) at the Campus Health Center at The University of Arizona, as well as through fliers posted throughout the facility advertising the study. Fifty subjects meeting the study criteria of falling between the ages of 18 and 25, female, and enrolled students were recruited through Campus Health.

To effectively assess the Continuum as a self-assessment tool, two subgroups were established within the fifty subjects. Half of the subjects had eating and body image issues and half of the subjects did not. Placement into the two subgroups was determined using the following criteria: Subjects 1 to 25 were self-identified as having no significant eating issues. Subjects 26 to 50 were identified as having eating issues or eating disorders by one of two methods. 1) The subject self-reported as having eating issues and this report was confirmed with an eating disorder assessment performed by the investigator. This assessment was conducted during a nutrition counseling session in which the subject was a client of the investigator. 2) The subject had been previously diagnosed by a professional at the Campus Health Center as having an eating disorder. All of the subjects currently met the DSM-IV criteria for eating disorders.

It was believed that performance on the Continuum self-analysis would reflect the subjects' attitudes toward body image and eating. Subjects were expected to self-assess on the Continuum in a manner reflective of their diagnosis with an eating disorder or of their lack of food/body issues.

Data Collection

Data was collected for the assessment tool validation and criterion validity segments simultaneously. Each subject met individually with the investigator at the Campus Health Center at The University of Arizona. The subject was provided with the tools and directions were given for completion. The subjects

were divided into two subgroups of 25 each, as described in the "selection of subjects" section. All of the subjects in this subgroup were familiar with the services at Campus Health for eating issues and disorders.

A self-assessment with the Continuum was completed by each subject. The subject circled any statements on the Continuum that she felt were descriptive of her feelings about food, eating, and body image.

In this phase of data collection, questions were answered about the mechanics of completing the questionnaire and Continuum assessment, but information pertaining to content of the questions such as explanation of the wording, was not provided to the subjects

Criterion Validity Methods

Description of the Eating Disorder Inventory-2 (EDI-2)

The EDI-2, in its original design in 1983, was comprised of three subscales assessing attitudes and behaviors concerning eating weight, and shape (drive for thinness, bulimia, and body dissatisfaction) and five subscales of more general psychological traits (ineffectiveness, perfection, interpersonal distrust, interoceptive awareness, maturity fears). The EDI-2 contains the original 64-items and adds an additional 27 items, with three new subscales (asceticism, impulse regulation, and social insecurity). In a clinical setting, the EDI-2 can be used for screening, or more in-depth planning for a client's treatment, and for assessing a client's progress. The EDI-2 can provide

information helpful for understanding the client's perspective of her body image, eating and social interactions. It is also helpful for screening of subclinical eating problems or for individuals who may be at risk of developing an eating disorder. It can also be utilized in non-clinical settings such as in schools or with athletes to screen for eating disturbances. In this study the EDI-2 has been used as a criterion measure against which the Continuum has been assessed as a tool for similar purposes.

Initially it was thought that the EDI-2 in its entirety would be utilized as a criterion measure. Scrutiny of the statements on the EDI-2, however, indicated that many of the statements did not fit the constructs being measured in the Continuum. The Continuum focuses on eating patterns and body perception exclusively, whereas the EDI-2 included subscales that were not included in the Continuum. The EDI-2 statements were evaluated for their relationship to the continuum statements. The statements on the EDI-2 that represented the subscales entitled perfectionism, interpersonal distrust, interoceptive awareness, social insecurity, ineffectiveness, and maturity fears did not correlate to the statements on the continuum because they did not deal directly with food and body concerns. These statements were not included in the analysis. The statements on the EDI-2 that were relevant to the constructs of the Continuum represented the subscales entitled drive for thinness, bulimia, and body dissatisfaction. These statements were isolated and utilized for the analysis. They can be found in Table 2.

Table 2. Selected EDI-2 Statements

Statements relating to food:

I eat sweets and carbohydrates without feeling nervous.
I eat when I am upset.
I stuff myself with food.
I think about dieting.
I feel extremely guilty after overeating.
I exaggerate or magnify the importance of weight.
I have gone on eating binges where I felt I could not stop.
I think about bingeing (overeating).
I get confused as to whether or not I am hungry.
I eat moderately in front of others and stuff myself when they're gone.
I feel bloated after eating a normal meal.
I have the thought of trying to vomit in order to lose weight.
I eat or drink in secrecy.
When I am upset, I worry that I will start eating.
Eating for pleasure is a sign of moral weakness.
I have to be careful of my tendency to abuse alcohol.

Statements relating to body:

I think that my stomach is too big.
I think that my thighs are too large.
I think that my stomach is just the right size.
I feel satisfied with the shape of my body.
I like the shape of my buttocks.
I think my hips are too big.
I think that my thighs are just the right size.
I think my buttocks are too large.
I think that my hips are just the right size.

Statements relating to both food and body:

I am terrified of gaining weight.
I am preoccupied with the desire to be thinner.
I am embarrassed by my bodily urges.

Subject Selection

The criterion validity aspect of the study evaluated the Continuum for its effectiveness as a tool for assessing food/body issues. In this segment of data collection, the EDI-2 was used as a criterion measure, and the Continuum was used as an assessment tool. The subjects utilized for the self-assessment validation were utilized as well for the criterion validity.

Data Collection

The EDI-2 and Continuum self-assessment were completed by the 50 subjects who were recruited for these segments of the study. As described, each subject met individually with the investigator at the Campus Health Center at The University of Arizona. The subject was provided with the tools and directions were given for completion. The EDI-2, which has been described, is a series of 91 questions about eating behavior, body image attitudes, inter-personal relationships, and self-opinion. Answers were provided on the answer sheets by circling the response that seemed most appropriate to the subject. Answers were in a Likert-like scale and included Always, Usually, Often, Sometimes, Rarely, and Never. The EDI-2 was completed in its entirety after which selected questions were isolated for analysis (see Table 2).

In this phase of data collection, questions were answered about the mechanics of completing the questionnaire and Continuum assessment, but information pertaining to content of the questions such as explanation of the wording, was not provided to the subjects

Content Validity Methods

Preliminary Investigation

A preliminary investigation was done to ascertain a viable method for collecting data for content validation. Following the preliminary investigation, the Continuum Questionnaire was developed for data collection relating to content validity

Preliminary investigation consisted of informal interviews with young women, and a trial with a precursor to the actual questionnaire used for the content validity assessment. This questionnaire was entitled the Continuum Questionnaire. In July and August of 1998, informal interviews were conducted with a variety of individuals to test the methodology that was being planned, and to determine the most effective approach to data collection. The participants for the preliminary investigation were selected informally through co-workers, friends, and acquaintances of the investigator. There were 12 participants in all, with ages closely falling within the range for the actual subjects of the study (ages 18 to 25, and female). Some of these subjects were students and none of the subjects reported having current eating or body image issues. Several subjects had friends with eating issues and several of the subjects were, or had been athletes and had an understanding of focusing on the body as a performance tool.

An initial idea for data collection was to have a "card-sorting" exercise. For this exercise, each heading and statement on the continuum was written on a

4 x 6 card and the subjects were to sort the cards 1) by arranging the headings into what they thought was an appropriate order ranging from "no issues with food or body image" to "eating disordered," and 2) by arranging the statements under each heading which they thought was an appropriate column.

Following the card sorting, a series of informal questions were asked of the participants to gain an awareness of their knowledge of eating disorders. These questions included:

- Describe "health" in terms of eating and physical well being.
- Do you know anyone who has or has had an eating disorder?
- Do you feel weight is a good indicator of health?
- How do eating disorders develop?
- How would you describe someone with an eating disorder, I.e. physical attributes, eating patterns, etc.

This information gave insight into the attitudes of individuals toward food/body issues, and provided information regarding prior exposure to food/body issues. From these interviews was developed a set of questions known as the "Exposure Index."

Questionnaire Development Selection of Subjects

Results of the preliminary investigation

The preliminary investigation revealed that providing headings and statements from the continuum for the purpose of arranging them into columns was an effective method of evaluation. The participants were able to understand the exercise and follow through with the process without difficulty. However, card sorting was a cumbersome method of data collection, and would limit the number of subjects that could be simultaneously evaluated. Because data was collected during class time in a classroom, the large space required for card sorting would not be available. To replace the card sorting aspect of this data collection, but to keep the "matching" format to the arrangement, a questionnaire was developed that retained some of the properties of card sorting, but would not have the space requirements for administration. The questionnaire (see Appendix B for sample) consisted of a set of "headings" that the subjects first arranged in order from "lack of food/body issues" to "eating disordered", followed by a list of "statements" that the subjects matched to the headings. This questionnaire is known as the "Continuum Questionnaire."

One vital piece of information that arose from the preliminary interviews was that individuals who had a better understanding of eating disorders could more accurately match the statements to the appropriate headings in the card sorting exercise. Because of this information, a series of questions referred to as an "Exposure Index" was included at the end of the Continuum Questionnaire.

These questions provided some information about the subjects with regard to their "exposure" to eating disorders, or weight issues.

Subject Selection--Pima College Students

Subjects were recruited from Pima Community College in Tucson, AZ, from both the West and Downtown Campuses. After clearance from the Pima Community College Human Subjects Committee, and The University of Arizona Human subjects committee, faculty were contacted in the Exercise Science, and Psychology departments for their interest in and willingness to participate as co-recruiters for this study. Several faculty members expressed an interest, and 100 Pima Community College students fitting the study criteria were recruited. To meet the study criteria a subject had to be female, between the ages of 18 and 25, and an enrolled college student.

The content validity aspect of the study evaluated the wording of the continuum. For this portion of research the Continuum Questionnaire was used. Because the Continuum is widely displayed on The University of Arizona Campus, it was appropriate to obtain subjects from another location to participate in this aspect of the study. It was believed that subjects who had never been exposed to the continuum would be able to give the most objective evaluations. Because the Continuum has been used for education and assessment with college students, it was important to recruit college students for the content validation of the Continuum.

Subject Selection—Mental Health and Nutrition Professionals

A group of professionals who have worked with eating and body image issues provided a subject group who served as the criterion group for the assessment of the content validity of the Continuum statements. It was expected that professionals who have worked with these issues would have keener insight into the statements on the Continuum, and should perhaps provide a more accurate evaluation of the Continuum using the Continuum Questionnaire than the student population. For this reason a group of twenty mental health and nutrition professionals who reported having experience with counseling clients with food/body issues were recruited. These individuals were mailed a letter describing the study asking if they would be willing to participate in the study by completing a questionnaire. A questionnaire and return envelope were provided. In addition a phone number was provided for these individuals to call if they had questions about the study or about the questionnaire. Additional subjects were recruited for this aspect of the study though a posting on a listserv associated with the Arizona Dietetic Association. These subjects were invited to participate in the study and submitted an electronic questionnaire via the internet. These subjects were not required to meet the study criteria for sex, age, and enrolled student status. Profiles of these subjects are described in Table 3.

Table 3.
Mental Health and Nutrition Professionals—Profile.

Subject #	Mental Health Professional	Nutrition Professional	Credentials	Practice Type	Eating Issues experience—years
1		X	MS RD	Private	4
2		X	RD	Hospital	1
3		X	RD	Private	5
4	X		PhD	Private	17
5		X	MS RD	Treatment center*	4
6	X		PhD	Private	14
7	X		PhD	Private	10
8	X		MSW	Private	6
9	X		PhD	Private	9
10		X	PhD RD	University	
11	X		M ED	Private	5
12	X**		MA MAC	Treatment center*	3
13		X	PhD RD	Private	5
14		X	RD	Hospital	3
15		X	RD	Hospital	4
16		X	RD	Treatment center*	2
17		X	MS RD	Treatment center*	3
18		X	RD	Hospital	4
19		X	RD	Hospital	2
20		X	RD	Hospital	1

*Treatment Centers include: Remuda Ranch, Rosewood, Sierra Tucson, and Cottonwood.
**Indicates Male gender

Exposure Index

It was assumed that subjects who had higher scores on the Continuum Questionnaire would score higher on the Exposure Index, and conversely those subjects who had lower scores on the Continuum Questionnaire would score lower on the Exposure Index.

Data Collection

Pima College Students

Continuum Questionnaires were administered at Pima Community College during class time. Subjects were asked not to put their names on the questionnaires to protect their privacy. Because questionnaires were administered during class time, all students were asked to participate, including males and women who were not within the appropriate age range. After the data collection was completed the questionnaires were sorted through and only questionnaires that fit the study criteria were included. There was a question on the questionnaire asking for age and sex, so this process could be done easily. At this point code numbers were assigned as identification for each subject.

During questionnaire administration, participants were free to ask questions about the technique for answering questions, but specific information about the content of the continuum, such as explaining wording, was not provided.

The questionnaire contained three sections. The first was a list of the headings of the columns of the Continuum for both body image and eating issues. The subjects were asked to arrange these headings in an order that they thought reflected a continuum of behaviors indicating beliefs and feelings about food and body image that range from one extreme (healthy) to the opposite (eating disordered). The second and third segments contained the eating issues

statements followed by the body image statements in a scrambled order, and subjects were asked to match these statements to the headings. The statements were numbered so the subjects placed the number corresponding to each statement on a line below the written heading.

Mental Health and Nutrition Professionals

These individuals were asked to complete the same questionnaire as the college students. These questionnaires were mailed to them along with a return envelope and information on contacting the study investigator should questions arise. This group included both female and male subjects, as described previously in Table 3.

Analysis of Content Validity

Criteria for accepting and rejecting Continuum statements were established, and are listed as follows: To accept a statement at least ¾ of subjects must place the statement in the correct column or an adjacent column. To accept with changes in wording or method of presentation of the Continuum, at least 40% of the statements must be placed between 3 columns, including the correct column. To not accept a statement ¾ of the subjects must place the statement in an incorrect, and nonadjacent column.

DATA ANALYSIS

Continuum Self-Assessment Validity—Data Analysis

The scores for the Continuum self-analysis were considered as a means by which to evaluate the Continuum's efficacy as an assessment tool, testing Hypothesis #1. The scores on the Continuum self-analysis for each of the subgroups was compared in order to determine whether the subgroup with food/body issues (subjects 26-50) consistently scored higher on the Continuum than the subgroup without food/body issues (subjects 1-25).

In order to evaluate the Continuum as an assessment tool, it was necessary to develop a scoring system. Because the Continuum is not normally scored, there had to be a means of applying a rationale to create a numeric score. For this analysis zero points were assigned for each statement that was circled in the first and second columns of both the eating issues and the body image sections ("food is not an issue," and "body ownership," "concerned well, and "body acceptance"). Five points were assigned for each statement circled in the third column ("food preoccupied/obsessed" and "body preoccupied/obsessed"). Ten points were assigned for statements circled in column four ("disruptive eating patterns; and "disordered body image"). Finally, twenty points were assigned for statements circled in column five ("eating disordered" and "body hate/disassociation"), (see next section for rationale). The total number of points for the statements circled were then tallied resulting in a total score for the Continuum.

In addition to its use as an assessment tool, the Continuum was evaluated against a criterion measure, the mEDI-2, as described. The rationale for the scoring of the continuum was developed to coincide with the scoring of the EDI-2. A further explanation of the scoring rationale is included in the criterion validity data analysis section.

Criterion Validity Data Analysis

Correlation Analysis

A correlation analysis was utilized as the means by which to test Hyothesis #2. This group of data encompassed the responses of fifty subjects on a self-assessment with the Continuum and the scores for selected statements on the EDI-2. A Pearson's correlation analysis was performed on this data. For the correlation analysis a score had to be assigned to the continuum evaluation.

As previously described, the Continuum scoring system was designed to coincide with the scoring of the EDI-2. The rationale for the scoring of the Continuum is as follows. Because the EDI-2 was used as a criterion measure, a scoring system for this tool was developed. Individuals can receive a score from 0 to 3 for each answer, with zero reflecting a lack of issue with food or body image. For this reason a score of zero was applied to answers circled in the two left columns on the Continuum. These two columns reflect a lack of issues with food and body image as well. The next two columns reflect an increased focus

on food and body and the thoughts about dieting and changing body shape and size. These two columns were scored five points apart because the fourth column reflects a more disordered level of dealing with food and body, but still remain within the realm of preoccupation with food/body and not yet fully eating disordered. There is a gap between the fourth and fifth columns that reflects the need for an underlying pathopsychology that must be in place before one enters the fifth column. For this reason a difference of ten points was assigned between the fourth and fifth columns. For the Continuum self-assessment the total possible score was 340.

The EDI-2 was administered and scored following the author's directions. There were a total of 27 selected statements (Table 2) with a possibility of 3 points per statement resulting in a possible total of 81 points. The DSM-IV criteria (see Appendix D) for eating disorders was utilized as a criterion measure for subjects 26-50.

Content Validity Data Analysis

Continuum Questionnaire

Data for Hypothesis 3, "the wording in each statement of the Continuum clearly and consistently communicates the attitudes toward food and body image stated in the title for its respective category" was analyzed with a computer program written for this purpose. The description of this program and the source code for the program are included in Appendix E. To prepare for analysis, the

numbers corresponding to each of the Continuum statements and headings were entered into the computer program for analysis. Results of this data analysis for the Student and MHNP group were compared to test Hypothesis #4.

The results were scored in the following manner: Statements-- Two points were assigned to each statement that was placed under the correct column. One point was assigned to each statement that was placed incorrectly, but off by one column. Zero points were assigned to each statement that was placed incorrectly and off by more than one column. For this section the maximum score was 48 points. Headings—Because there were five headings for each section of the Continuum, incorrect placement of one statement yields an incorrect placement of two statements. For this section the maximum score was 8 points, four for body image and four for eating issues. Being off by one yielded a total of two points, being off by two yielded zero points, and having all the headings correct yielded four points.

For the entire Continuum there were 56 possible points. A percentage score was assigned by dividing the actual score obtained by 56.

Exposure Index

In addition to completing the Continuum questionnaire, the subjects answered questions that made up the Exposure Index, a method to evaluate Hypothesis #5. The makeup and purpose of this index has been previously described. Subjects received one of two scores for this index—a + or a -, which

reflected how they answered the questions. Scoring for the exposure index is subjective, and may not perfectly fit the evaluative criteria, but for the purpose of this study the following scoring method was used:

To receive a "+":

Subject "has a personal history of a preoccupation with food/dieting and may also have a friend with such a preoccupation" and perceives herself as being either "under or overweight" and/or "spends time discussing dieting," OR Subject "has a friend with a history of a preoccupation with food/dieting," and "spends a good deal of time discussing dieting."

To receive a "-":

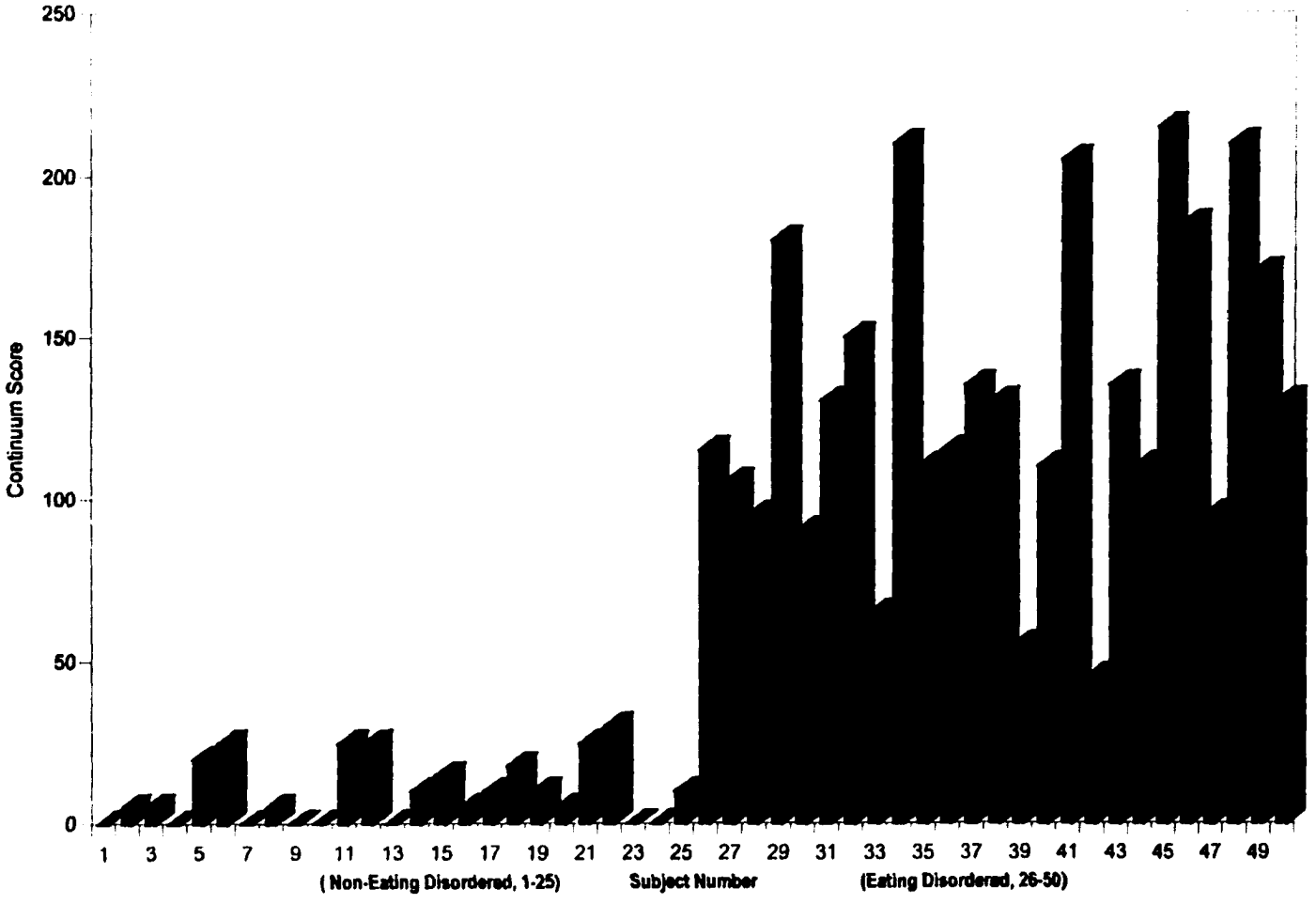
Subject "has no personal history of food/diet preoccupation and may or may not have a friend with such a preoccupation" and "does not spend time discussing dieting."

