Screening for Eating Disorders Utilizing the Minnesota Multiphasic Personality Inventory

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Andrews University
School of Education

SCREENING FOR EATING DISORDERS UTILIZING
THE MINNESOTA MULTIPHASIC
PERSONALITY INVENTORY

A Dissertation
Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by
Roseann M. Woodka

June 1999
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May 21, 1999

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ABSTRACT

SCREENING FOR EATING DISORDERS UTILIZING
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PERSONALITY INVENTORY

by

Roseann M. Woodka

Chair: Jimmy Kijai
ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University

School of Education

Title: SCREENING FOR EATING DISORDERS UTILIZING THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

Name of researcher: Roseann M. Woodka

Name and degree of faculty chair: Jimmy Kijai, Ph.D.

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Problem

Eating disorders, in the form of anorexia nervosa and bulimia nervosa, have been recognized as significant mental-health issues for the last three decades, and the incidence is rising as we approach the new millennium. Currently, many women who come into a mental-health setting due to depression, anxiety, low self-esteem, relationship issues, sexual issues, etc., are also struggling with eating-disordered behaviors, thoughts, and feelings. These behaviors, thoughts, and feelings may remain well hidden from the counselor throughout the course of therapy or until they become severe and more difficult to treat. Because eating disorders are very complex involving psychological, physical, and mental functioning, and because the symptoms become progressively more severe, early
detection and intervention are essential for optimal outcome. Numerous assessment instruments exist but are not employed until obvious signs of eating disorders are exhibited. This study was designed to develop a subscale from the MMPI-2 items which will screen for eating disorders. Since the MMPI-2 is widely used early in the process of psychological evaluation, it was deemed the desirable instrument to use.

Method

The methodology for this study involved scale development and included four phases. Phase 1 was the initial study in which 354 MMPI answer sheets from eating-disordered individuals were compared to 238 MMPI answer sheets from non-eating-disordered individuals in order to determine MMPI items which differentiate between the two groups. Phase 2 utilized expert judges to evaluate the pertinence of each item on an eating-disorder questionnaire and to assign directionality. Phase 3 involved administering the items remaining after the first two phases to a new research sample comprised of eating-disordered and non-eating-disordered subjects. Phase 4 entailed eliminating the items which did not meet the total correlation criterion, and computing internal consistency using Cronbach's alpha coefficient for the remaining items.

Results

This research resulted in the development of a 68-item proposed MMPI-2 subscale to screen for anorexia nervosa and bulimia nervosa. Each item met the differential criterion at the .01 level and the correlation coefficient at .33. The proposed MMPI-2 subscale has a reliability of .971 and its composition is unifactorial.
Conclusions

This research establishes the efficacy of utilizing the MMPI-2 to screen for eating disorders. Additional administration of the instrument is needed before it should move from research into practice.
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CHAPTER I

INTRODUCTION

Overview

Psychological researchers and historians have found that eating disorders, in the form of Anorexia Nervosa (anorexia) and Bulimia Nervosa (bulimia), have been known for over 3 centuries (Bliss & Branch, 1960; Bruch, 1962, 1973; Brumberg, 1988; Freud, 1954; Gull, 1873, 1888; Janet, 1920, 1957; Lasegue, 1873; Lorand, 1943; Morton, 1689; Skrabanek, 1983; Wilson, Hogan, & Mintz, 1983) and the incidence of religious fasting has been documented since the 13th century (Bynum, 1986; Hammond, 1879). The occurrence of eating disorders has been rapidly rising in the second half of the 20th century (Bruch, 1973, 1978, 1982; Bushnell, Wells, Hornblow, Oakley-Browne, & Joyce, 1990; Crisp, Palmer, & Kalucy, 1976; Darby, Garfinkel, Garner, & Cosicina, 1983; Emmett, 1985; Halmi, Falk, & Schwartz, 1981; Hoek, 1993, 1995; Lucas, Beard, O’Fallon, & Kurkland, 1991; Minuchin, Rosman, & Baker, 1978; Pyle et al., 1983; Vigersky, 1977). It is estimated that as many as 5 million Americans struggle with anorexia nervosa or bulimia nervosa (Hotelling, 1998).

Inpatient and outpatient treatment centers have been established throughout the United States and elsewhere in the world. Many individuals, mostly females (Andersen, 1992; Bruch, 1973; Minuchin et al., 1978; Orbach, 1978), have been
helped. (Because of this fact, feminine pronouns will be used throughout this
dissertation.) Unfortunately, due to the multifactorial etiology of anorexia and bulimia
(Bruch, 1973; Cooper, 1995; Crowther, Tennenbaum, Hobfoll, & Stephens, 1992;
Emmett, 1985; Hsu, 1990; Humphrey, 1992; Johnson & Connors, 1987; Minuchin et
al., 1978; Strober, 1991; Williamson, Prather, & Goreczney, 1989; Woodside, 1993),
many individuals have not successfully sustained psychological, physical, and
behavioral recovery (Aronson, 1993; Minuchin et al., 1978).

As an eating disorders' specialist, it has come to my attention that using the
MMPI to screen for anorexia and bulimia would benefit psychologists, therapists,
social workers, counselors, and treatment centers dealing with this population. Several
instruments to assess eating disorders currently exist. Most notably of those are the
Eating Disorders Inventory-2 (EDI-2; Garner, Olmsted, & Polivy, 1983); the Eating
Attitudes Test (EAT; Garner & Garfinkel, 1979); the Eating Disorder Examination
(EDE; Cooper & Fairburn, 1987); the Questionnaire for Eating Disorder Diagnosis
(Q-EDD; Mintz, O'Halloran, Mulholland, & Schneider, 1997); and the Stirling Eating
Disorder Scales (SEDS; Williams et al., 1994). The administration of one of these
instruments must be augmented by a thorough clinical interview (Johnson & Pure,
1986; Williamson, 1990; Williamson, Anderson, Jackman, & Jackson, 1995; Wolf &
Akamatsu, 1994) including personal history of weight, diet, exercise, purging,
menstruation, and substance usage, as well as the MMPI/MMPI-A for the assessment
to be comprehensive.

Identifying items on the MMPI which screen for eating disorders would augment
other assessment measures. Additionally, eating-disordered individuals are extremely secretive about the maladaptive behaviors and may be in therapy for a plethora of secondary or other reasons, e.g., depression, anxiety, interpersonal problems, family discord, or a multitude of other problems without exhibiting any indications as to the eating/body-image problems. Because the MMPI is the most frequently administered personality inventory in clinical populations at large (Lubin, Larsen, Matarazzo, & Seever, 1985; Mitchell, 1985), and the MMPI-2 is a direct derivative from the original MMPI (Butcher, 1990; Graham, 1993), many individuals with eating-disordered symptoms could be detected earlier with the subscale derived from this study. Earlier detection would enhance the chance for recovery from these life-threatening disorders.

**Statement of the Problem**

Currently, many women who come into a mental-health setting due to depression, anxiety, low self-esteem, relationship issues, sexual issues, etc., are also struggling with eating-disordered behaviors, thoughts, and feelings. These behaviors, thoughts, and feelings may remain well hidden from the counselor throughout the course of therapy or until they become severe and more difficult to treat. Health care professionals also often fail to recognize eating-disordered symptoms (and therefore do not administer eating-disorder instruments) in groups not believed to be at risk for anorexia or bulimia. These underdiagnosed and undertreated groups include non-White females (Hsu, 1987; Maceyko & Nagelberg, 1985), older women (Jonas, Pope,
Hudson, & Satlin, 1984). males, lesbians, and individuals in lower socioeconomic classes (Dolan, Evans, & Lacey, 1989; Dornbusch et al., 1984).

Because the MMPI-2 is used ubiquitously in clinical settings (Butcher & Pope, 1992; Butcher & Williams, 1992; Graham, 1993; Greene, 1990b), the covert signs of eating-disordered symptomatology could be detected early in the treatment process. Additionally, individuals in what are considered low-risk groups would also benefit from earlier detection. The purpose of this study, then, is to identify items from the MMPI (and converted to MMPI-2 item numbers) which would comprise a subscale for the screening of individuals who have, or may be at risk for, Anorexia Nervosa (anorexia) and Bulimia Nervosa (bulimia). This study compares item responses from a sample of eating-disordered clients with item responses from a sample of non-eating-disordered clients.