RESULTS

Continuum Self-Assessment Validity Results

The purpose of this segment of the study was to evaluate the Continuum for efficacy as an assessment tool, as determined by Specific Aim #1 (Hypothesis #1). Analysis of the Continuum scores reveal a difference in scores between subjects 1 to 25 and 26 to 50. There is an obvious gap in scores between subject 25 and 26. Raw scores for subjects 1 to 25 fall between 0 and 30, while raw scores for subjects 26 to 50 fall between 45 and 210. The average score for the subgroup 1 to 25 is 10, and the average score for the subgroup 26 to 50 is 132. These results support Hypothesis #1, "Individuals identified as having eating disorders by the DSM-IV will self-assess into the following columns of the Continuum: "disruptive eating," "distorted body image," "eating disordered," and "body hate/disassociation." The results of the analysis of the Continuum scores are illustrated in Figure 4.

Figure 4. Continuum Self-Assessment



Criterion Validity Results

Correlation Analysis

The scores for the EDI-2 and the Continuum self-assessment were standardized for the correlation analysis. This was necessary because of the large discrepancy in the maximum scores between the two tools. The following formula determined the standardized scores: 100/total possible score. (Continuum: 100/340; mEDI-2: 100/81). The raw scores on the EDI-2 were multiplied by 1.2, and the raw scores on the Continuum were multiplied by 0.29 to achieve the standardization. The Pearson's correlation was 0.73 between the mEDI-2 scores and scores for the Continuum. This is a fairly strong positive correlation that supports Hypothesis #2, "Individuals with eating disorders as assessed by the DSM-IV will perform similarly on their self-assessment by the Continuum as they do on the Criterion measure, the mEDI-2." The raw and standardized scores for the Continuum compared to the mEDI-2 scores are listed in Table 5. The individual scores for food-related and body image-related statements on the Continuum and the EDI-2 are listed in Table 6. The results of the correlation analysis are displayed in Figures 7 and 8.

Table 5. Continuum/EDI-2—Raw and Standardized Scores

Subject	Continuum Raw	EDI-2 Raw	Continuum Standardized	EDI-2 Standardized
1	0	14	0	16.8
2	5	0	1.45	0
3	5	10	1.45	12
4	0	0	0	0
5	20	7	5.8	8.4
6	25	2	7.2	1.2
7	0	6	0	7.2
8	5	3	1.45	2.5
9	0	1	0	1.2
10	0	0	0	0
11	25	2	7.2	2.4
12	25	12	7.2	14.4
13	0	10	0	12
14	10	5	2.9	6
15	15	18	4.3	21.6
16	5	9	1.4	10.8
17	10	16	2.9	19.2
18	18	7	5.2	8.4
19	10	7	2.9	8.4
20	5	11	2.9	13.2
21	25	6	8.6	7.2
22	30	13	8.7	15.6
23	0	0	0	0
24	0	11	0	13.2
25	10	0	2.9	0
26	115	15	33.9	18
27	105	35	33.9	18
28	95	24	85.5	28.8
29	180	33	52.2	39.6
30	90	26	26.1	21.2
31	130	48	46.4	57.6
32	150	29	43.5	34.8
33	65	42	18.8	50.4
34	210	50	60.9	60
35	110	43	31.9	51.6
36	115	53	33.3	63
37	135	43	39	51.6
38	130	22	37.7	26.4
39	55	21	15.9	25.2
40	110	19	31.9	22.8
41	205	45	59.3	55
42	45	14	13	16.8
43	135	17	39	20.4
44	110	26	31.9	31.2
45	215	45	62.3	54
46	185	32	53.6	38.4
47	95	20	27.5	24
48	210	54	60.9	64.8
49	170	37	49.3	44.4
50	130	24	37.7	28.8

Table 6. Continuum/EDI-2 Scores for food, body image, and total scores

Subject	Continuum Food	Continuum Body	Continuum Total	EDI-2 Food	EDI-2 Body	EDI-2 Food/Body	EDI-2 Total
1	0	0	0	5	8	1	14
2	0	5	5	0	0	0	0
3	5	0	5	9	1	0	10
4	0	0	0	0	0	0	0
5	10	10	20	3	2	2	7
6	15	10	25	2	0	0	2
7	0	0	0	3	3	0	6
8	5	0	5	2	1	0	3
9	0	0	0	0	1	0	1
10	0	0	0	0	0	0	0
11	0	25	25	0	2	0	2
12	15	10	25	4	8	0	12
13	0	0	0	5	5	0	10
14	0	0	0	5	5	0	10
15	10	5	15	8	9	1	10
16	0	5	5	2	7	0	9
17	0	10	10	4	12	2	16
18	5	5	10	2	5	0	7
19	5	5	10	4	2	1	7
20	5	0	5	5	3	3	11
21	15	10	25	2	3	1	6
22	0	30	30	5	6	2	13
23	0	0	0	0	0	0	0
24	0	0	0	0	10	0	10
25	5	5	10	0	0	0	0
26	65	50	115	2	11	2	15
27	90	15	105	13	17	5	35
28	75	20	95	16	6	2	24
29	25	55	75	20	8	5	33
30	70	20	90	21	0	5	26
31	60	70	130	32	11	5	48
32	100	50	150	18	8	3	29
33	40	25	65	27	9	6	42
34	105	105	210	24	20	6	42
35	35	75	110	18	19	6	43
36	75	40	115	33	16	4	53
37	65	70	135	19	18	6	43
38	80	50	130	8	8	6	22
39	30	20	55	8	11	2	21
40	55	55	110	5	11	3	19
41	120	85	205	34	6	6	46
42	0	45	45	1	13	0	14
43	65	70	135	5	10	2	17
44	75	35	110	16	7	3	26
45	150	65	215	26	11	8	45
46	120	60	185	19	8	5	32
47	75	20	95	15	0	5	20
48	95	75	170	21	9	7	37
49	95	75	170	21	9	7	37
50	95	35	130	18	6	0	24

Figure 7. Continuum/EDI-2 Correlation

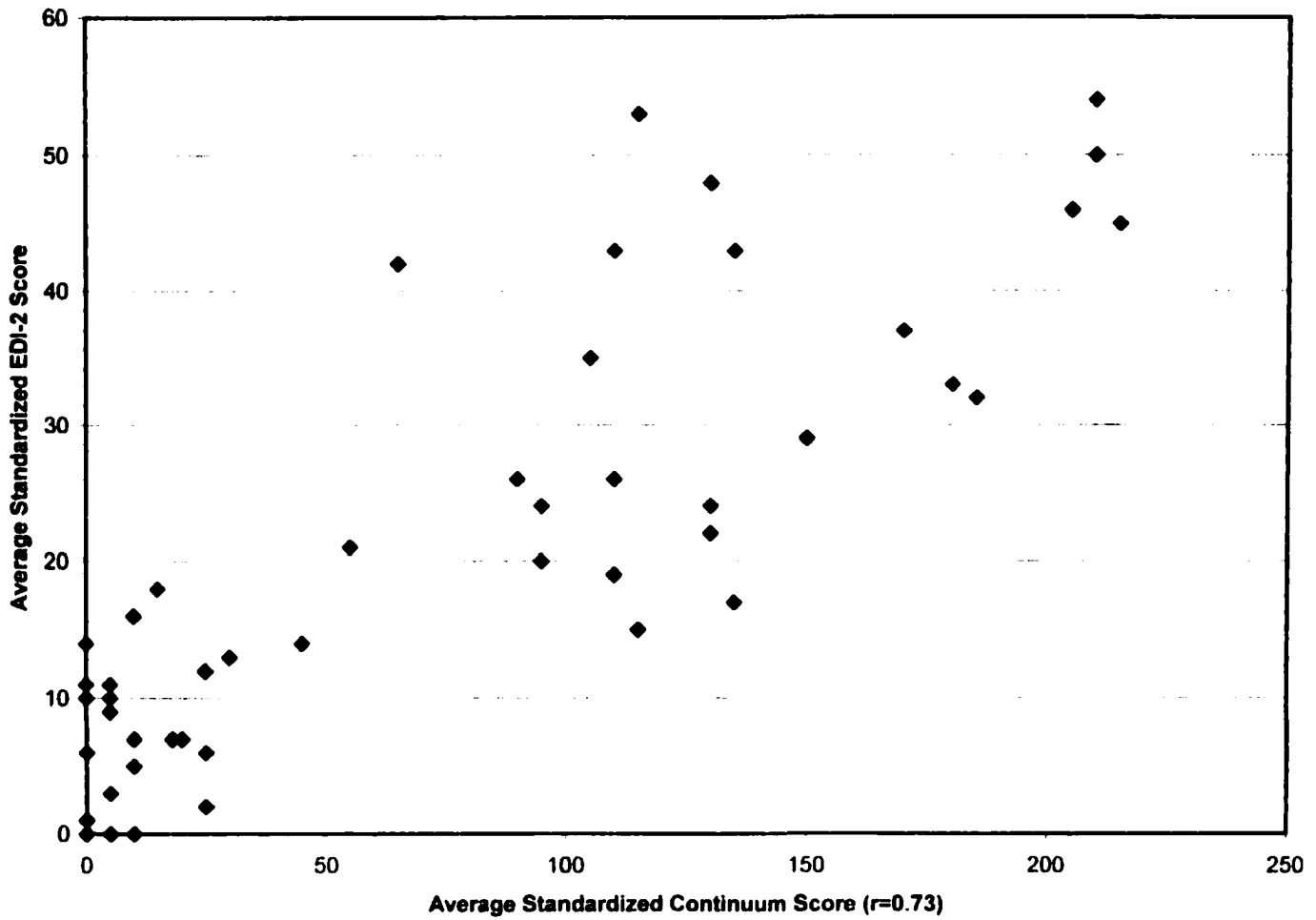
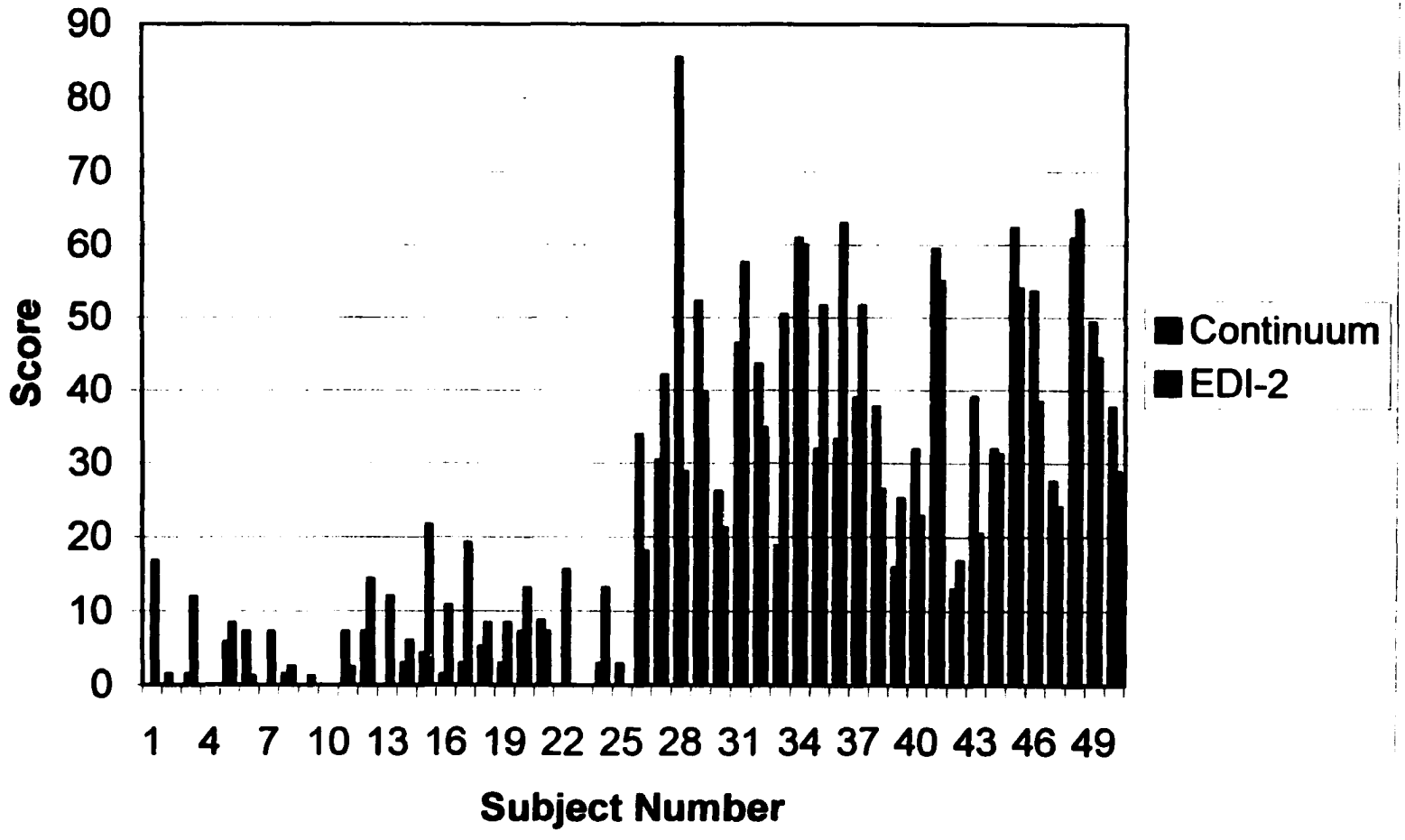


Figure 8. Continuum/EDI-2 Frequency Distribution



Content Validity Results

Pima College Students

There was a good deal of variability between the results of the headings analysis. As described previously, a total of eight points was the maximum score for the heading arrangement. Seven subjects arranged the headings perfectly, and ten subjects did not place any headings correctly. Twelve subjects placed 5 of the headings correctly. Sixty-five subjects placed less than 5 headings correctly and 23 subjects placed more than 5 headings correctly. Sixty five percent of the subjects placed less than half the headings correctly while twenty-three percent placed more than half the headings correctly. The raw data for the headings analysis are found in Table 9.

Table 9. Pima College Students Continuum Heading Data—Number Correct per Subject

* Indicates an entire row of headings were correct for eating issues, body image, or both

Subject	Number Correct		Subject	Number Correct
1	4		51	10*
2	3		52	4
3	0		53	1
4	7		54	3
5	1		55	6
6	4		56	1
7	1		57	4
8	6		58	5*
9	3		59	0
10	5*		60	10*
11	0		61	0
12	10*		62	2
13	0		63	0
14	2		64	5
15	1		65	1
16	1		66	1
17	0		67	0
18	6		68	0
19	0		69	6
20	1		70	3
21	1		71	5*
22	1		72	1
23	6		73	0
24	1		74	1
25	0		75	0
26	0		76	1
27	5*		77	1
28	0		78	10*
29	1		79	2
30	2		80	0
31	0		81	2
32	1		82	8*
33	5		83	1
34	0		84	3
35	7*		85	7*
36	10*		86	7*
37	3		87	0
38	0		88	0
39	5		89	5*
40	1		90	10*
41	1		91	2
42	1		92	1
43	2		93	2
44	10*		94	6*
45	6		95	5*
46	2		96	1
47	7*		97	0
48	5		98	7*
49	0		99	0
50	0		100	0

These results indicate that the majority of the subjects did not correctly place the headings in their proper order.

The arrangement of statements under the headings by the subjects did not support Hypothesis #3, "The wording of the statements within each category of the Continuum clearly and consistently communicates the attitudes toward food and body image stated in the headings for its respective category." The hypothesis was not supported because the majority of the subjects incorrectly placed 63% of the statements. As previously described the total available scores for the statement and heading arrangement combined was 56. The data for the Continuum arrangement indicated an average score of 37 points or 66% +/- 7. The highest score was 89% and the lowest score was 23%. Table 10 shows the actual and percentage scores for all the subjects. Figure 11 shows actual Continuum scores.

The distribution of scores, however, fell into a normal curve. In spite of the fact that the hypothesis was not supported, the distribution of scores reflect a pattern that often occurs with a population group. This distribution reflects a majority of scores falling at or near average, with smaller numbers of scores falling at the lowest and highest ends. Figure12 shows the frequency distribution for scores.

Table 10.
Continuum Questionnaire—Actual and Percentage Scores for Pima College Students

Subject	Actual Score	Percentage		Subject	Actual Score	Percentage
1	43	76		51	38	67
2	43	76		52	33	58
3	32	57		53	35	62
4	39	69		54	33	58
5	33	58		55	38	67
6	36	64		56	35	62
7	38	67		57	36	64
8	38	67		58	36	64
9	36	64		59	35	62
10	34	60		60	50	89
11	32	57		61	28	50
12	45	80		62	27	48
13	25	44		63	31	55
14	32	57		64	34	60
15	30	53		65	31	55
16	35	62		66	34	60
17	37	66		67	37	66
18	46	82		68	41	73
19	31	55		69	49	87
20	31	55		70	30	53
21	30	53		71	34	60
22	46	82		72	33	58
23	38	67		73	28	50
24	32	57		74	38	67
25	34	60		75	13	23
26	38	67		76	30	53
27	34	60		77	30	53
28	34	60		78	28	50
29	39	69		79	46	82
30	41	73		80	34	60
31	31	55		81	36	64
32	33	58		82	38	67
33	25	44		83	26	46
34	21	37		84	42	72
35	22	39		85	38	67
36	42	75		86	45	80
37	26	46		87	36	64
38	22	39		88	38	67
39	31	51		89	32	57
40	29	51		90	35	62
41	29	51		91	33	58
42	28	50		92	37	66
43	26	46		93	39	69
44	28	50		94	16	28
45	36	64		95	36	64
46	39	69		96	35	62
47	33	58		97	3	41
48	44	78		98	40	71
49	33	58		99	32	57
50	36	64		100	40	71

Fig. 11. Continuum Scores--Pima College Students

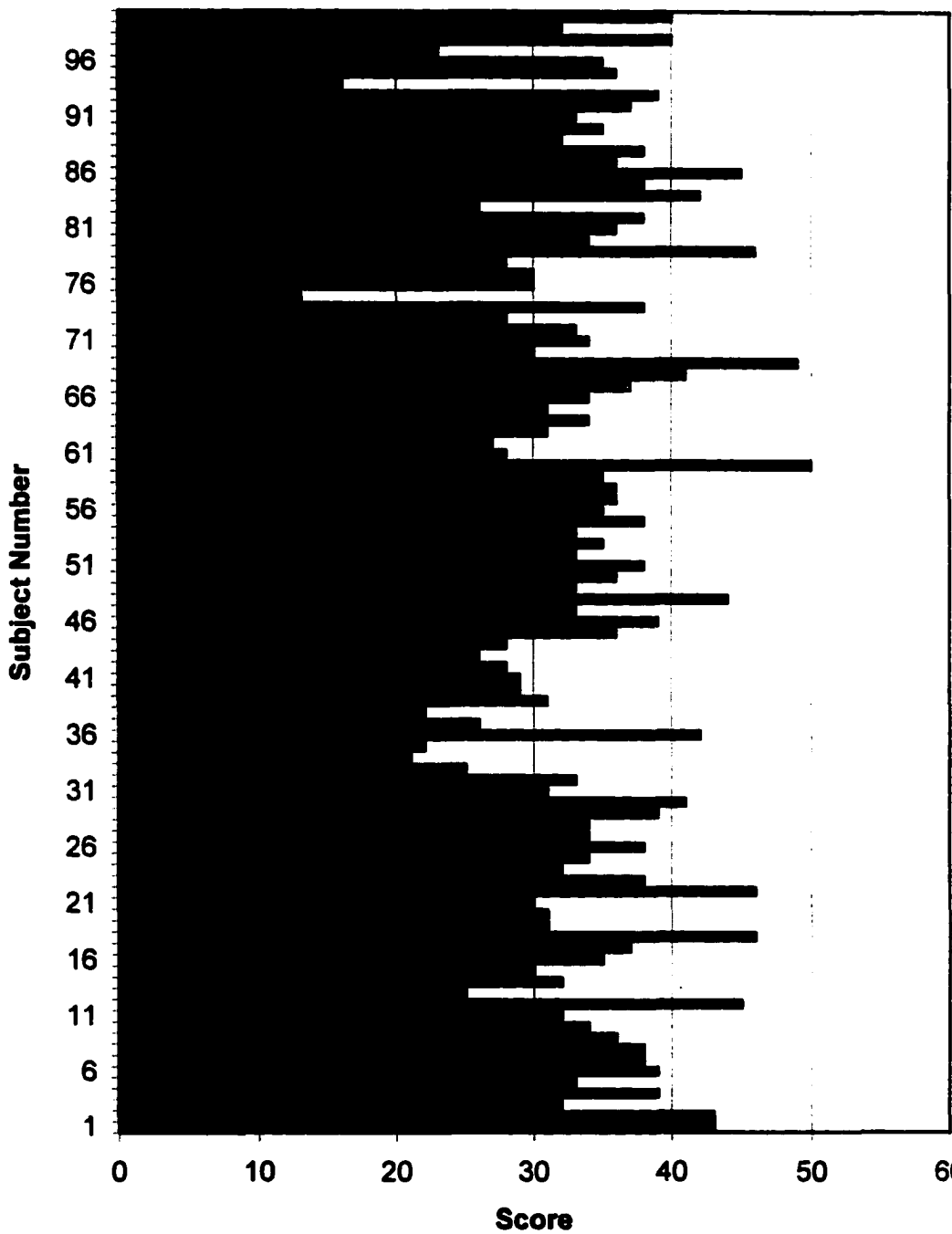
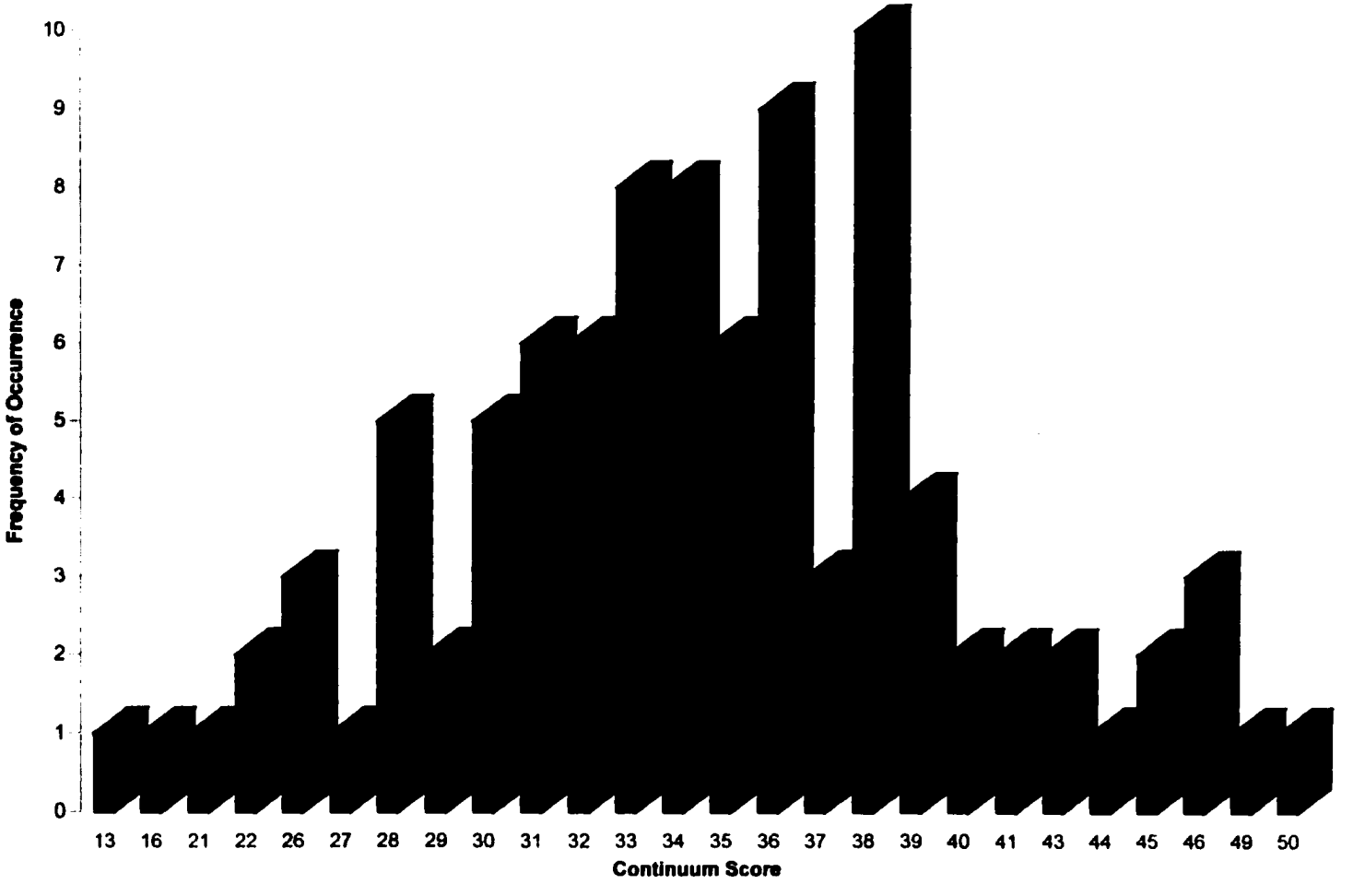


Figure 12. Frequency Distribution of Continuum Scores



Exposure Index

The results for the exposure index did not support Hypothesis #5, "Individuals who score high on the Exposure Index will more satisfactorily align the statements in correct categories than individuals who score lower on the Exposure Index." It had been expected that individuals who had negative Exposure Index scores would not have done well in arranging the statements in the questionnaire. It was inversely expected that those who scored positively on the Exposure Index would have done well in arranging the statements. Fifty-two percent of the subjects did perform as predicted, which was a lower percentage than was expected.

Exposure Index scores were evaluated as follows: Subjects' scores from the Continuum Questionnaire were divided into three sections, those scores falling above the mean score of 37, below the mean, and at the mean. For each of these sections the Exposure Index results were distributed in tally form under the + and – categories. The results of this tally indicated that 24% of the subjects had Exposure Index levels of "+" and had scores above the mean on the Continuum questionnaire. Thirty percent of the subjects had Exposure Index levels of "-" and had scores below the mean on the Continuum questionnaire. This group, (54%) of subjects performed as had been expected and their Continuum questionnaire scores were low when the Exposure Index levels were negative and the questionnaire scores were high when the Exposure Index levels were positive. Forty-four percent of the subjects performed conversely to what

was predicted on the comparison of questionnaire scores and Exposure Index levels. Fourteen percent of the subjects had scores on the questionnaire that were above the mean and had Exposure Index levels that were negative. Thirty percent of the subjects had scores on the questionnaire that were below the mean and had Exposure Index levels that were positive. In addition, there were two subjects who scored exactly 37 with a negative exposure index score. Exposure Index scores are listed in Table 13.

Table13. Exposure Index Scores

Subject	Score	EI Score		Subject	Score	EI Score
1	43	+		2	43	-
3	32	+		4	39	+
5	33	-		6	36	-
7	38	-		8	38	+
9	36	+		10	34	-
11	32	+		12	45	-
13	25	-		14	32	+
15	30	+		16	35	-
17	37	-		18	46	+
19	31	-		20	31	-
21	30	-		22	46	-
23	38	+		24	32	+
25	34	-		26	38	+
27	34	-		28	34	-
29	39	+		30	41	+
31	31	+		32	33	+
33	25	+		34	21	+
35	22	-		36	42	+
37	26	+		38	22	-
39	31	-		40	29	-
41	29	+		42	28	-
43	26	+		44	28	+
45	36	+		46	39	-
47	33	-		48	44	+
49	33	-		50	36	-
51	38	+		52	33	+
53	35	-		54	33	+
55	38	+		56	35	+
57	36	+		58	36	-
59	35	+		60	50	-
61	28	+		62	27	+
63	31	-		64	34	-
65	31	+		66	34	-
67	37	-		68	41	+
69	49	+		70	30	-
71	34	+		72	33	-
73	28	-		74	38	+
75	13	+		76	30	+
77	30	+		78	28	-
79	46	-		80	34	+
81	36	-		82	38	+
83	26	+		84	42	-
85	38	-		86	45	-
87	36	-		88	38	+
89	32	-		90	35	+
91	33	-		92	37	+
93	39	+		94	13	-
95	36	+		96	35	+
97	23	-		98	40	+
99	32	+		100	40	+

Mental Health and Nutrition Professionals

As with the Continuum Questionnaire data for the Pima College Students, the Mental health and Nutrition Professional's (MHNP) data was evaluated using a computer program. The highest possible score for the Continuum Questionnaire was 56. The average score for the MHNP Continuum Questionnaires was 64%, with a standard deviation of 5. The highest score was 80% and the lowest score was 50%. The actual and percentage scores for this group are listed in Table 14. The actual scores are reported in Table 15. Figure 16 shows the frequency distribution of scores for the MHNP group. It is also important to note that for the MHNP group the sample size was also significantly smaller.

These data did not support Hypotheses #3, "the wording in each statement of the Continuum clearly and consistently communicates the attitudes toward food and body image in the title for its respective category," and #4, professionals who work with eating and body image issues better evaluate the statements on the Continuum as they relate to their respective headings than non-professionals."

The results for this analysis were surprising because it was anticipated that professionals who have worked with eating issues and body image would have a more in-depth understanding of statements that relate to eating and body issues. This understanding would have resulted from familiarity with descriptive

terms used by clients with food/body issues. It is important to note, however, that the range of scores was smaller than in the Pima College student data.

Table 14.
Actual and Percentage Continuum Questionnaire Scores—Mental Health and Nutrition Professionals

Subject	Actual Score	Percentage Score
1	31	55
2	39	69
3	34	57
4	43	76
5	35	62
6	38	67
7	41	73
8	36	64
9	38	67
10	31	55
11	39	69
12	28	50
13	36	64
14	31	55
15	43	76
16	28	50
17	45	80
18	36	64
19	30	53
20	28	50

Figure 15. Mental Health and Nutrition Professionals--Continuum Questionnaire Scores

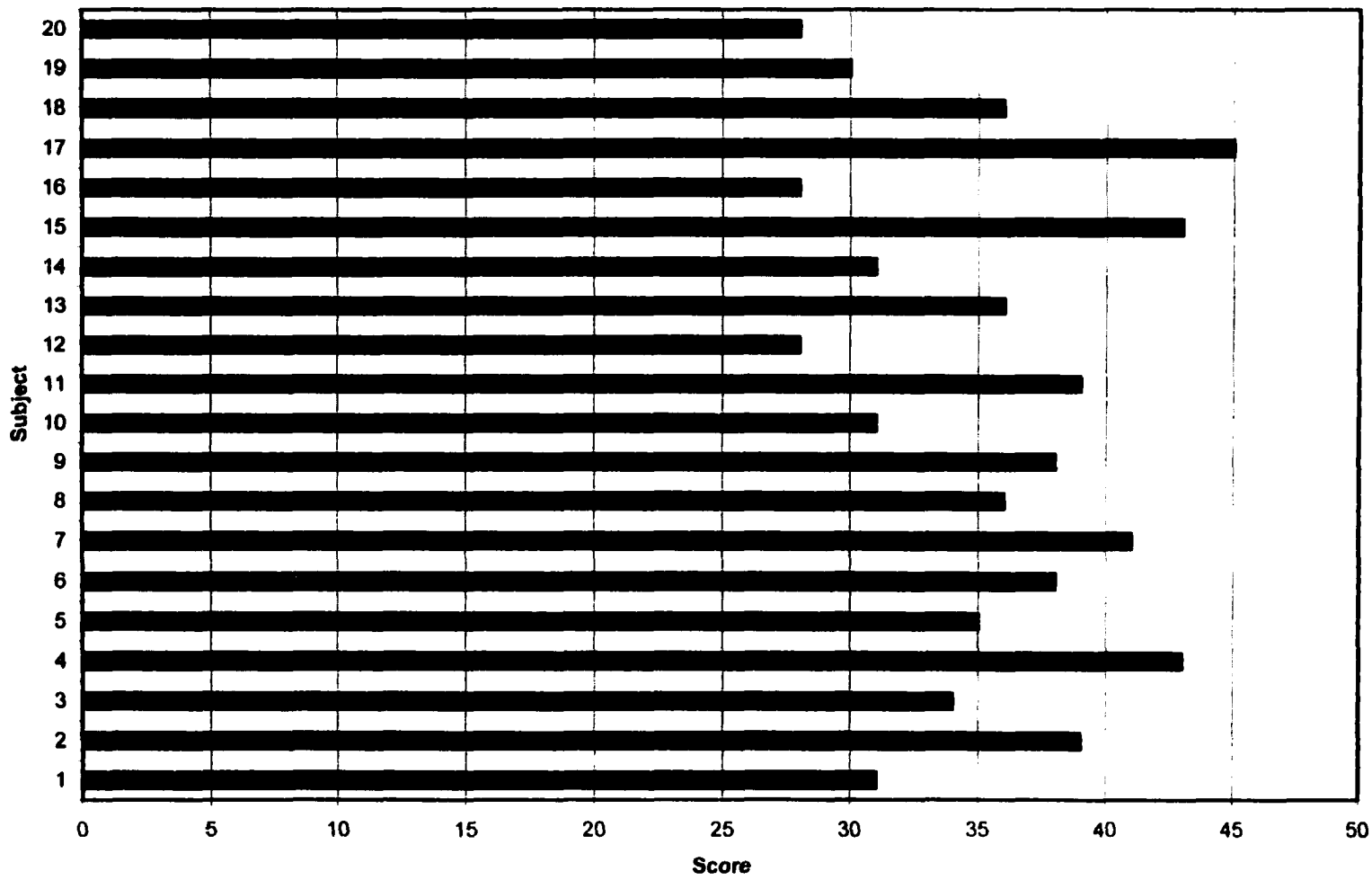
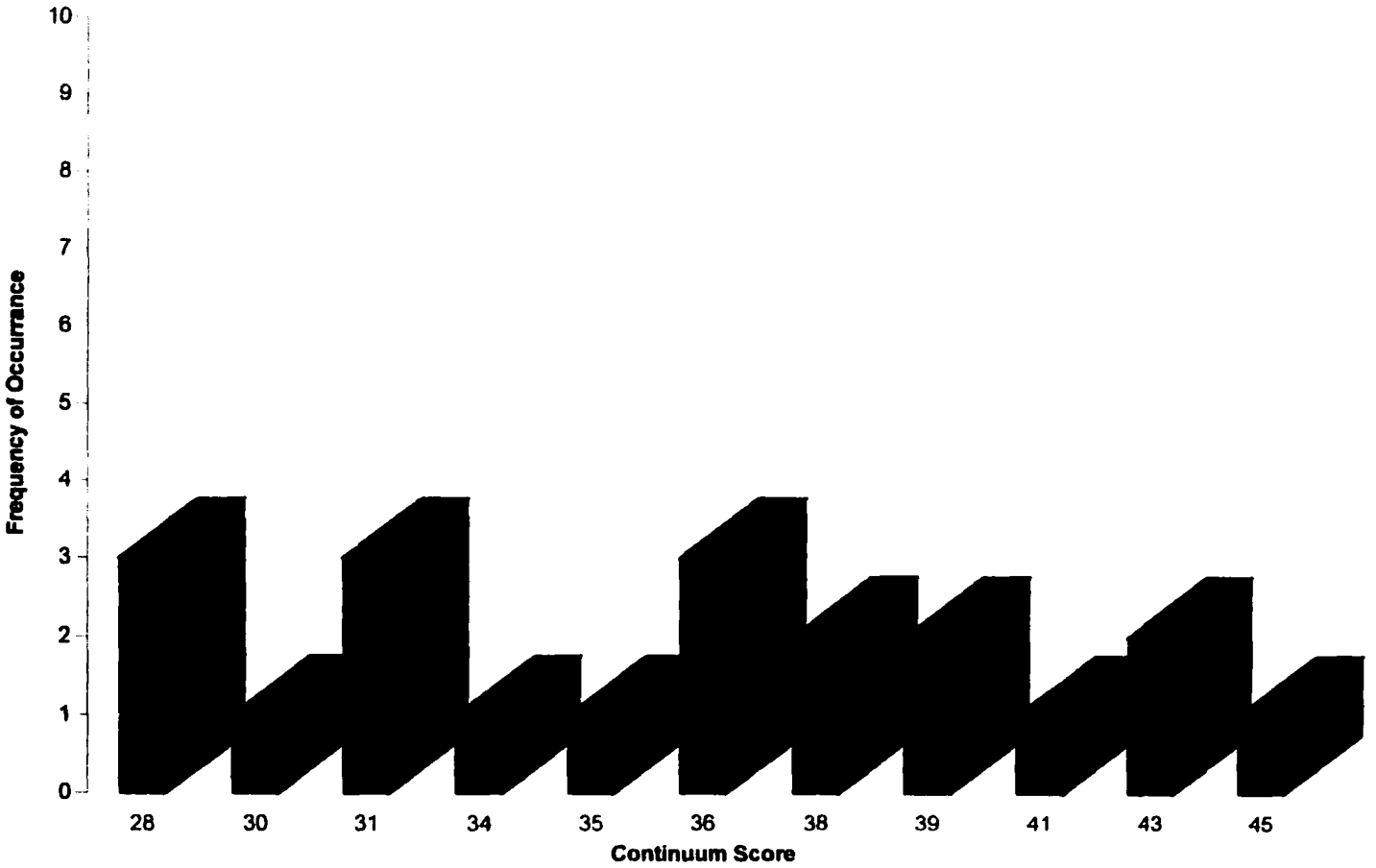


Figure16. Frequency Distribution of Continnuum Scores (MHNP)



The results of the heading arrangement analysis showed that eleven subjects (55%) placed more than five headings correctly, and seven subjects (35%) placed less than five headings correctly. The results of the headings analysis are listed in Table 17.

Table 17.
Mental Health and Nutrition Professionals
Continuum Heading Data—Number Correct Per Subject

Subject	Number Correct		Subject	Number Correct
1	2		11	7
2	5*		12	8*
3	4		13	6
4	3		14	8*
5	6		15	0
6	4		16	4
7	8*		17	6
8	8*		18	10*
9	10*		19	4
10	6		20	4

*Indicates an entire row of headings were correct for eating issues, body image, or both

DISCUSSION

The results of the Continuum self-assessment validation component of the study supported Hypothesis #1. There was a clear discrepancy in scores between the group with food/body issues (subjects 26-50), and the group without food/body issues (subjects 1-25).

The results of the criterion validity component of the study supported Hypothesis #2. There was a relatively large positive correlation between the Continuum scores and the mEDI-2 scores.

The results of the content validity portion of the study indicate that the Hypotheses for Specific Aim #3 were not supported. The scores for the Continuum Questionnaire were lower than had been anticipated for both the Pima College student and the MHNP groups. The MHNP group did not score higher than the Pima College student group, however, the range of scores were closer together. Therefore, Hypotheses #3, and #4 were not supported.

Hypothesis #5 was also not supported because subjects who scored high on the Continuum Questionnaire did not necessarily score high on the Exposure Index, nor did subjects who scored low on the Continuum Questionnaire score low on the Exposure Index.

Continuum Self-Assessment Validation Discussion

The results of this segment of the study establish the Continuum as an effective tool for assessing eating and body image issues, and support

Hypothesis #1, "Individuals identified as having eating disorders by the DSM-IV will self-assess into the following columns of the continuum: "disruptive eating," "distorted body image," "eating disordered," " and "body hate/disassociation." Similar results have been observed in clinical practice. Clients who were diagnosed with eating disorders by a mental health practitioner typically self-assess on the Continuum into the columns described as reflecting disruptive or disordered eating behavior. Conversely, clients who describe themselves as not having issues with food or body image typically self-assess on the Continuum into the far-left columns ("food is not an issue," "body ownership," "concerned well," "body acceptance") on the Continuum. There was no tool found in the literature that parallels the Continuum, however, certain body contour rating scales are similar in presentation style. Results from studies with the body contour rating scales were similar to the results on the Continuum self-assessment (Sherman, 1995 and Thompson, 1995).

The Continuum self assessment is a valuable tool for nutrition counseling with eating disordered clients, and has been observed in practice to be effective for helping client visualize personal exercise and eating behavior changes. It allows a client to locate where her attitudes and feelings are on a continuum at present and to anticipate where she could be with her behavior in the future. The Continuum is also useful for a healthy client because it reinforces positive behaviors she currently engages in.

Criterion Validity Discussion

The results of the correlation analysis between the Continuum and the EDI-2 support Hypotheses #2, "Eating disordered individuals as assessed by the DSM-IV will perform similarly on their self-assessment by the Continuum as they do on the criterion measure, the mEDI-2." It was predicted that self-assessments utilizing the far right column ("eating disordered" and "body hate/disassociation") of the continuum would be consistently anchored with one who scores high n the EDI. This was shown to be true by the positive correlation between the Continuum and the EDI-2. From these results it can be concluded that the Continuum has a relatively high degree of efficacy as an assessment tool. The Continuum has an advantage over the EDI-2 in that it is faster and easier to administer, which is advantageous in a clinical setting when time limits are a factor.

In addition, as illustrated in Figure 8, subjects 1 to 25, who identified themselves as not having any eating issues scored lower on the self assessment, while subjects 26 to 50, who identified themselves as having eating issues or eating disorders scored higher on the self-assessment. The subjects who identified themselves as not having eating issues were confirmed to not have eating issues by their scores on the mEDI-2, and they performed as expected on the Continuum. The difference between the average scores for the two subgroups was significant. There was an average difference of 120 points between the two groups. This illustrates that the group without eating issues

scored significantly lower on the Continuum self-analysis than the group with eating issues.

Similar results can be observed in clinical practice. Clients who are assessed with food/body issues or eating disorders by the mEDI-2 typically identify themselves on the Continuum in the disruptive or eating disordered columns and in the distorted body image or body hate/disassociation columns.

Content Validity Discussion

Continuum Questionnaire—Pima College Students

Given the results of the content validation, it was important to understand whether the low scores resulted from a problem with the Continuum itself, the questionnaire, or if there was something inherent to the subjects that lead to such a result.

In comparison to previously conducted validation studies, a weakness in the study design becomes apparent. In studies validating a body-image assessment scales (Thomposon, 1995) and (Sherman, 1994), subjects were interviewed one on one, rather than in a group setting, and the researcher was available for immediate feedback for the subject. This was not the case in the content validity segment of the present study, and such a change might have improved the results.

The goal in this segment of the research was to evaluate the Continuum statements for consistency of meaning as they are aligned with their respective

headings. One possible explanation for the results could have been a problem with the Questionnaire. A copy of the Questionnaire can be found in Appendix B. The Questionnaire listed every statement and heading on the Continuum and subjects were asked to assign statements to their respective headings. It was a lengthy questionnaire and might have been overwhelming for some subjects. It was assumed that there was careful thought put into the completion of the questionnaires, but it might have been possible that some subjects completed it quickly and without decisive thought.

Assuming the Questionnaire was understandable, there are some possible reasons why the subjects arranged the Continuum as they did. One possibility is that because dieting and thinness is the norm, behaviors that were considered by the developers of the Continuum to fall into the columns with the headings "disruptive" or "preoccupied" were considered by the subjects to be healthy behaviors. Because they were considered to be healthy behaviors, they were placed into the columns with the headings "concerned well" for food and "body acceptance." If this were the case, subjects would have incorrectly placed statements into certain columns because they believed certain behaviors to be less "disordered" than was intended by the Continuum. Placement of correct and incorrect statements in such a pattern is consistent with the findings in the literature. Thompson (1995) reported an arrangement of contour drawings representing anorexic and obese body types (the far-right and far-left categories)

was consistently more accurately placed than the arrangement of drawings of more average body types.

In an analysis of typical responses, it was found that subjects consistently arranged certain columns more accurately that others. For the eating issues section, subjects most frequently arranged the columns "eating disordered," "food is not an issue," and "concerned well" with more accuracy than the other columns. However, statements belonging to the "concerned well" and "food is not an issue" columns were sometimes interchanged. It appeared that subjects were confused as to the meaning of "concerned well," and did not easily differentiate this heading from the heading "food is not an issue."

For the body image section subjects most frequently arranged the columns "body hate/disassociation" and "body acceptance" correctly. Statements under "body ownership," and "body acceptance" were frequently interchanged. It appeared that there was little distinction between "body ownership" and "body acceptance" for the subjects.

These responses indicated that there was some confusion regarding the meaning of some of the column headings. Specifically, some subjects thought that "concerned well" belonged to the far-left column indicating that this statement represented a total lack of issues with eating. The same was true of "body acceptance." In addition, it appeared that some subjects could not differentiate between statements belonging to "disruptive eating patterns" and "eating disordered." The authors and educators who use the continuum model

commonly see this issue and pointedly created 2 columns to help people's awareness that there is another level beyond "healthy" and that is "eating without thinking of eating."

Overall, however, subjects tended to most accurately arrange the far-left columns, ("food not an issue" and "body ownership") and far-right columns ("eating disordered" and "body hate/disassociation"). There appeared to be an increased difficulty with the center column, with the exception of statements containing the words "preoccupied" or "obsessed."

Because the results in this segment of analysis did not support the hypothesis being tested, it was necessary to further evaluate the findings of the Continuum analysis to identify sources of the apparent confusion. The primary area of confusion for subjects appeared to be in the wording of some of the headings, although there were comments on the questionnaire indicating a difficulty with some of the statements. The confusion with the headings was understanding what was meant by "concerned well." A number of subjects determined this to indicate a lack of issues with food and placed this heading in the far-left column ("food not an issue"). There also appeared to be confusion between the meanings of the headings "body ownership" and "body acceptance." A good deal of subjects interchanged the order of these headings or interchanged the statements that belonged under these headings. It is reassuring to discover that the far-left and far-right columns were more frequently placed correctly, however. This indicated that the subjects did grasp the

meanings of the most extreme aspects of eating behavior. The majority of the confusion was between the third ("food preoccupied" and "body preoccupied") and fourth ("disruptive eating patterns" and "distorted body image") columns. This finding also supports Hypothesis #1. Such confusion is not surprising given the messages about eating issues that are currently evident in our culture. The answers that were given were reflective of common knowledge about eating behavior. These results reinforce the idea that a healthier and less rigid message about eating issues and disorders and eating behaviors in general needs to be provided. The emphasis needs to be that there is a range of behavior, rather than a threshold of "having" or "not having" food body issues.

Exposure Index

The results of the Exposure Index levels as compared to Continuum Questionnaire scores were not what had been expected, and did not support the hypothesis being tested. It was hypothesized that the subjects would clearly score positively on the Exposure Index when they performed well on the Continuum Questionnaire. Only slightly above half of the subjects fell into a range that had been expected on this evaluation. Fourteen subjects scored negatively on the exposure index while falling above the mean on the Continuum questionnaire. Definitive reasons for these results are not available, and reasons for their answers are speculative. Perhaps the subject had more information about or exposure to eating issues than she was able to convey given the brief nature of the exposure index questions. It might also be that she saw patterns in

the statements that made her able to place them under headings correctly without having a good knowledge of the subject matter. The thirty subjects who scored positively on the Exposure Index and had scores below the mean were the most significant group because of the large number of subjects who fell into this category. These subjects equaled the number of subjects that scored negatively in the Exposure Index and had continuum questionnaire scores below the mean. These subjects were greater in number than the subjects who scored positively on the Exposure Index and had continuum questionnaire scores above the mean. Again, reasons for these results are not clear and understanding why these results occurred is a speculative matter. A plausible reason for such results is the strong cultural emphasis on dieting and preoccupation with weight and striving for thinness that exists among college aged women. This concept is supported by Phelps (1993) who determined sociocultural factors influenced the perception of norms for body image in adolescents and college aged women. Banks (1992) as well associated food/body issues with cultural norms. Because thinness is such a pervasive goal, an unrealistic body size becomes the norm. Such a drive for thinness or focus on dieting and fitness may be so consuming that it clouds an individual's understanding of eating issues. In other words, dieting has become such the norm that behaviors that would be perceived as disruptive or as a preoccupation with dieting may be understood in the subject's mind to be healthy. Therefore "concerned well" includes behaviors such as restricting food intake, focusing on food, and fearing fat (both dietary and

adipose), because these behaviors will lead to a thinner and more acceptable body.

Continuum Questionnaire—Nutrition and Mental Health Professionals

It was surprising that the results of this section of the study did not support the Hypothesis #4, "MHNP who work with food/body issues better evaluate the statements on the continuum as they relate to their respective titles than non-professionals." It had been expected that the results of the data collected from this group would have been significantly different from the data collected from the Pima College student group. An average score on the Continuum Questionnaire for this group was expected to be 80%, but the average score was only 64%, therefore this hypothesis was not supported.

It was anticipated that professionals who work with eating and body image issues would have thought similarly to the developers of the Continuum relative to the statements on the Continuum. In other words, it was expected that the professionals would have defined specific statements similarly to the developers of the continuum, however the data reveals that this was not the case. Two frequently misplaced statements illustrate this point. It was believed by the Continuum developers that a statement about the lack of guilt or shame about the quantity of food eaten, and a statement about eating when upset or depressed without guilt to fall in the far left column ("food not an issue") indicating a lack of issues with eating. These statements, however, frequently were placed in the disruptive eating patterns column. In addition, the two far-left columns

("body ownership" and "body acceptance") of the body image section were frequently transposed.

There are several potential reasons for the results of the data for this group. One reason could have been confusing wording on the Continuum, both statements and headings. The heading "concerned well" consistently was misplaced, and it may be that this was not the best choice of wording. The headings "body ownership" and "body acceptance" also appeared to be confusing. Statements belonging to these headings were frequently transposed and which of these two statements were considered to represent a lack of issues with body image was not clear.

One possible reason for why the professional group had results that did not support the hypothesis is that this group could have had beliefs about what would be considered a lack of issues with body image and eating as compared to disruptive or disordered eating that differed from the Continuum developers. This applies primarily to the dietitians who returned questionnaires, but may also be relevant to the mental health professionals as well. Dietitians are trained to view diet as a "prescription" and that certain eating behaviors are better than others are. For example, adhering to a low fat diet and obtaining a certain number of servings of vegetables and fruits would be considered a nutritional goal. Not following a diet plan or eating without regard to healthful choices would be considered noncompliant behavior. Additionally, not having guilt or shame about eating when upset could be considered a form of disruptive eating by some

dietitians because this could be considered to be "emotional eating." Continuing with this example, the developers of the Continuum and this researcher do not necessarily agree with some ideas concerning eating behavior. Ideas, for example, that focus on following specific diets, striving for reduced fat meals. This researcher and the Continuum developers believe that guilt or concern associated with not adhering to specific dietary goals is misplaced guilt. This is because there is nothing inherently "wrong" with eating for emotional reasons. It is important to understand that if one consistently eats for reasons other than hunger, she may (or may not) gain some weight, but gaining weight need not be viewed negatively, but simply accepted as a possible result of increased food intake. Many individuals, however, perceive eating for emotional reasons to be a weakness in their character or will. It is not, it is simply one way of coping with emotional issues, and not something to feel "guilty" about. Therefore this guilt is considered to be misplaced.

Another reason could have been the result of differences in perception of appropriate eating behavior include putting statements in the "preoccupied/obsessed" columns for food and body, or "disruptive eating" and "distorted body image" columns into the "concerned well" column because of one's belief system surrounding food. For example, the statements 'I am afraid of getting fat,' 'I'd be more attractive if I was thinner, more muscular, etc.' and 'my friends/family tell me I am too thin' were placed into the "concerned well" and "body acceptance" columns on numerous occasions. These differences in

thinking about eating behavior could be a significant reason for the MHNP scores to be lower than expected.

Thirdly, there are differences in philosophies concerning approaches to weight management and food/body issues that may lead an individual to perceive statements as belonging in columns other than ones designated by the Continuum developers. There are also differences in experience and skill level between professionals that could predispose them to have varying levels of knowledge about descriptive terms of eating behavior and body image.

Finally, professionals in this sample worked in different settings, some private practice, others in treatment centers and several in hospital settings. The approach to food/body issues will vary greatly between these three types of practice. Individuals in private practice will generally be more liberal in the approach to treating food/body issues because they are not limited by the length of a hospital or treatment center stay. In addition, they are not limited by policies and procedures dictated by the facility. The converse is true of professionals who work in treatment centers or hospitals. The setting in which an individual works could influence her perceptions of what healthy, preoccupied, and disordered food/body behavior is.

To further investigate the results of the Continuum Questionnaire, a detailed statement analysis was done for this section of the study. The results of this analysis are found in Tables 17-21 and in Appendix D, and discussed in the next section.

Analysis of Continuum Questionnaire Statements—Comparison of Groups

This section provides a description of the statement analysis and possible reasons for why statements were arranged as they were. Suggestions for possible changes to be made to the Continuum and a discussion of areas to focus on when using the Continuum with presentations are outlined in the Conclusions section. Appendix D provides a detailed analysis of the placement of statements under the headings for both the student and the professional groups. In these tables the statement is listed and the numbers of times the statement fell under each column is listed. Tables 17-21 provide a summary of the results of the statement analysis.

This analysis revealed that although the overall scores were low, the errors in placement of statements were more positive than expected given the scores on the Continuum Questionnaire. The statements were primarily off by one column, or split between two or three adjacent columns.

The criteria for accepting a statement was a total of 70% or more statements falling into the column being tested for the professional group, and 75% or more statement falling in the column being tested for the student group. The difference in these percentage requirements was due to the difference in the sample size of each group. The rationale for accepting a level of 70% to 75% was based on the literature. Shoemaker (1997) in a validation study of the EDI-2 accepted items classified correctly at a level of 74% and greater. Table 18 describes the accepted statements.

Some statements were distributed with the majority of statements falling into a column that was adjacent to the correct column. This distribution was referred to as reversed. The criteria for being considered in a reversed arrangement was a total of 70% or more falling into a column adjacent to the correct column. Table 19 describes these statements.

Statements that were divided between columns were considered in two ways. 1) The first possibility was that statements could be split relatively evenly between two groups. The criteria to be considered an even split was an approximate total of greater than 40% falling between two columns, or greater than 20% falling into one column and less than 70% falling into another column. 2) A second possibility was that statements could be split unevenly and divided between 3 or more columns. Any combination was permissible, but there needed to be approximately less than 50% in any given column. Tables 20 and 21 describe the divided statements.

A final distribution of statements could be that the statement was incorrectly placed. The criteria for being incorrectly placed was at least 70% of the statements were placed into a column other than the correct column and more than one column away from the correct column. Table 22 describes these statements.

Some similarities and differences were found between the two groups, and some understanding was gained concerning the reasons for why a statement was placed under a particular column. Overall the professional group

placed more statements correctly than the student group, in spite of the scores on the Continuum Questionnaire that reflect similar levels of correctness. For this reason it is considered that Hypothesis #3 was partially supported. The professional group placed 10 out of 24 (41%) food statements correctly, while the student group placed 6 out of 24 (25%) correctly. The professional group placed 7 out of 24 (29%) body image statements correctly, while the student group placed 3 out of 24 (12%) correctly. In addition, the professional group had no statements that were considered "incorrectly placed," while the student group had one. Finally, the professional group had fewer statements in the "unevenly split" category (10 to the student group's 13) and more in the "evenly split" category (7 to the student group's 3) which indicated a clearer grasp of the concepts of the statements. Having an even split was preferred over an uneven split because an uneven split indicated that there was less confusion regarding the wording of the statements than with an uneven split. A detailed discussion of this analysis follows.

CONTINUUM STATEMENT ANALYSIS TABLES

Table 18. Accepted Statements

Statement	Food or Body Image	Accepted from Student Group	Percentage	Accepted from Professional Group	Percentage
1	Food	X	82%	X	90%
2	Food	X	81	X	85%
4	Food	X	85%	X	95%
5	Food	X	85%		
8	Food			X	70%
10	Food			X	70%
11	Food	X	77%	X	100%
14	Food	X	74%	X	90%
17	Food	X	82%	X	90%
18	Food			X	85%
19	Food			X	70%
20	Food	X	82%		
24	Food			X	75%
3	Body	X	70%	X	90%
4	Body			X	90%
5	Body			X	75%
11	Body	X	83%	X	80%
12	Body	X	80%	X	75%
13	Body	X	92%	X	9S5%
23	Body			X	80%

Table 19. Reversed Columns

All statements are body image statements

Statement	Student	Correct Column	Placed In Column	Professional	Correct Column	Placed In Column
2	X	Body Ownership 26%	Body Acceptance 71%	X	Body Ownership 35%	Body Acceptance 65%
3	X	Distorted Body Image 5%	Body Preoccupied 70%	X	Distorted Body Image 0%	Body Preoccupied 90%
9	X	Body Ownership 28%	Body Acceptance 71%	X	Body Ownership 25%	Body Acceptance 70%

Table 20. Evenly Split Columns—Food Statements

Statement	Student	Correct Column	Also Placed in Column...	Professional	Correct Column	Also Placed in Column...
3				X	Disruptive Eating Patterns 40%	Eating Disordered 55%
6				X	Food is Not an Issue 35%	Disruptive Eating Patterns 55%
8	X	Concerned Well 47%	Food is Not an Issue 47%			
12	X	Eating Disordered 26%	Food Preoccupied Obsessed 63%	X	Eating Disordered 50%	Food Preoccupied Obsessed 50%
15				X	Disruptive Eating Patterns 65%	Eating Disordered 25%
16	X	Food Preoccupied Obsessed 60%	Eating Disordered 25%			
18		Food is Not an Issue 65%	Concerned Well 26%	X	Food is Not an Issue 55%	Concerned Well 40%
20		Food is Not an Issue 55%	Concerned Well 40%	X		
21				X	Disruptive Eating Patterns 60%	Food Preoccupied Obsessed 40%

Table 21. Evenly Split Columns—Body Image Statements

Statement	Student	Correct Column	Also Placed in Column...	Professional	Correct Column	Also Placed in Column...
1				X	Body Acceptance 50%	Body Ownership 45%
4	X	Body Preoccupied Obsessed 62%	Distorted Body Image 20%			
5	X	Body Hate Dissas.. 63%	Distorted Body Image 19%			
6	X	Distorted Body Image 47%	Eating Disordered 34%			
7	X	Body Acceptance 57%	Body Ownership 45%	X	Body Acceptance 50%	Body Ownership 45%
10	X	Body Ownership 47%	Body Acceptance 52%	X	Body Acceptance 50%	Body Ownership 45%
14	X	Body Acceptance 57%	Body Ownership 40%	X	Body Acceptance 50%	Body Ownership 40%
16	X	Body Ownership 31%	Body Acceptance 68%	X	Body Ownership 25%	Body Acceptance 60%
17	X	Body Hate Dissas. 65%	Distorted Body Image 26%	X	Body Hate Dissas. 50%	Distorted Body Image 40%
18	X	Body Preoccupied Obsessed 56%	Distorted Body Image 22%			
19				X	Distorted Body Image 65%	Body Hate Dissas. 30%
22	X	Body Hate Dissas 38%	Distorted Body Image 51%	X	Body Hate Dissas. 35%	Distorted Body Image 65%
23	X	Body Hate Dissas 66%	Distorted Body Image 29%			
24	X	Body Preoccupied Obsessed 41%	Distorted Body Image 47%	X	Body Preoccupied Obsessed 40%	Distorted Body Image 50%

Table 22. Unevenly split Columns—Food Statements

Statement	Student	Correct Column	Alternate Column	Alternate Column	Prof.	Correct Column	Alternate Column	Alternate Column
3	X	Disruptive Eating Patterns 14%	Food Pre-occupied 17%	Eating Dis-ordered 66%				
5					X	Eating Dis-ordered 35%	Disruptive Eating Patterns 40%	Food Pre-occupied 15%
7	X	Food Pre-occupied 8%	Food Not an Issue 13% Disruptive Eating 40%	Eating Dis-ordered 8%	X	Food Pre-occupied 30%	Disruptive Eating Patterns 45%	Concern. Well 15%
9	X	Food Pre-occupied 36%	Disruptive Eating Patterns 31%	Eating Dis-ordered 27%	X	Food Pre-occupied 10%	Disruptive Eating Patterns 65%	Eating Dis-ordered 25%
10	X	Eating Dis-ordered 33%	Food Pre-occupied 14%	Disruptive Eating Patterns 7%				
13	X	Food Pre-occupied 57%	Disruptive Eating Patterns 27%	Eating Dis-ordered 11%	X	Food Pre-occupied 55%	Disruptive Eating Patterns 20%	Eating Dis-ordered 25%
15	X	Disruptive Eating Patterns 19%	Food Pre-occupied 17%	Eating Dis-ordered 29%				
16	X	Food Pre-occupied 60%	Disruptive Eating Patterns 6%	Eating Dis-ordered 25%	X	Food Pre-occupied 65%	Disruptive Eating Patterns 15%	Eating Dis-ordered 15%
21	X	Disruptive Eating Patterns 18%	Food Pre-occupied 64%	Eating Dis-ordered 14%				
23	X	Disruptive Eating Patterns 18%	Food Pre-occupied 48%	Eating Disordere d 31%	X	Disruptive Eating Patterns 59%	Food Pre-occupied 29%	Eating Dis-ordered 25%

Table 23. Unevenly Split Statements—Body Image

Statement	Student	Correct Column	Alternate Column	Alternate Column	Prof.	Correct Column	Alternate Column	Alternate Column
1	X	Body Accept-ance 34%	Body Owner-ship 40%	Body Pre-occupied 18%				
6					X	Distorted Body Image 55%	Body Pre-occupied 15%	Body Hate 25%
8	X	Body Pre-occupied 37%	Distorted Body Image 41%	Body Hate 10%	X	Body Pre-occupied 25%	Distorted Body Image 35% Body Accept. 20%	Body Owner-ship 20%
15	X	Distorted Body Image 30%	Body Pre-occupied 31%	Body Hate 34%	X	Distorted Body Image 45%	Body Pre-occupied 15%	Body Hate 30%
18					X	Body Pre-occupied 25%	Distorted Body Image 40%	Body Hate 15%
20	X	Body Own-ership 55%	Body Accept-ance 39%	Body Pre-occupied 25%				

Table 24. Incorrectly Placed Statements—Student Group

Statement	Correct Column	Incorrect Column
6	Food is Not an Issue 9%	Disruptive Eating Patterns 75%

Food Statements

There was only one statement that fell into the "incorrectly placed" column. This was statement (6), "When I am upset or depressed I eat whatever I am hungry for without guilt or shame." This statement was placed "incorrectly" by the student group, and "evenly split" by the professional group. The statement would have been correctly placed in the 'Food is not an issue' column. It was incorrectly placed into the 'Disruptive eating patterns' column by the student group, and was relatively evenly divided between the 'Food is not an issue' column and the 'Disruptive eating patterns' column with a dominance in the disruptive eating category by the professional group.

Such placement indicates a misinterpretation of the meaning of the statement. The most likely reason for this statement to be considered a disruptive eating behavior is that it was interpreted to represent "emotional eating." Emotional eating is generally considered a problematic eating behavior, and attitude that has its beginnings in behavior modification techniques for weight management. However, the developers of the Continuum and this researcher do not consider emotional eating to be a problem per se. It is believed by this researcher that eating for emotional reasons is acceptable, while acknowledging to oneself the reason for eating—that is for emotional purposes. The goal of the nutritionist should be to help the client to make the distinction between eating for

hunger and eating for emotional reasons, and then help the client to decide what to do with the emotions she has that cause her to turn to food.

There were some instances when statements were divided between columns, both relatively equally and unequally, as outlined previously. These statements are outlined in Tables 19 and 21. Reasons for this arrangement of statements might indicate that the statement or perception of the statement was ambiguous. One statement that was evenly split was statement (7), " I feel I don't eat well most of the time." A possible reason for such a placement may be that the subjects perceived this statement as fitting a variety of eating patterns. For example, it may indicate that an individual does not eat well because she is dieting and she is aware that she is significantly restricting food or avoiding food groups. Or, conversely, it could indicate that an individual does not eat well because she enjoys a diet of "junk food" and fast food, and is aware that this food is not considered to be "healthy" but is not particularly concerned about this. The first example would fall under the category of "preoccupied" or "disruptive," and the second example would fall under the category of "concerned well." The intent of this statement did not appear to be clear to the subjects.

Three other split statements were statement (8), "I may weigh more than what I like, but I enjoy eating and balance my pleasure with eating with my concern for a healthy body," and (24), "when I let myself eat I have a hard time controlling the amount of food I eat," and "(5), I regularly stuff myself and then exercise, vomit, use diet pills, or laxatives to get rid of the food or calories." The

correct placement for statement (8) was "concerned well," and it nearly evenly divided by both groups between "food not an issue" and "concerned well." A possible reason for this placement might be that weighing more than one would like—implying more than "ideal" would be considered a lack of concern for one's weight. This would reflect the cultural bias toward thinness. Statement (24) was placed correctly by the student group under 'eating disordered,' and unevenly divided between 'food preoccupied,' 'disruptive eating patterns,' and 'eating disordered,' with the dominance on 'food preoccupied.' It would have been expected that the professional group would have been alerted to the words "let myself eat" as they reveal restrictive eating issues. Statement (5) was placed in a similar manner to (24). The student group placed it correctly in 'eating disordered', and the professional group placed it in a three-column split with the dominance on 'disruptive eating patterns.' The student group appeared to have a better grasp of the meaning of the 'eating disordered' statements. Possibly this group better understood 'eating disordered' statements because of the culturally based focus upon eating disorders resulting in a keen awareness of descriptive terms associated with eating disorders. Additionally, the Continuum was developed for college students and uses language that is relevant to this group.

The professional group more accurately placed statements dealing with the "well" end of the Continuum than the "eating disordered" end. It would have been expected that this group would have accurately placed statements at both ends of the Continuum. It is not entirely surprising, however, because many

individuals, particularly dietitians, who work with eating disorders, approach the eating problem from a clinical standpoint that emphasizes weight gain, food plans, and behavior modification rather than a therapeutic standpoint which allows a client to be an integral part of the treatment team, and takes a less rigid approach to treatment. The goal in treatment is to provide the client with a prescribed number of calories and plan for a specific amount of weight to gain, rather than working with a client within her current comfort level and work slowly through the emotional issues surrounding food. This is not to imply that the dietitian should be faulted for her approach, because this approach is the normal standard practice and reflects the education provided in the classroom and internship. It would benefit nutrition professionals to explore ways to enhance counseling and other therapy skills and apply these to her practice.

Body Image Statements

As described, some statements were placed incorrectly, but in an adjacent column to where the statement belonged. In this instance it was clear to see that there were significant similarities between particular statements, and the subject could reasonably place the statement in either column. Table 18 outlines these statements. There were three statements placed in this manner by both groups, and all fell under the body image section. Statement (2)," body image is not an issue for me," statement (3), "I spend a significant amount of time exercising and dieting to change my body", and statement (9), "my body is beautiful to me."

Statements (2) and (9) would have been correctly placed under the 'Body Ownership' column, but in each instance approximately 70% of the subjects from both groups placed the statement in the 'Body Acceptance' column. For statement (3) a correct placement would have been in the 'Distorted Body Image' column, but 70% to 90% of the subjects placed this statement in the 'Body Preoccupied' column.

There is a reasonable theory as to why such a large percentage of individuals placed these statements as they did. The reason has to do with confusion over the meanings of the headings of 'body ownership' as compared to 'body acceptance' and 'distorted body image' as compared to 'body preoccupied.' The confusion arises from difficulties in understanding terms associated with body image. Defining the terms used for the headings might have made them more understandable for individuals who are not familiar with terminology associated with body image. Body image is an area that is not well understood, and not a great deal is known about it, even among professionals. Body image is closely linked to self-image, and unless a person is well differentiated (i.e. has developed a sense of self at present that is separated from the sense of self she embraced as a member of her family of origin), she may not be comfortable with dealing with self-image or body image. Body ownership is defined as not having any issues with one's body. An individual who "owns" her body is comfortable within her body regardless of its size, shape, or weight. She may or may not eat a healthy diet, but she is comfortable with her body weight

and food choices. Her feelings about her body are not influenced by society's attitudes toward the body, nor are her feelings about herself as a person ruled by her physical appearance. Body acceptance is a feeling of accepting one's body, while perhaps not feeling fully comfortable with the shape, size, and weight. It allows for some influence, but not a dominance of societal attitudes, and managing physical appearance is important. From the perspective of body image education, body preoccupation does not necessarily imply that any action is taken to change the body. It is simply an increased focus on the body. A distorted body image implies a significant dissatisfaction with the body, to the degree that it interferes with normal functioning. At this point an individual is likely to take measures to change her body so that it will be acceptable, or more importantly so that she will be acceptable. For this reason, excessive exercise is correctly placed under 'distorted body image.' 'Body disassociation,' the far-right column involves a pathological separation from one's body. The opposite of distorted body image would be 'body ownership' where an individual may not have an objectively accurate perception of her physical self, but this is of no significance to her.

Certain body image statements were placed in a divided or split fashion, either relatively evenly or unevenly as described. Tables 20 and 22 outline these statements. The professional group placed more statements in a closely split fashion with a nearly 50/50 split as opposed to a nearly 70/20 split than the student group. The student group placed statements predominately in a nearly

70/20 split with the larger of the two percentages being in the correct column. This indicates that the student group appeared to have a better perception of the body image statements relative to the Continuum developers' definitions than the professional group who was divided as to where the statements correctly belonged. A possible reason for why the student group appeared to have a more accurate perception of these statements could be that they are at a point in their lives where they are exploring their relationships with their bodies and therefore have a deeper awareness of the meanings of the body image statements. Normative data on college students (Shore and Porter, 1990) has shown high scores in the subscales of "drive for thinness" and "perfectionism" on the EDI-2, which indicates that regardless of eating and exercise behavior, they consider striving for an ideal body (as defined by their culture—see introduction) as the norm. Again, the Continuum was developed for college students and uses language that is relevant to this group. Some of the professionals may not have had a great deal of experience in working with body image, as this is an area that is very difficult to address.

The student and the professional group were equal in the distribution of unevenly split statements relating to body image. Statements were generally spread over three columns. In some instances the majority of statements were placed in the correct column, however, a split such as this implies that the concepts being conveyed in the statements were not clear.

After this evaluation of the statements it was evident that there were some statements and headings that were difficult to arrange and may require changes in the wording. In addition, for future a future study, defining the heading terms may clarify their meaning without jeopardizing the need for keeping an objective evaluation. It was encouraging to observe that the majority of statements that were placed incorrectly were off by one column. This occurred with enough frequency that the overall scores on the Continuum Questionnaire were lower than expected. Being off by one column is considered to be a reasonable placement because subjects grasped the intent of the statement, but without complete accuracy. In the instances where statements that were placed incorrectly and off by more than one column clearly indicated a cultural bias or problem with the wording of the statement as a cause.

Swartz (1987) states that attention must be paid to the way in which professional understanding of eating disorders is marketed for both other professionals and for the public. Occurrence of eating disordered symptoms frequently results from the writings of professionals and from presentations on disordered eating. Traditional educational messages can appear to "give permission" for an individual who is struggling with eating problems to allow a preoccupation to progress into an eating disorder because the educational message supports an individual's" identity" as an eating disordered individual. Care needs to be taken when providing educational messages concerning food/body issues to have a sensitivity to whom the audience is.

CONCLUSIONS AND FUTURE STUDY

It is evident from the results of this study that the Continuum supported the Hypotheses #1 and #2, which were associated with the Continuum self-assessment validation and the criterion measure. The Continuum was shown to be efficacious as an assessment tool in that there was a relatively strong positive correlation between the mEDI-2 and the Continuum. Efficacy as an assessment tool was also reflected by the Continuum self-assessments alone as the individuals who were identified as being eating disordered by the Continuum also were identified as such by the DSM-IV.

With these favorable results retesting would be advised to determine the reliability of the results. Testing with a larger and more diverse sample, as well as testing with male subjects would be recommended. Subjects chosen from several geographic locations, for example, where attitudes toward body image and eating might differ, would improve the reliability of the results.

The results of the content validity testing were not as favorable as those of the criterion and self-assessment testing, as the Hypotheses #3 #4 and #5 were not supported. However, upon a detailed analysis of the Continuum Questionnaire results it was determined that the majority of incorrectly placed statements were off by one column, which is clinically not considered to be an error.

In light of these results, some changes in the layout of the Continuum would be recommended. Creating a gap between the fourth column ("disruptive

eating", and "distorted body image") and the fifth column ("eating disordered" and "body hate/disassociation") would clearly indicate that the eating disordered column is a serious state and one that is neither entered into nor departed from easily. With this separation, some words describing eating disordered behavior as having a pathological component and that it is somewhat removed from the rest of the Continuum would help to provide a clearer educational message. In addition, changing some of the wording of the statements, and providing subtitles to headings would help to clarify the Continuum's message.

As described previously, there are some statements on the Continuum that would be considered to be vague, and some of the headings were confusing to subjects. It would be valuable to reconsider some of the wording of statements in order to clarify the message being stated. For example, to the statement "I regularly stuff myself and then exercise, vomit, use diet pills or laxatives to get rid of the food or calories," could be added the words I regularly (for more than six months) stuff myself..." Such a change would clarify that this is eating disordered behavior and would be worded similarly to the DSM-IV diagnosis of an eating disorders. Another example would be to the statement "I spend a significant amount of time exercising and dieting to change my body," could be added the words "...so I will be accepted by others." This change would again clarify eating disordered behavior.

Changing some of the headings on the Continuum would also be valuable in order to lessen the confusion. For example, clarifying the meaning of the term

"body ownership" with a subtitle such as "feeling comfortable in one's body regardless of size and shape" would be helpful as this term is potentially confusing. Many subjects appeared to be confused between the meanings of "food is not an issue" and "concerned well." Adding subtitles to these headings would again clarify the meaning. For example, to "Body Ownership" the subtitle "being comfortable in one's body regardless of its shape and size," could be added. To the heading "Food is not an issue" the subtitle "being comfortable with one's food choices regardless of the items chosen" could be added. "Concerned Well" would be clarified by the subtitle "a balance between goals for eating...healthy without a drive for health."

In addition to making changes in the Continuum, it is important to consider the cultural bias under which the subjects were functioning. There is an emphasis on thinness, and messages being presented to college students as well as health professionals and the general public reflect the need to control one's diet for health and for physical appearance reasons. There are also messages provided that normalize disordered eating and exercise behavior and encourage individuals to be body-focused. The Continuum presents a new paradigm for looking at eating behavior that allows for greater exploration of one's emotions and attitudes around the body, eating, and hunger.

When evaluating the Continuum statements a distinction must be made as to what the cause of the confusion over statements was. Two problems observed are defined as a "statement" issue or a "program" issue. A statement

issue indicates that there was a problem with the wording of the statement that caused the message being conveyed to be unclear. In this instance it would be advisable to change the wording of the statement in order to clarify the meaning. A program issue indicated that there was a problem with understanding the meaning of a statement based on a cultural perception or message. It is difficult to separate one's self from culture. Some individuals see themselves as not being influenced by culture when they really are. In a presentation using the Continuum, the statements that were determined to have a program issue would be focused on and clarified.

The ultimate goal with a program issue is to change the cultural messages concerning food and body image to encourage a greater comfort with one's body and eating behavior. One example of a program issue would be food statement (6), "when I am upset or depressed I eat whatever I am hungry for without any guilt or shame." The confusion over eating without guilt would be clarified in a Continuum presentation.

A statement issue would be food statement (7), "I feel I don't eat well most of the time." This statement is not strong enough in its emotional content to get its point across and it would be recommended to reword or remove the statement from the Continuum.

In addition to addressing the cultural messages, it would be valuable to provide professionals who work in dietetics or psychology with more information

regarding body image. Education for these individuals would describe the differences between eating and body image issues, patterns and pathology.

The professional group in this study more correctly placed statements that reflected a "well" position—that is the two far-left columns. This reflects a lack of knowledge concerning the pathology of an eating disorder. There appears to be a disparity of knowledge between mental health professionals and nutrition professionals, and also between hospital and treatment center dietitians. This is revealed in literature as well in comments of practitioners. Some professionals lack a knowledge base that enables them to make discernments between preoccupied, subclinical and true eating disorders. Some professionals who have not studied eating disorder pathology or investigated psychological theory related to eating disorder may not have a sufficient knowledge base. Many professionals, even those who currently work with eating disorders do not have the time or interest in undertaking such study. It would be desirable to provide professionals who are interested in working with eating disorders and body image issues with an understanding of these issues beyond the clinical definition, (i.e. DSM-IV), and beyond the clinical solution of food plans and behavior modification. Incorporating knowledge of the pathology around eating and body image problems and expanding the scope of understanding would be necessary.

In addition, a better understanding of a relationship with one's body that reflects a lack of issues needs to be provided. Our culture does not promote body ownership. Body ownership can be illustrated by observing the relationship

of a toddler with her body and food. She is comfortable in her body, and is not concerned about the size of her stomach, which is usually round, or the amount of fat on her legs, but enjoys moving in her body and climbing. She is also not concerned with food choices and timing of her meals. She eats when she is hungry, and she eats only the foods she wants to eat and will not be easily coerced to make other choices. Teaching adults to "eat like a kid" and to "move like a kid" can be a valuable lesson because it will potentially help them to feel more comfortable in their bodies, and hopefully to make more relaxed food choices. It will give them permission to eat what they want for any reason they want without feeling judged. It will help them to eat to their hunger without regard to time schedules and "appropriate" foods for given meals (e.g. eggs are for breakfast and spaghetti is for dinner). It will allow them to try a variety of physical activities without regard to their body shape and size, such as dancing, swimming (which requires being seen in a bathing suit), and going to a gym.

The Continuum can be used as a tool to aid with education for both professionals and the general public. A recommended change in the makeup of the Continuum would be to separate the far-right columns that reflect a pathopsychological response to food and body image from the four other columns that reflect varying degrees of eating patterns, none of which enters the pathological realm.

The goal of this study was to validate the Continuum, so decisions had to be made concerning whether to keep or remove specific statements from the

Continuum. The criteria for keeping or removing statements are as follows: it is recommended that the "accepted" statements and the statements that are split between two columns for at least one subject group should be retained. It is recommended that the wording of the statements that have a 3-way split be changed in some way to in order to clarify the meaning of the statement. It is recommend that statements which were divided by a greater than 3-way split be replaced with another statement. Statements that appeared to be "bimodal" in distribution, that is, incorrectly placed or split between more than one column be evaluated as a program issue. Tables 25-29 provide descriptions of the recommendations for the Continuum.

The Continuum is a valuable tool because it presents eating behavior in a non-judgmental manner and without an underlying message of shame concerning "less desirable" behaviors. The message of the Continuum is one that needs to be further evaluated and studied. Some changes in the Continuum Questionnaire would improve subjects' understanding of the statements and help to discern into what column they should be placed. One recommendation would be to add subtitles to all the headings that would clarify their meanings. In addition providing a questionnaire with the headings and subtitles already in place and asking subjects to match statements to headings would improve provide clarity without jeopardizing objectivity.

Prior to future study of the Continuum, it would be valuable to organize a focus group consisting of college students and professionals in the various fields

relating to eating behavior and body image with the purpose of understanding the cultural and societal messages that are conveyed currently. It would be important to discuss the impact of the media and peer pressure on college students. It would also be valuable to investigate the identity and roles of women and family dynamics in the 21st century. Having a discussion on these topics would bring to the forefront issues that are relevant to young women in our society today.

It appears that we live in an increasingly violent and compartmentalized society. The family is changing, and family dynamics, as we once knew them rarely exist. Individual schedules are becoming crowded and family time together, including mealtimes, are diminishing. These changes will continue to impact young women as they develop their identity in the family and among their peers, and as they develop as sense of their physical self. Understanding what a family is in the 21st century is a key issue in understanding food/body issues.

The role of women in our society has changed a great deal over the years and a young woman's identity is most likely different from that of her mother's. It is important to understand what women of all ages perceive a "woman's place" to be in the present day to give insight into the pressures and concerns facing young women in our culture. Having this insight will help to lay inroads into an understanding of food/body issues. Focus groups are a valuable tool for investigating these issues.

After administering the Continuum Questionnaire in the future, it would be valuable to have follow-up interviews with subjects to determine why they answered as they did, and to determine if they understood the meanings of the statements, how well they understood the statements, and if any of their personal experience with eating issues or body image might have affected they way they responded on the questionnaire. Knowledge gained through these follow-up interviews can be used to make changes in the wording of the Continuum statements and headings, and to clarify cultural norms that may influence the way in which the Continuum Questionnaire is answered.

The Continuum has been shown to be an efficacious tool for assessment of food/body issues. Some changes in the Continuum's wording and arrangement have been suggested in order to make it more understandable. It is hoped that this study will promote further research and modifications of the Continuum, and its role as a tool for assessment and education.

RECOMMENDATIONS FOR THE CONTINUUM

Table 25. Food Statements Retained

Statement Number	Statement
1	I am not concerned about what others think regarding what and how much I eat.
2	I pay attention to what I eat in order to maintain a healthy body.
3	I have tried diet pills, laxatives, vomiting, or extra time exercising in order to lose or maintain my weight.
4	I think about food a lot.
5	I regularly stuff myself and then exercise, vomit, or use diet pills or laxatives to get rid of the food or calories.
8	I may weight more than what I like, but I enjoy eating and balance my pleasure with eating with my concern for a healthy body.
10	My friends/family tell me I'm too thin.
11	I feel no guilt or shame no matter how much I eat or what I eat.
12	I am terrified of eating fat.
14	I am moderate and flexible in my goals for eating well.
15	I feel strong when I can restrict how much I eat.
16	I am afraid of getting fat.
17	I try to follow the Dietary Guidelines for healthy eating.
18	I trust my body to tell me what and how much to eat.
19	I wish I could change how much I want to eat and what I am hungry for.
20	Food is an important part of my life, but it only occupi4es a small part of my time.
21	I have fasted or avoided eating for long periods of time in order to lose or maintain my weight.
22	I am afraid to eat in front of others.
24	When I let myself eat I have a hard time controlling the amount of food I eat.

Table 26. Body Image Statements Retained

Statement Number	Statement
1	I base my body image equally on social norms and on my own self-concept.
4	I spend a significant time viewing my body in the mirror.
5	I often feel separated and distant from my body—as if it belongs to some else.
6	My body shape and size keeps me from dating or finding someone who will treat me the way I want to be treated.
7	I pay attention to my body and my appearance because it is important to me, but it only occupies a small part of my day.
10	My feelings about my body are not influenced by society's concept of an ideal body shape.
11	I spend a significant time comparing my body to others.
12	I hate my body and I often isolate myself from others.
13	I am preoccupied with my body.
14	I nourish my body so it has the strength and energy to achieve my physical goals.
16	I know that the significant others in my life will always find me attractive.
17	I don't see anything positive or even neutral about my body shape and size.
18	I'd be more attractive if I was thinner, more muscular, etc...
19	I wish I could change the way I look in the mirror.
22	I don't believe others when they tell me I look OK.
23	I hate the way I look in the mirror.
24	I accept society's ideal body shape and size as the best body shape and size.

Table 27. Statements to Change

Food=F Body=B	Statement Number	Statement
F	3	I have tried diet pills, laxatives, vomiting or extra time exercising in order to lose or maintain my weight.
F	7	I feel I don't eat well most of the time.
F	9	It's hard for me to enjoy eating with others.
F	13	I feel ashamed when I eat more than others or more than what I feel I should be eating.
F	16	I am afraid of getting fat.
F	23	Eating more than I wanted to makes me feel out of control.
B	8	I have days when I feel fat.
B	15	I have considered changing or have changed my body shape and size through surgical means, so I can accept myself.
B	20	I trust my body to find the weight it needs to be at so I can move and feel confident of my physical body.

Table 28. Statements to Replace

Food=F Body-B	Statement Number	Statement
F	7	I feel I don't eat well most of the time.
F	9	It's hard for me to enjoy eating with others.
F	13	I feel ashamed when I eat more than others or more than what I feel I should be eating.

Table 29. Program Issue Statements

Food=F Body=B	Statement Number	Statement
F	6	When I am upset or depressed I eat whatever I am hungry for without any guilt or shame.
B	2	Body image is not an issue for me.
B	3	I spend a significant amount of time exercising and dieting to change my body.
B	9	My body is beautiful to me.

Eating Issues & Body Image

Continuum

Where do you fit?

FOOD IS NOT AN ISSUE	CONCERNED WELL	FOOD PREOCCUPIED OBSESSED	DISRUPTIVE EATING PATTERNS	FAIRLY GOD SCORED
I am not concerned about what others think regarding what and how much I eat	I pay attention to what I eat but realize to maintain a healthy body.	I think about food a lot.	I have tried diet pills, laxatives, vomiting or extreme exercise to control my weight.	I regularly weigh myself and have exercise, vomit, use diet pills or laxatives to get rid of the food or calories.
When I am upset or depressed I eat what's not I can hungry for without any guilt or shame	I may go high more than what I like, but I enjoy eating and balance my pleasures with eating with my concerns for a healthy body.	It's hard for me to enjoy eating with others.	I have fasted or restricted eating for long periods of time in order to lose or maintain my weight.	My friends/family tell me I am too thin
I feel no guilt or shame no matter how much I eat or what I eat	I am moderate and flexible in goals for eating well.	I feel ashamed when I eat more than others or more than what I feel I should be eating	I feel strong when I can restrict how much I eat.	I am terrified of eating fat.
I see it as an important part of my life, but only as simple a small part of my time	I try to follow Dietary Guidelines for healthy eating	I wish I could change how much I want to eat and what I am hungry for.	Eating more than I wanted to makes me feel out of control.	When I let myself eat, I have a hard time controlling the amount of food I eat.
I treat my body to tell me what and how much to eat				I am afraid to eat in front of others.
Body image is not an issue for me	I like my body image equally on certain moments and my own self concept.	I spend a significant time checking my body in the mirror.	I have tried diet pills, laxatives, vomiting or extreme exercise to control my weight.	I often feel separated and distant from my body - as if it belongs to someone else.
My body is beautiful to me	I pay attention to my body and my appearance but not to the point to me, but it only occupies a small part of my day.	I spend a significant time comparing my body to others.	My body shape and size keeps me from dieting or finding someone who will treat me the way I want to be treated.	I hate my body and I often isolate myself from others.
My feelings about my body are not influenced by society's concept of an ideal body shape	I maintain my body as it but the strength and energy to achieve my physical goals.	I am preoccupied with my body.	I have considered changing or have changed my body shape and also thorough surgical procedure, as I can accept myself.	I don't see anything positive or even admirable about my body shape and size
I know that the significant others in my life still always find me attractive.	I accept society's ideal body shape and size as the best body shape and size	I am ashamed of my body.		I don't believe others when they tell me I look OK.
I treat my body to feed the weight. It needs to be at its I can move and feel confident of my physical body	I am able to accept myself and maintain a healthy body without losing my self-esteem.	I do more attractive if I wear makeup, more sensitive, etc...	I refish I could change the way I look in the mirror.	I hate the way I look in the mirror

Dr. Christopher Abbott

APPENDIX A

APPENDIX B

Eating Issues and Body Image Continuum Validation Study Questionnaire

1 Please arrange these headings in an order that you feel reflects a continuum of behaviors indicating beliefs and feelings about food and body image that range from one extreme to the opposite, by numbering them from 1 to 5 (1 reflecting " most healthy attitude" and 5 reflecting "least healthy attitude ")

a. ____Concerned Well; ____Disruptive Eating Patterns; ____Eating Disordered; ____Food is Not an Issue; ____Food Preoccupied/Obsessed.

b. ____Body Acceptance; ____Body Preoccupied/Obsessed; ____Body Hate/Disassociation ____Body Ownership; ____Distorted Body Image

2 Below you see the headings from part a again In the blanks under the headings, please write the number that corresponds to each statement that you feel "belongs" under the heading. (There are at least four and no more than six statements per heading Statements are used only once).

Concerned Well	Disruptive Eating patterns	Eating Disordered	Food Not an Issue	Food Preoccupied/ Obsessed
____	____	____	____	____
____	____	____	____	____
____	____	____	____	____
____	____	____	____	____
____	____	____	____	____
____	____	____	____	____

1. I am not concerned about what others think regarding what and how much I eat.

2. I pay attention to what I eat in order to maintain a healthy body

3. I have tried diet pills, laxatives, vomiting or extra time exercising in order to lose or maintain my weight.

4. I think about food a lot.

5. I regularly stuff myself and then exercise, vomit, use diet pills or laxatives to get rid of the food or calories.

6. When I am upset or depressed I eat whatever I am hungry for without any guilt or shame

7. I feel I don't eat well most of the time.

8. I may weigh more than what I like, but I enjoy eating and balance my pleasure with eating with my concern for a healthy body

9. It's hard for me to enjoy eating with others.

10. My friends/family tell me I am too thin

11. I feel no guilt or shame no matter how much I eat or what I eat.

12. I am terrified of eating fat.

13. I feel ashamed when I eat more than others or more than what I feel I should be eating

14. I am moderate and flexible in goals for eating well.

15. I feel strong when I can restrict how much I eat.

16. I am afraid of getting fat.

17. I try to follow the Dietary Guidelines for healthy eating

18. I trust my body to tell me what and how much to eat

19. I wish I could change how much I want to eat and what I am hungry for

20. Food is an important part of my life, but only occupies a small part of my time

21. I have fasted or avoided eating for long periods of time in order to lose or maintain my weight.

22. I am afraid to eat in front of others.

23. eating more than I wanted to makes me feel out of control.

24. When I let myself eat I have a hard time controlling the amount of food I eat.

3 Below you see the headings for part b again. Please follow the same directions—in the blanks under the headings, write the number that corresponds to each statement you feel "belongs" under the heading.

Body Acceptance	Body Preoccupied Obsessed	Body Hate Disassociation	Body Ownership	Distorted Body Image
____	____	____	____	____
____	____	____	____	____
____	____	____	____	____
____	____	____	____	____
____	____	____	____	____
____	____	____	____	____

1 I base my body image equally on social norms and my own self-concept.
2 Body image is not an issue for me.
3 I spend a significant amount of time exercising, and dieting to change my body.
4 I spend a significant time viewing my body in the mirror.
5. I often feel separated and distant from my body—as if it belongs to someone else.
6 My body shape and size keeps me from dating or finding someone who will treat me the way I want to be treated.
7 I pay attention to my body and my appearance because it is important to me, but it only occupies a small part of my day.
8. I have days when I feel fat.
9 My body is beautiful to me.
10. My feelings about my body are not influenced by society's concept of an ideal body shape.
11 I spend a significant time comparing my body to others.
12. I hate my body and I often isolate myself from others.
13 I am preoccupied with my body.
14 I nourish my body so it has the strength and energy to achieve my physical goals.
15. I have considered changing or have changed my body shape and size through surgical means, so I can accept myself.
16. I know that the significant others in my life will always find me attractive.
17 I don't see anything positive or even neutral about my body shape and size.
18 I'd be more attractive if I was thinner, more muscular, etc..
19 I wish I could change the way I look in the mirror.
20 I trust my body to find the weight it needs to be at so I can move and feel confident of my physical body.
21 I am able to assert myself and maintain a healthy body without losing my self-esteem.
22. I don't believe others when they tell me I look OK.
23 I hate the way I look in the mirror.
24. I accept society's ideal body shape and size as the best body shape and size.

Please answer the following questions:

1 Have you ever been preoccupied with food or weight loss? ____
2. Has a close friend or relative ever been preoccupied with food or weight loss? _____
3. What do you consider a healthy weight range for yourself? _____
Do you consider yourself presently to be at a "normal" weight, "underweight," or "overweight"? _____
4 Do you and your friends/family spend a significant amount of time discussing weight or weight loss? _____
5 Do you know what the signs and symptoms of Anorexia Nervosa and Bulimia Nervosa are? (you do not need to describe the signs, just answer yes or no). _____
6 What is your age? _____
7 What is your sex? F____ M_____

APPENDIX C

EDI-2 ITEM BOOKLET

David M. Garner, Ph.D

DIRECTIONS

Enter your name, the date, your age, sex, marital status, and occupation. Complete the questions on the rest of this page. Then turn to the inside of the booklet and carefully follow the instructions.

Name _____ Date _____

Age _____ Sex _____ Marital status _____ Occupation _____

A. Current weight _____ pounds

B. Height: _____ feet _____ inches

C. Highest past weight excluding pregnancy: _____ pounds

How long ago did you first reach this weight? _____ months

How long did you weigh this weight? _____ months

D. Lowest weight as an adult: _____ pounds

How long ago did you first reach this weight? _____ months

How long did you weigh this weight? _____ months

E. What weight have you been at for the longest period of time? _____ pounds

At what age did you first reach this weight? _____ years old

F. If your weight has changed a lot over the years, is there a weight that you keep coming back to when you are not dieting? ___ Yes ___ No

If yes, what is this weight? _____ pounds

At what age did you first reach this weight? _____ years old

G. What is the most weight you have ever lost? _____ pounds

Did you lose this weight on purpose? ___ Yes ___ No

What weight did you lose to? _____ pounds

At what age did you reach this weight? _____ years old

H. What do you think your weight would be if you did not consciously try to control your weight? _____ pounds

I. How much would you like to weigh? _____ pounds

J. Age at which weight problems began (if any): _____ years old

K. Father's occupation: _____

L. Mother's occupation: _____

INSTRUCTIONS

First, write your name and the date in your EDI-2 Answer Sheet. Your ratings in the items below will be made in the EDI-2 Answer Sheet. The items ask about your attitudes, feelings and behavior. Some of the items relate to food or eating. Other items ask about your feelings about yourself.

For each item, decide if the item is true about you ALWAYS (A), USUALLY (U), OFTEN (O), SOMETIMES (S), RARELY (R), or NEVER (N). Circle the letter that corresponds to your rating on the EDI-2 Answer Sheet. For example, if your rating for an item is OFTEN, you would circle the O for that item on the Answer Sheet.

Respond to all of the items, making sure that you circle the letter for the rating that is true about you. DO NOT ERASE. If you need to change an answer, make an "X" through the incorrect letter and then circle the correct one.

---

1. I eat sweets and carbohydrates without feeling nervous.
2. I think that my stomach is too big.
3. I wish that I could return to the security of childhood.
4. I eat when I am upset.
5. I stuff myself with food.
6. I wish that I could be younger.
7. I think about dieting.
8. I get frightened when my feelings are too strong.
9. I think that my thighs are too large.
10. I feel ineffective as a person.
11. I feel extremely guilty after overeating.
12. I think that my stomach is just the right size.
13. Only outstanding performance is good enough in my family.
14. The happiest time in life is when you are a child.
15. I am open about my feelings.
16. I am terrified of gaining weight.
17. I trust others.
18. I feel alone in the world.
19. I feel satisfied with the shape of my body.
20. I feel generally in control of things in my life.
21. I get confused about what emotion I am feeling.
22. I would rather be an adult than a child.
23. I can communicate with others easily.
24. I wish I were someone else.
25. I exaggerate or magnify the importance of weight.
26. I can clearly identify what emotion I am feeling.
27. I feel inadequate.
28. I have gone on eating binges where I felt that I could not stop.
29. As a child, I tried very hard to avoid disappointing my parents and teachers.
30. I have close relationships.
31. I like the shape of my buttocks.
32. I am preoccupied with the desire to be thinner.
33. I don't know what's going on inside me.
34. I have trouble expressing my emotions to others.
35. The demands of adulthood are too great.
36. I hate being less than best at things.
37. I feel secure about myself.

39. I think about bingeing (overeating).
40. I feel happy that I am [illegible] and myself.
41. I get confused as to whether or not I am hungry.
42. I have a low opinion of myself.
43. I feel that I can achieve my standards.
44. My parents have expected excellence of me.
45. I worry that my feelings will get out of control.
46. I think my hips are too large.
47. I eat moderately in front of others and stuff myself when they're gone.
48. I feel bloated after eating a normal meal.
49. I feel that people are happiest when they are children.
50. If I gain a pound, I worry that I will keep gaining.
51. I feel that I am a worthwhile person.
52. When I am upset, I don't know if I am sad, frightened, or angry.
53. I feel that I *must do things* perfectly or not do them at all.
54. I have the thought of trying to vomit in order to lose weight.
55. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).
56. I think that my thighs are just the right size.
57. I feel empty inside (emotionally).
58. I can talk about personal thoughts or feelings.
59. The best years of your life are when you become an adult.
60. I think my buttocks are too large.
61. I have feelings I can't quite identify.
62. I eat or drink in secrecy.
63. I think that my hips are just the right size.
64. I have extremely high goals.
65. When I am upset, I worry that I will start eating.
66. People I really like tend to disappointing me.
67. I am ashamed of my human weaknesses.
68. Other people would say that I am emotionally unstable.
69. I would like to be in total control of my bodily urges.
70. I feel relaxed in most social situations.
71. I say things impulsively that I regret having said.
72. I go out of my way to experience pleasure.
73. I have to be careful of my tendency to abuse drugs.
74. I am outgoing with most people.
75. I feel trapped in relationships.
76. Self-denial makes me feel stronger spiritually.
77. People understand me well.
78. I can't get strange thoughts out of my head.
79. Eating for pleasure is a sign of moral weakness.
80. I am prone to outbursts of anger or rage.
81. I feel that people give me the credit I deserve.
82. I have to be careful of my tendency to abuse alcohol.
83. I believe that relaxing is simply a waste of time.
84. Others would say that I get irritated easily.
85. I feel like I am losing control everywhere.

85 I experience marked mood shifts

86 I am embarrassed by my bodily urges

87 I would rather spend time by myself than with others

88 Suffering makes you a better person

89 I know that people love me

90 I feel like I must hurt myself or others.

91 I feel that I really know who I am.

APPENDIX D: CONTINUUM STATEMENT ANALYSIS

PIMA COLLEGE STUDENTS:

1. Food is not an issue

Statement	Correct	Concerned Well	Food Preoccupied	Disruptive Eating Patterns	Eating Disordered
1- I am not concerned about what others think regarding what and how much I eat	82 82%	10 10%	6 6%	2 2%	0
6- When I am upset or depressed I eat whatever I am hungry for without any guilt or shame	9 9%	5 5%	3 3%	75 75%	8 8%
11- I feel no guilt or shame no matter how much I eat or what I eat	77 77%	0	5 5%	9 9%	9 9%
18- I trust my body to tell me what and how much to eat	65 65%	26 26%	2 2%	5 5%	2 2%
20- Food is an important part of my life, but only occupies a small part of my time	81 81%	17 17%	0	0	2 2%

2. Concerned Well

Statement	Food Not an Issue	Correct	Food Preoccupied	Disruptive Eating Patterns	Eating Disordered
2- I pay attention to what I eat in order to maintain a healthy body	7 7%	88 88%	4 4%	0	1 1%
8- I may weigh more than what I like, but I enjoy eating and balance my pleasure with eating with my concern for a healthy body	46 46%	47 47%	0	6 6%	1 1%
14- I am moderate and flexible in my goals for eating well	25 25%	74 74%	1 1%	0	0
17- I try to follow the Dietary Guidelines for healthy eating	12 12%	82 82%	3 3%	3 3%	0

3.. Food Preoccupied/Obsessed

Statement	Food Is Not an Issue	Concerned Well	Correct	Disruptive Eating Patterns	Eating Disordered
4- I think about food a lot	10 10%	0	85 85%	5 55	0
7- I feel I don't eat well most of the time	13 13%	33 33%	8 8%	40 40%	8 8%
9- It's hard for me to enjoy eating with others	3 3%	3 3%	36 36%	31 31%	27 27%
13- I feel ashamed when I eat more than others or more than what I feel I should be eating.	3 3%	2 2%	57 57%	27 27%	11 11%
16- I am afraid of getting fat	2 2%	7 7%	60 60%	6 6%	25 25%
19- I wish I could change how much I want to eat and what I am hungry for	1 1%	7 7%	55 55%	11 11%	3 3%

4. Disruptive Eating Patterns

Statement	Food is Not an Issue	Concerned Well	Food Preoccupied	Correct	Eating Disordered
3- I have tried diet pills, laxatives, vomiting or extra time exercising in order to lose or maintain my weight	0	3 3%	17 17%	14 14%	66 66%
15 I feel strong when I can restrict how much I eat	6 6%	22 22%	24 24%	19 19%	29 29%
21- I have fasted or avoided eating for long periods of time in order to lose or maintain my weight	2 2%	2 2%	18 18%	64 64%	14 14%
23- Eating more than I wanted to makes me feel out of control	0	3 3%	18 18%	48 48%	31 31%

5. Eating Disordered

Statement	Food is Not an Issue	Concerned Well	Food Preoccupied	Disruptive Eating Patterns	Correct
5- I regularly stuff myself and then exercise, vomit, use diet pills or laxatives to get rid of the food or calories	0	0	2 2%	15 15%	83 83%
10- My friends/family tell me I am too thin	19 19%	26 26%	14 14%	7 7%	33 33%
12- I am terrified of eating fat	0	4 4%	63 63%	7 7%	26 26%
22- I am afraid to eat in front of others	0	1 1%	4 4%	27 27%	68 68%
24- When I let myself eat I have a hard time controlling the amount of food I eat	0	2 2%	46 46%	23 23%	29 29%

6. Body Ownership

Statement	Correct	Body Acceptance	Body Preoccupied	Distorted Body Image	Body Hate/ Disassociation
2- Body Image is not an issue for me	26 26%	71 71%	3 3%	0	0
9- My body is beautiful to me	28 28%	71 71%	0	0	0
10- My feelings about my body are not influenced by society's concept of an ideal body shape	47 47%	52 52%	0	1 1%	0
16- I know that the significant others in my life will always find me attractive	31 31%	68 68%	1 1%	0	0
20- I trust my body to find the weight it needs to be at so I can move and feel confident of my physical body	55 55%	39 39%	2 25	3 3%	1 1%

7. Body Acceptance

Statement	Body Ownership	Correct	Body Preoccupied	Distorted Body Image	Body Hate/ Disassociation
1- I base my body image equally on social norms and on my own self-concept	40 40%	34 34%	18 18%	8 8%	0
7- I pay attention to my body and my appearance because it is important to me, but it only occupies a small part of my day	45 45%	50 50%	4 4%	1 1%	0
14- I nourish my body so it has the strength and energy to achieve my physical goals	40 40%	57 57%	2 2%	1 1%	0
21- I am able to assert myself and maintain a healthy body without losing my self-esteem	55 55%	41 41%	4 45	0	0

8. Body Preoccupied/Obsessed

Statement	Body Ownership	Body Acceptance	Correct	Distorted Body Image	Body Hate/ Disassociation
4- I spend a significant time viewing my body in the mirror	5 5%	4 4%	62 62%	20 20%	9 9%
8- I have days when I feel fat	7 7&	5 5%	37 37%	41 41%	10 10%
11- I spend a significant time comparing my body to others	4 4%	5 5%	83 83%	8 8%	0
13- I am preoccupied with my body	2 2%	2 2%	92 92%	0	4 4%
18- I'd be more attractive if I was thinner, more muscular, etc...	8 8%	4 4%	56 56%	22 22%	10 10%
24- I accept society's ideal body shape and size as the best body shape and size	10 10%	0	41 41%	47 47%	2 2%

9. Distorted Body Image

Statement	Body Ownership	Body Acceptance	Body Preoccupied	Correct	Body Hate/ Disassociation
3- I spend a significant amount of time exercising, and dieting to change my body	0	0	79 70%	5 5%	16 16%
6- My body shape and size keeps me from dating or finding someone who will treat me the way I want to be treated	4 4%	9 9%	6 6%	47 47%	34 34%
15- I have considered changing or have changed my body shape and size through surgical means, so I can accept myself	0	5 5%	31 31%	30 30%	34 34%
19- I wish I could change the way I look in the mirror	1 1%	3 3%	17 17%	60 69%	19 19%

10. Body Hate/Dissassociation

Statement	Body Ownership	Body Acceptance	Body Preoccupation	Distorted Body Image	Correct
5- I often feel separated and distant from my body—s if it belongs to someone else	11 11%	5 5%	2 2%	19 19%	63 63%
12- I hat my body and I often isolate myself from others	3 3%	3 3%	2 2%	12 12%	80 80%
17- I don't see anything positive or even neutral about my body shape and size	2 2%	7 7%	0	26 26%	65 65%
22- I don't believe others when they tell me I look OK	0	0	11 11%	51 51%	38 38%
23- I hate the way I look in the mirror	0	0	5 5%	29 29%	66 66%

MENTAL HEATLH AND NUTRITION PROFESSIONALS

1. Food is not an issue

Statement	Correct	Concerned Well	Food Preoccupied	Disruptive Eating Patterns	Eating Disordered
1- Il am not concerned about what others think regarding what and how much I eat	18 90%	0	1 5%	1 5%	0
6- When I am upset or depressed I eat whatever I am hungry for without any guilt or shame	7 35%	0	1 5%	11 55%	1 5%
11- I feel no guilt or shame no matter how much I eat or what I eat	20 100%	0	0	0	0
18- I trust my body to tell me what and how much to eat	17 85%	3 15%	0	0	0
20- Food is an important part of my life, but only occupies a small part of my time	11 55%	8 40%	1 5%	0	0

2. Concerned Well

Statement	Food Not an Issue	Correct	Food Preoccupied	Disruptive Eating Patterns	Eating Disordered
2- I pay attention to what I eat in order to maintain a health body	2 10%	17 85%	0	1 5%	0
8- I may weigh more than what I like, but I enjoy eating and balance my pleasure with eating with my concern for a healthy body	5 25%	14 70%	1 5%	0	0
14- I am moderate and flexible in my goals for eating well	2 10%	18 90%	0	0	0
17- I try to follow the Dietary Guidelines for healthy eating	2 10%	18 90%	0	0	0

3. Food Preoccupied/Obsessed

Statement	Food Is Not an Issue	Concerned Well	Correct	Disruptive Eating Patterns	Eating Disordered
4- I think about food a lot	0	0	19 95%	1 5%	0
7- I feel I don't eat well most of the time	2 10%	3 15%	6 30%	9 45%	0
9- It's hard for me to enjoy eating with others	0	0	2 10%	13 65%	5 25%
13- I feel ashamed when I eat more than others or more than what I feel I should be eating.	0	0	11 55%	4 20%	5 25%
16- I am afraid of getting fat	0	1 5%	13 65%	3 15%	3 15%
19- I wish I could change how much I want to eat and what I am hungry for	0	1 5%	14 70%	3 15%	0

4. Disruptive Eating Patterns

Statement	Food is Not an Issue	Concerned Well	Food Preoccupied	Correct	Eating Disordered
3- I have tried diet pills, laxatives, vomiting or extra time exercising in order to lose or maintain my weight	0	0	2 10%	8 40%	11 55%
15 I feel strong when I can restrict how much I eat	0	0	2 10%	13 65%	5 25%
21- I have fasted or avoided eating for long periods of time in order to lose or maintain my weight	0	0	8 40%	12 60%	3 15%
23- Eating more than I wanted to makes me feel out of control	0	0	10 50-%	4 20%	5 25%

5. Eating Disordered

Statement	Food is Not an Issue	Concerned Well	Food Preoccupied	Disruptive Eating Patterns	Correct
5- I regularly stuff myself and then exercise, vomit, use diet pills or laxatives to get rid of the food or calories	0	0	3 15%	8 40%	7 35%
10- My friends/family tell me I am too thin	1 5%	1 5%	3 15%	1 5%	14 70%
12- I am terrified of eating fat	0	0	10 50%	0	10 50%
22- I am afraid to eat in front of others	0	3 15%	0	9 45%	8 40%
24- When I let myself eat I have a hard time controlling the amount of food I eat	0	0	1 5%	4 20%	15 75%

6. Body Ownership

Statement	Correct	Body Acceptance	Body Preoccupied	Distorted Body Image	Body Hate/ Disassociation
2- Body Image is not an issue for me	7 35%	13 65%	0	0	0
9- My body is beautiful to me	5 25%	14 70%	1 5%	0	0
10- My feelings about my body are not influenced by society's concept of an ideal body shape	10 50%	8 40%	2 10%	0	0
16- I know that the significant others in my life will always find me attractive	5 25%	12 60%	1 5%	1 5%	1 5%
20- I trust my body to find the weight it needs to be at so I can move and feel confident of my physical body	16 80%	3 15%	1 5%	0	0

7. Body Acceptance

Statement	Body Ownership	Correct	Body Preoccupied	Distorted Body Image	Body Hate/ Disassociation
1- I base my body image equally on social norms and on my own self-concept	9 45%	10 50%	0	1 5%	0
7- I pay attention to my body and my appearance because it is important to me, but it only occupies a small part of my day	9 45%	10 50%	0	1 5%	0
14- I nourish my body so it has the strength and energy to achieve my physical goals	11 55%	9 45%	0	1 5%	0
21- I am able to assert myself and maintain a healthy body without losing my self-esteem	10 50%	8 40%	1 5%	1 5%	0

8. Body Preoccupied/Obsessed

Statement	Body Ownership	Body Acceptance	Correct	Distorted Body Image	Body Hate/ Disassociation
4- I spend a significant time viewing my body in the mirror	0	0	18 90%	2 10%	0
8- I have days when I feel fat	4 20%	4 20%	5 25%	7 35%	0
11- I spend a significant time comparing my body to others	0	2 10%	16 80%	2 10%	0
13- I am preoccupied with my body	0	0	19 95%	0	1 5%
18- I'd be more attractive if I was thinner, more muscular, etc...	3 15%	0	5 25%	8 40%	3 15%
24- I accept society's ideal body shape and size as the best body shape and size	0	1 5%	8 40%	10 50%	1 5%

9. Distorted Body Image

Statement	Body Ownership	Body Acceptance	Body Preoccupied	Correct	Body Hate/ Disassociation
3- I spend a significant amount of time exercising, and dieting to change my body	0	0	18 90%	0	3 15%
6- My body shape and size keeps me from dating or finding someone who will treat me the way I want to be treated	0	1 5%	3 15%	11 55%	5 25%
15- I have considered changing or have changed my body shape and size through surgical means, so I can accept myself	0	0	5 15%	9 45%	6 30%
19- I wish I could change the way I look in the mirror	0	0	1 5%	13 65%	6 30%

10. Body Hate/Dissassociation

Statement	Body Ownership	Body Acceptance	Body Preoccupation	Distorted Body Image	Correct
5- I often feel separated and distant from my body—as if it belongs to someone else	0	0	1 5%	4 20%	15 75%
12- I hate my body and I often isolate myself from others	0	0	0	5 25%	15 75%
17- I don't see anything positive or even neutral about my body shape and size	0	2 10%	0	8 40%	10 50%
22- I don't believe others when they tell me I look OK	0	0	0	13 65%	7 35%
23- I hate the way I look in the mirror	0	0	2 10%	2 10%	16 80%

APPENDIX E

DSM-IV Diagnostic Criteria for Eating Issues

307.1 Anorexia Nervosa

A. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.

D. In postmenarcheal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration.)

Specify type:

Restricting Type: during the current episode of Anorexia Nervosa, the person has not regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting, misuse of laxatives, diuretics, or enemas).

Binge-Eating/Purging Type: during the current episode of Anorexia Nervosa, the person has regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

307.51 Bulimia Nervosa

A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

1)eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.

2) a sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).

B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

Specify type:

Purging Type: during the current episode of Bulimia Nervosa the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.

Nonpurging Type: during the current episode of Bulimia Nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.

APPENDIX F

Description of the Data Analysis Program

The software analysis consisted of three steps. The first step was to input the Eating Issues and Body Image Continuum data and store it on disk. The next step was to enter the header data, and store it on disk. To facilitate the entry of data, the data was entered into a form formatted like the questionnaire. The final step, the analysis, produced two files, one that displayed all the data for each questionnaire, along with a brief summary including the score. The other contained the histogram data for each score. The source code for this program follows.

Controlunit.cpp

```
//---------------------------------------------------------------------------
#include <vcl.h>
#include <stdio.h>
#include <stdlib.h>
#pragma hdrstop
#include "Controlunit.h"
FILE *DataFile;
FILE *NextSlotNum;
String DataFileName;
int count=0;

//---------------------------------------------------------------------------
#pragma package(smart_init)
#pragma resource "*.dfm"
TForm1 *Form1;
//---------------------------------------------------------------------------
__fastcall TForm1::TForm1(TComponent* Owner)
    : TForm(Owner)
{
}
//---------------------------------------------------------------------------



void __fastcall TForm1::R1C1Change(TObject *Sender)
{
L_1_1->Caption=R1C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R2C1Change(TObject *Sender)
{
L_2_1->Caption=R2C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R3C1Change(TObject *Sender)
{
L_3_1->Caption=R3C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R4C1Change(TObject *Sender)
{
L_4_1->Caption=R4C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R5C1Change(TObject *Sender)
{
L_5_1->Caption=R5C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R6C1Change(TObject *Sender)
{
L_6_1->Caption=R6C1->Text;
}
//---------------------------------------------------------------------------
```

Continuum.cpp

```
void __fastcall TForm1::R1C1Change(TObject *Sender)
{
L_1_1->Caption=R1C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R2C1Change(TObject *Sender)
{
L_2_1->Caption=R2C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R3C1Change(TObject *Sender)
{
L_3_1->Caption=R3C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R4C1Change(TObject *Sender)
{
L_4_1->Caption=R4C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R5C1Change(TObject *Sender)
{
L_5_1->Caption=R5C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R6C1Change(TObject *Sender)
{
L_6_1->Caption=R6C1->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R1C3Change(TObject *Sender)
{
L_1_3->Caption=R1C3->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R2C3Change(TObject *Sender)
{
L_2_3->Caption=R2C3->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R3C3Change(TObject *Sender)
{
L_3_3->Caption=R3C3->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R5C3Change(TObject *Sender)
{
L_5_3->Caption=R5C3->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R6C3Change(TObject *Sender)
{
L_6_3->Caption=R6C3->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R1C4Change(TObject *Sender)
{
L_1_4->Caption=R1C4->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R4C4Change(TObject *Sender)
{
L_4_4->Caption=R4C4->Text;
}
//---------------------------------------------------------------------------
void __fastcall TForm1::R5C4Change(TObject *Sender)
{
L_5_4->Caption=R5C4->Text;
```

Control.cpp

```
139:
140: //---------------------------------------------------------------------------
141: void __fastcall TForm1::R6C4Change(TObject *Sender)
142: {
143: L_6_4->Caption=R6C4->Text;
144: }
145: //---------------------------------------------------------------------------
146: void __fastcall TForm1::R6C5Change(TObject *Sender)
147: {
148: L_6_5->Caption=R6C5->Text;
149: }
150: //---------------------------------------------------------------------------
151: void __fastcall TForm1::R5C5Change(TObject *Sender)
152: {
153: L_5_5->Caption=R5C5->Text;
154: }
155: //---------------------------------------------------------------------------
156: void __fastcall TForm1::R4C5Change(TObject *Sender)
157: {
158: L_4_5->Caption=R4C5->Text;
159: }
160: //---------------------------------------------------------------------------
161: void __fastcall TForm1::R3C5Change(TObject *Sender)
162: {
163: L_3_5->Caption=R3C5->Text;
164: }
165: //---------------------------------------------------------------------------
166: void __fastcall TForm1::R2C5Change(TObject *Sender)
167: {
168: L_2_5->Caption=R2C5->Text;
169: }
170: //---------------------------------------------------------------------------
171: void __fastcall TForm1::R1C5Change(TObject *Sender)
172: {
173: L_1_5->Caption=R1C5->Text;
174: }
175: //---------------------------------------------------------------------------
176: void __fastcall TForm1::R2C4Change(TObject *Sender)
177: {
178: L_2_4->Caption=R2C4->Text;
179: }
180: //---------------------------------------------------------------------------
181: void __fastcall TForm1::R3C4Change(TObject *Sender)
182: {
183: L_3_4->Caption=R3C4->Text;
184: }
185: //---------------------------------------------------------------------------
186: void __fastcall TForm1::R4C3Change(TObject *Sender)
187: {
188: L_4_3->Caption=R4C3->Text;
189: }
190: //---------------------------------------------------------------------------
191:
192: void __fastcall TForm1::NextButtonClick(TObject *Sender)
193: {
194: int temp;
195: char string[25];
196:
197:     Write Subject "SubjectNum" to file
198:     ------------------------------------------------------
199:     Eating Issues Data
200:  sprintf(DataFile, "%s, 01; ", SubjectNum->Text.c_str());
201:  fprintf(DataFile, "%s, %s, %s, %s, %s, %s, ",
202:     R1C1->Text.c_str(),
203:     R2C1->Text.c_str(),
204:     R3C1->Text.c_str(),
205:     R4C1->Text.c_str(),
206:     R5C1->Text.c_str(),
207:     R6C1->Text.c_str()
```

```
 );
 fprintf(DataFile, "%s, %s, %s, %s, %s, %s; ",
     R1C2->Text.c_str(),
     R2C2->Text.c_str(),
     R3C2->Text.c_str(),
     R4C2->Text.c_str(),
     R5C2->Text.c_str(),
     R6C2->Text.c_str()
 );
 fprintf(DataFile, "%s, %s, %s, %s, %s, %s; ",
     R1C3->Text.c_str(),
     R2C3->Text.c_str(),
     R3C3->Text.c_str(),
     R4C3->Text.c_str(),
     R5C3->Text.c_str(),
     R6C3->Text.c_str()
 );
 fprintf(DataFile, "%s, %s, %s, %s, %s, %s; ",
     R1C4->Text.c_str(),
     R2C4->Text.c_str(),
     R3C4->Text.c_str(),
     R4C4->Text.c_str(),
     R5C4->Text.c_str(),
     R6C4->Text.c_str()
 );
 fprintf(DataFile, "%s, %s, %s, %s, %s, %s; ",
     R1C5->Text.c_str(),
     R2C5->Text.c_str(),
     R3C5->Text.c_str(),
     R4C5->Text.c_str(),
     R5C5->Text.c_str(),
     R6C5->Text.c_str()
 );
 fprintf(DataFile, "\n");
 // ====================================================
 // Body Image Data
 fprintf(DataFile, "%s, BI; ", SubjectNum->Text.c_str());
 fprintf(DataFile, "%s, %s, %s, %s, %s, %s; ",
     B_R1C1->Text.c_str(),
     B_R2C1->Text.c_str(),
     B_R3C1->Text.c_str(),
     B_R4C1->Text.c_str(),
     B_R5C1->Text.c_str(),
     B_R6C1->Text.c_str()
 );
 fprintf(DataFile, "%s, %s, %s, %s, %s, %s; ",
     B_R1C2->Text.c_str(),
     B_R2C2->Text.c_str(),
     B_R3C2->Text.c_str(),
     B_R4C2->Text.c_str(),
     B_R5C2->Text.c_str(),
     B_R6C2->Text.c_str()
 );
 fprintf(DataFile, "%s, %s, %s, %s, %s, %s; ",
     B_R1C3->Text.c_str(),
     B_R2C3->Text.c_str(),
     B_R3C3->Text.c_str(),
     B_R4C3->Text.c_str(),
     B_R5C3->Text.c_str(),
     B_R6C3->Text.c_str()
 );
 fprintf(DataFile, "%s, %s, %s, %s, %s, %s; ",
     B_R1C4->Text.c_str(),
     B_R2C4->Text.c_str(),
     B_R3C4->Text.c_str(),
     B_R4C4->Text.c_str(),
     B_R5C4->Text.c_str(),
     B_R6C4->Text.c_str()
 );
```

Unit1Num1.cpp

```
277:  fprintf DataFile, "%s, %s, %s, %s, %s, %s, ",
278:      B_R1C5->Text.c_str() ,
279:      B_R2C5->Text.c_str() ,
280:      B_R3C5->Text.c_str() ,
281:      B_R4C5->Text.c_str() ,
282:      B_R5C5->Text.c_str() ,
283:      B_R6C5->Text.c_str()
284:    );
285:  fprintf DataFile, "\n" );
286:
287:  R1C1->Text= "";
288:  R2C1->Text= "";
289:  R3C1->Text= "";
290:  R4C1->Text= "";
291:  R5C1->Text= "";
292:  R6C1->Text= "";
293:
294:  R1C2->Text= "";
295:  R2C2->Text= "";
296:  R3C2->Text= "";
297:  R4C2->Text= "";
298:  R5C2->Text= "";
299:  R6C2->Text= "";
300:
301:  R1C3->Text= "";
302:  R2C3->Text= "";
303:  R3C3->Text= "";
304:  R4C3->Text= "";
305:  R5C3->Text= "";
306:  R6C3->Text= "";
307:
308:  R1C4->Text= "";
309:  R2C4->Text= "";
310:  R3C4->Text= "";
311:  R4C4->Text= "";
312:  R5C4->Text= "";
313:  R6C4->Text= "";
314:
315:  R1C5->Text= "";
316:  R2C5->Text= "";
317:  R3C5->Text= "";
318:  R4C5->Text= "";
319:  R5C5->Text= "";
320:  R6C5->Text= "";
321:
322:  B_R1C1->Text= "";
323:  B_R2C1->Text= "";
324:  B_R3C1->Text= "";
325:  B_R4C1->Text= "";
326:  B_R5C1->Text= "";
327:  B_R6C1->Text= "";
328:
329:  B_R1C2->Text= "";
330:  B_R2C2->Text= "";
331:  B_R3C2->Text= "";
332:  B_R4C2->Text= "";
333:  B_R5C2->Text= "";
334:  B_R6C2->Text= "";
335:
336:  B_R1C3->Text= "";
337:  B_R2C3->Text= "";
338:  B_R3C3->Text= "";
339:  B_R4C3->Text= "";
340:  B_R5C3->Text= "";
341:  B_R6C3->Text= "";
342:
343:  B_R1C4->Text= "";
344:  B_R2C4->Text= "";
345:  B_R3C4->Text= "";
```

```
Contnum1.cpp

346:   B_R4C4->Text= "";
347:   B_R5C4->Text= "";
348:   B_R6C4->Text= "";
349:
350:   B_R1C5->Text= "";
351:   B_R2C5->Text= "";
352:   B_R3C5->Text= "";
353:   B_R4C5->Text= "";
354:   B_R5C5->Text= "";
355:   B_R6C5->Text= "";
356:
357:   temp = atoi( SubjectNum->Text.c_str() );
358:   temp --;
359:   itoa(temp, string, 10);
360:   SubjectNum->Text = String(string);
361:   count --;
362:
363:
364:   //---------------------------------------------------------------------------
365:
366: void __fastcall TForm1::FileOpenClick(TObject *Sender)
367: {
368:   DataFile = fopen(SaveFile->Text.c_str(), "wt");
369: }
370: //---------------------------------------------------------------------------
371:
372: void __fastcall TForm1::FileCloseClick(TObject *Sender)
373: {
374:   // cont.dat contains the next subject when appending to a file
375:   NextSubjNum=fopen("C:\Data\cont.dat", "w");
376:   //   count --;
377:   fprintf(NextSubjNum, "%d", count);
378:   fcloseall();
379:
380:
381: }
382:   //---------------------------------------------------------------------------
383:
384: void __fastcall TForm1::AppendButtonClick(TObject *Sender)
385: {
386: int SubjNum;
387: char *junk;
388: char string[25];
389: char line[300];
390:
391:   DataFileName=SaveFile->Text;
392:
393:   if ((DataFile = fopen(DataFileName.c_str(), "at")) == NULL)
394:     Debug->Text = "Can't open " + DataFileName;
395:     exit;
396:   }
397:    if ((NextSubjNum = fopen("C:\Data\cont.dat", "r")) == NULL)
398:     Debug->Text = "Can't open C:\Data\cont.dat";
399:     exit;
400:    }
401:
402:    Cont.dat contains the next subj numbe
403:   fgets(string, sizeof(string), NextSubjNum);
404:   string[sizeof(string)]='\0';
405:   sscanf(string, "%d", &count);
406:     string[sizeof(string)]=0;
407:   fclose(NextSubjNum);
408:   itoa(count, string, 10);
409:   Debug->Text = String(string);
410:
411:   //
412:   temp = atoi( SubjectNum->Text.c_str
413:   temp --;
414:   itoa(temp, string, 10);
```

```
Unit1Num1.cpp

   SubjectNum->Text = (String) string;
 *
 *
  *
 while (fscanf(DataFile, "%s", line) != EOF)
 {    Debug->Text = (String) count;
   count ++;
   itoa(count, junk, 10);
   Debug->Text = (String) junk;
 }
 *
 itoa( count, string, 10 );
 SubjectNum->Text= (String) string;

 //---------------------------------------------------------------------------
 //---------------------------------------------------------------------------
 //---------------------------------------------------------------------------
 //---------------------------------------------------------------------------
 //---------------------------------------------------------------------------
 //---------------------------------------------------------------------------
 //---------------------------------------------------------------------------
void __fastcall TForm1::NextButton2Click(TObject *Sender)
{
  int temp;
  char string[25];

  fprintf(DataFile, "%s, BIH, ", NextHdr->Text.c_str());
  fprintf(DataFile, "%s, %s, %s, %s, %s \n",
    BI1->Text.c_str(),
    BI2->Text.c_str(),
    BI3->Text.c_str(),
    BI4->Text.c_str(),
    BI5->Text.c_str()
  );
  fprintf(DataFile, "%s, BIH, ", NextHdr->Text.c_str() );
  fprintf(DataFile, "%s, %s, %s, %s, %s \n",
    BI1->Text.c_str(),
    BI2->Text.c_str(),
    BI3->Text.c_str(),
    BI4->Text.c_str(),
    BI5->Text.c_str()
    );

  temp = atoi( NextHdr->Text.c_str() );
  temp ++;
  itoa( temp, string, 10 );
  NextHdr->Text = (String) string;
  count ++;

    BI1->Text = "";
    BI2->Text = "";
    BI3->Text = "";
    BI4->Text = "";
    BI5->Text = "";

    BI1->Text = "";
    BI1->Text = "";
    BI1->Text = "";
    BI4->Text = "";
    BI5->Text = "";

 *
 //---------------------------------------------------------------------------
```

Control1.cpp

```
484:
485:
486: void __fastcall TForm1::DblClick(TObject *Sender)
487: {
488: FILE *fp1, *fp2;
489: FILE *summary, *full, *junk;
490: char string[255];
491: int SumNum, BIN[6], BIN[6], score, sub_score;
492: int count;
493: int j;
494: char NumString[25];
495: int sum[75];
496: int TScore;
497: int esp[40];
498: int E_ans[26], B_ans[26];
499: int client_num, response_count, column_number;
500:   for (int i=0; i<100000; i++)    //DO NOTHING
501:
502: for  int i=0; i<=75; i++  sum[i]=0;
503:
504: // Open header files
505: Message->Caption = "Opening C:/Data/Hdr.dat...";
506:
507:    if ( (fp1 = fopen("C:/Data/Hdr.dat", "rt")) == NULL)
508:     Message->Caption = "Can't open C:/Data/Hdr.dat" ;
509:    }
510:   Message->Caption = "Hdr.dat OK";
511:
512:    if ( (summary = fopen("C:/Data/summary.dat", "wt")) == NULL)
513:     Message->Caption = "Can't open C:/Data/summary.dat" ;
514:    }
515:   Message->Caption = "Summary.dat OK";
516:
517:    if ( (full = fopen("C:/Data/full.dat", "wt")) == NULL)
518:     Message->Caption = "Can't open C:/Data/full.dat" ;
519:    }
520:   Message->Caption = "Full.dat OK";
521:
522:    if ( (fp2 = fopen("C:/Data/file.dat", "rt")) == NULL)
523:     Message->Caption = "Can't open C:/Data/file.dat" ;
524:    }
525:   Message->Caption = "file.dat OK";
526:
527:   if ( (junk = fopen("C:/Data/test.dat", "wt")) == NULL)
528:     Message->Caption = "Can't open C:/Data/test.dat" ;
529:    }
530:   Message->Caption = "test.dat OK";
531:
532: //-------------------------------------
533: // Initialize correct Responses
534:
535: E_ans[1]  = 1; E_ans[2]  = 2;
536: E_ans[3]  = 4; E_ans[4]  = 3;
537: E_ans[5]  = 5; E_ans[6]  = 1;
538: E_ans[7]  = 3; E_ans[8]  = 2;
539: E_ans[9]  = 3; E_ans[10] = 5;
540: E_ans[11] = 1; E_ans[12] = 5;
541: E_ans[13] = 3; E_ans[14] = 2;
542: E_ans[15] = 4; E_ans[16] = 3;
543: E_ans[17] = 2; E_ans[18] = 1;
544: E_ans[19] = 3; E_ans[20] = 1;
545: E_ans[21] = 4; E_ans[22] = 5;
546: E_ans[23] = 4; E_ans[24] = 5;
547:
548: B_ans[1]  = 2; B_ans[2]  = 1;
549: B_ans[3]  = 4; B_ans[4]  = 3;
550: B_ans[5]  = 5; B_ans[6]  = 4;
551: B_ans[7]  = 2; B_ans[8]  = 3;
552: B_ans[9]  = 1; B_ans[10] = 1;
```

```
Unit1.cpp

   B_ans[11] = 3; B_ans[12] = 5;
   B_ans[13] = 3; B_ans[14] = 2;
   B_ans[15] = 4; B_ans[16] = 1;
   B_ans[17] = 5; B_ans[18] = 3;
   B_ans[19] = 4; B_ans[20] = 1;
   B_ans[21] = 2; B_ans[22] = 5;
   B_ans[23] = 3; B_ans[24] = 3;

   //-------------------------------------
   //  Form1->Memo1->Lines[1] = "Done";
   //  Form1->Memo1->Lines += ; TStrings * ; "Done";
   //-------------------------------------
   // Evaluate Headers
   // Sample input:2 4 3 5 2 1
   // Correct input:0 2 4 5 1 3  EIH
   // Correct input:0 2 3 5 1 4  BIH
   //-------------------------------------

for (count=1; count <=110; count++
   score = 0;
   sub_score=0 ;

   // Print Header to file
   fprintf(full, "************************** \n" );
   fprintf(full, "*** Client #%d \n", count );

// Get EIH Line
   fgets(string, sizeof(string), fp);
   string[sizeof(string)]=0;
   sscanf(string, "%c %c %c %c %c %d",
     &(EIH[0]), &(EIH[1]),
     &(EIH[2]), &(EIH[3]), &(EIH[4]), &(EIH[5]) );

   sub_score=0 ;
   if ( EIH[1]==1 ) sub_score++;
   if ( EIH[2]==2 ) sub_score++;
   if ( EIH[3]==3 ) sub_score++;
   if ( EIH[4]==4 ) sub_score++;
   if ( EIH[5]==5 ) sub_score++;
   if (sub_score == 5) sub_score += 1;
   score += sub_score;
   fprintf(full, "Answers, EIH: %d %d %d %d %d \n",
     EIH[1], EIH[2], EIH[3], EIH[4], EIH[5] );

// Get BIH Line

   fgets(string, sizeof(string), fp);
   string[sizeof(string)]=0;
   sscanf(string, "%c %d %d %c %c %d",
     &(BIH[0]), &(BIH[1]),
     &(BIH[2]), &(BIH[3]), &(BIH[4]), &(BIH[5]) );

   sub_score=0 ;
   if ( BIH[1]==1 ) sub_score++;
   if ( BIH[2]==2 ) sub_score++;
   if ( BIH[3]==3 ) sub_score++;
   if ( BIH[4]==4 ) sub_score++;
   if ( BIH[5]==5 ) sub_score++;
   if (sub_score == 5) sub_score += 1;
   score += sub_score;
   fprintf(full, "Answers, BIH: %d %d %d %d %d \n",
     BIH[1], BIH[2], BIH[3], BIH[4], BIH[5] );
    End Header Analysis

   //-------------------------------------
   // Evaluate Questionaires
   //-------------------------------------

fprintf (full, "============== \n");
```

cntlnum1.cpp

```
//
//    Process the Eating Issues Responses
//
fgets(string, sizeof(string), fp1);
string[sizeof(string)]=0;
fprintf(junk, "%s\n", string);
response_count = sscanf(string, "%d %d ", &client_num, &rsp[0]);
fprintf(junk, "%d %d \n", client_num, rsp[0]);

sscanf(string,
"%d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d
    &client_num,
    &rsp[0], &rsp[1], &rsp[2], &rsp[3], &rsp[4],
    &rsp[5], &rsp[6], &rsp[7], &rsp[8], &rsp[9],
    &rsp[10], &rsp[11], &rsp[12], &rsp[13], &rsp[14],
    &rsp[15], &rsp[16], &rsp[17], &rsp[18], &rsp[19],
    &rsp[20], &rsp[21], &rsp[22], &rsp[23], &rsp[24],
    &rsp[25], &rsp[26], &rsp[27], &rsp[28], &rsp[29],
    &rsp[30], &rsp[31], &rsp[32], &rsp[33], &rsp[34]

    );

QScore = 0; column_number=1;
for (j=0; j<=30; j++) {
    fprintf(junk, ">>>%d<<< \n", rsp[j]);

//    fprintf(junk, "E ans[1]=%d:: \n", E_ans[1]);
//    fprintf(junk, "E ans[rsp[j]]=%d:: \n", E_ans[rsp[j]]);
//    fprintf(junk, "%d \n", rsp[j]);

    if (-999 == rsp[j]) {
        column_number ++;
        fprintf(junk, "New Column: %d \n",column_number);

    }else{
        fprintf(junk, "%d \n", E_ans[rsp[j]]);
        if (column_number == E_ans[rsp[j]]) QScore += 2;
        if (1 == abs( column_number - E_ans[rsp[j]] ) ) QScore += 1;
    }
    if (column_number >= 6 ) break;
}
score += QScore;


// Process the Body Image Responses

fgets(string, sizeof(string), fp1);
string[sizeof(string)]=0;
fprintf(junk, "%s\n", string);
response_count = sscanf(string, "%d %d ", &client_num, &rsp[0]);
fprintf(junk, "%d %d \n", client_num, rsp[0]);

sscanf(string,
"%d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d %d
    &client_num,
    &rsp[0], &rsp[1], &rsp[2], &rsp[3], &rsp[4],
    &rsp[5], &rsp[6], &rsp[7], &rsp[8], &rsp[9],
    &rsp[10], &rsp[11], &rsp[12], &rsp[13], &rsp[14],
    &rsp[15], &rsp[16], &rsp[17], &rsp[18], &rsp[19],
    &rsp[20], &rsp[21], &rsp[22], &rsp[23], &rsp[24],
    &rsp[25], &rsp[26], &rsp[27], &rsp[28], &rsp[29],
    &rsp[30], &rsp[31], &rsp[32], &rsp[33], &rsp[34]

    );

QScore = 0; column_number=1;
for (j=0; j<=30; j++) {
    fprintf(junk, ">>>%d<<< \n", rsp[j]);

```

```
        fprintf(junk, "B_ans[].=%d\n", B_ans[]);
        fprintf(junk, "B_ans.rsp[] =%d ", B_ans.rsp[]);
        fprintf(junk, "%d \n", rsp[]);

     if (-999 == rsp[])
        column_number ++;
        fprintf(junk, "New Column: %d \n", column_number);

     else
        fprintf(junk, "%d \n", B_ans.rsp[]);
        if (column_number == B_ans.rsp[]) QScore += 2;
        if (1 == abs(column_number - B_ans.rsp[])) QScore += 1;

     if (column_number >= 6) break;

 score += QScore;




 // End Questionaire analysis

 //=========================================
 // Print Summary Data

   fprintf(full, "Final score: %d \n", score);
   fprintf(summary, "Client#%d: %d \n", count, score);

   cum[score]++;

 } // for (count)




 fprintf(summary, "\n ************************* \n");
 fprintf(summary, "    Cumulative data \n");
 for (int i=0; i<=60; i++)
     fprintf(summary, " Number of %d's: %d \n", i, cum[i]);

 /*
 //  Message->Caption = "";
   for (int i=0; i<6; i++){
     itoa(EIH[i], NumString, 10);
     Message->Caption += (String) NumString + ",";
     Memo1->Text += "\n";
     Memo1->Text += NumString;
   }
 */

 // Message->Caption += EIH[1];

  /*
     (String)EIH[1] +(String)EIH[2] +
     (String)EIH[3] +(String)EIH[4] +(String)EIH[5];
  */
   Message->Caption= (String)EIH[0] +
     (String)EIH[1] +(String)EIH[2] +
     (String)EIH[3] +(String)EIH[4] +(String)EIH[5];
  */
   fgets(string, sizeof(string), fd1);
   string[sizeof(string)]=0;
   sscanf(string, "%d %d %d %d %d %d %d",
     &EIH[0],junk, &EIH[1], &EIH[2], &EIH[3], &EIH[4], &EIH[5]);

 */
```

```
'antiaum1.sas

'47:
'48:
'49:
'50:
'51:
'52:
'53:
'54:    Evaluate EI and BI Data
'55:
'56:
'57:
'58:    Clean up
'59: fclose(all );
'60:
'61:    ------------------------------------------------------------------------
'62:
'63:
'64:
```

APPENDIX G

Human Subjects Committee

THE UNIVERSITY OF
ARIZONA.
HEALTH SCIENCES CENTER

1622 E. Mabel St.
P.O. Box 245137
Tucson, Arizona 85724-5137
(520) 626-6721

5 March 1999

Rachael Martin, B.A.
Advisor: Beth Stewart, Ph.D.
Department of Nutritional Sciences
c/o Campus Health Service, Room 213
PO BOX 210063

RE: PILOT VALIDATION STUDY OF THE "EATING ISSUES AND BODY IMAGE CONTINUUM"

Dear Ms. Martin:

We have received your Project Approval Form, data instruments, revised recruitment flyer, and revised consent form for the above referenced project. Regulations published by the U.S. Department of Health and Human Services [45 CFR Part 46.101 (b) (2)] exempt this type of research from review by our Committee.

Please be advised that **clearance from academic and/or other official authorities for site(s) where proposed research is to be conducted must be obtained prior to performance of this study. Evidence of this must be submitted to the Human Subjects Committee.**

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely,

John D. Palmer

John D. Palmer, Ph.D., M.D.
Chairman
Human Subjects Committee

JDP/js
cc: Department/College Review Committee

PimaCountyCommunityCollegeDistrict

District Central Office

[illegible]

April 9, 1999

Ms. Rachael Martin
Campus Health Services
University of Arizona
Tucson, AZ 85721

Dear Ms. Martin:

The purpose of this letter is to inform you that Pima Community College District Central Office has completed its human subjects review of your research proposal, "Pilot Validation Study of the 'Eating Issues and Body Image Conunuum'." The College approves the project, as proposed.

Please be advised that should you make any substantive change in your data collection procedures you will need to inform my office, in writing, of the change prior to implementation.

Sincerely,

Louis C. Attinasi, Jr.
Director of Institutional Research

APPENDIX H

PAR
Psychological Assessment Resources

P.O. BOX 998
33559-A FLORIDA 33549
tel 813 968-3003
fax 813 968-2598
http www.parinc.com

March 15, 2001

Rachael Martin, RD
4146 W. Orangewood Drive
Tucson, AZ 85741

Dear Ms. Martin:

In response to your recent request, permission is hereby granted to you to include a copy of the EDI-2 Items only in the appendix of your thesis entitled "Pilot Validation Study of the Eating Issues and Body Image Continuum"Testing Students at the University of Arizona, Tucson, AZ".

This Permission Agreement is subject to the following restrictions:

(1) The following credit line will be placed at the bottom of the verso title or similar front page on any and all material used:

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Sincerely,

Brenda D. VanAntwerp
Executive Assistant
to the Chairman and CEO

ACCEPTED AND AGREED:

BY: Rachael Martin, RD
RACHAEL MARTIN, RD

DATE: 3/23/01

SIGNATURE OF PROFESSOR REQUIRED:

I hereby agree to supervise this student's use of these materials. I also certify that I am qualified to use and interpret the results of these tests as recommended in the *Standards for Educational and Psychological Testing*, and I assume full responsibility for the proper use of all materials used per this Agreement.

BY: Kathlyn E Smiley

Printed Name: Kathlyn "Lynne" E Smiley

NO LONGER INTERESTED: INITIAL HERE _____, AND RETURN UNSIGNED AGREEMENT.

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