Significance of the Study

There is a preponderance of individuals with eating disorders, and these disorders are always life-damaging and potentially fatal (Aronson, 1993; Bruch, 1973; Emmett, 1985; Kaplan & Garfinkel, 1993; Lucas et al., 1991; Minuchin et al., 1978). Because the MMPI is one of the most widely used psychological instruments in mental-health settings, all individuals to whom it is administered may be screened for eating-disordered attitudes regardless of the presenting problems. With this MMPI screening subscale, mental-health professionals can be alerted to eating issues which might not otherwise be detected in a timely fashion or at all. When profiles occur with elevations
on this screening device, mental health professionals may then make further assessment of eating-disordered symptomatology by utilizing structured and focused clinical interviews, and other assessment instruments. Presently, many individuals with eating disorders go unnoticed in mental-health settings due to the secretiveness and the multidimensional aspect of presenting problems in this population. Mental health professionals are not likely to administer targeted eating-disorder instruments unless anorexia or bulimia is the presenting problem or symptomatology is evident. This screening subscale will be a valuable asset to the field of eating disorders as professionals seek to identify and treat these secretive disorders in the earliest stage possible.

Easy access to the MMPI-2 by professionals makes the MMPI a desirable instrument from which to develop this screening measure. This MMPI screening measure could be incorporated into the more recently developed MMPI-2. Additionally, managed-care companies do not allow the clinician the luxury of lengthy assessment and treatment of mental-health issues, thus the earlier that at-risk individuals are identified, the more effectively and efficiently they can be treated. The MMPI-2 is available to outpatient therapists, counselors, treatment centers, inpatient hospitals, community mental-health agencies, and university counseling centers making administration and results easily accessible. From this research, it is hoped that an eating-disorders subscale will be developed for the MMPI-2, and will spur similar research for the MMPI-A.
Definitions

The following terms are defined as used in this dissertation:

**Anorexia Nervosa (anorexia):** Anorexia technically means "loss of appetite due to nerves." This, however, is far from the truth. Anorexics are frantically preoccupied with food and eating but they deny the hunger and the impulse to act on it. There is a deliberate and relentless pursuit of thinness triggered by a multitude of factors (Bruch, 1978; Garner & Garfinkel, 1985) which is discussed in chapter 2.

**DSM-IV** criteria for Anorexia Nervosa are:

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.)

**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 or the 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). (APA, 1994, pp. 544-545)
**Bulimia Nervosa (bulimia):** The term "bulimia" actually comes from a Greek word meaning "the hunger of an ox." but as with anorexia, hunger is not the problem. For the bulimic, the episodes of binge eating are usually triggered by emotional upset and not by physical hunger. By way of diagnostic criteria, the DSM-IV states that

Bulimia Nervosa (bulimia) involves:

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 three months.
D. Self-evaluation is unduly influenced by body shape and weight.
E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

**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. (APA. 1994. pp. 549-550)
Eating disorder: This term is used interchangeably with the terms anorexia nervosa (anorexia) and bulimia nervosa (bulimia).

Minnesota Multiphasic Personality Inventory (MMPI): The MMPI is a personality inventory composed of 566 true/false items and was designed to diagnose patients into different categories of neuroses and psychoses. Currently, the instrument is used in mental health settings, hospital psychiatric units, university counseling centers, employment and career centers, and in industrial settings.

Eating Disorders Inventory-2 (EDI-2): The EDI-2 is aimed at the delineation and measurement of psychological features or symptom clusters thought to be relevant in understanding eating disorders. It contains measurement on eight subscales: drive for thinness (DT), bulimia (B), body dissatisfaction (BD), ineffectiveness (I), perfectionism (P), interpersonal distrust (ID), interoceptive awareness (IA), maturity fears (MF) and three provisional subscales: asceticism (A), impulse regulation (IR), and social insecurity (SI).

Michiana area: Michiana area refers to Southwestern lower Michigan and Northern Indiana.

Delimitations

Because the preponderance of diagnosed eating disorders is evidenced in females, only female MMPI answer sheets were used for this study.

The database for Phase 1 of this study was limited to answer sheets procured from Healthy Options for Problem Eaters (HOPE), Memorial Hospital, South Bend, Indiana, for the eating-disordered population. The general clinical sample answer
sheets for Phase 1 were obtained solely from Psychological and Family Consultants (PFC).

The cross-validation eating-disorder data were procured from HOPE, PFC, St. Anthony’s Memorial Hospital, Michigan City, Indiana, and area clinicians. Non-eating-disordered cross-validation data were collected from PFC and area clinicians.

The review of literature and conclusions were in reference to anorexia nervosa and bulimia nervosa. It should not be assumed that eating disorders are limited to these two types. Binge eating without compensatory behaviors is also a serious concern but inclusion of this population was beyond the scope of this study.

**Limitations**

Limitations of this study are relative to the time lapse between the clients' responding to the MMPI in the years between 1987-1995 and the initiation of the study in 1997. Eating-disorder symptomatology has remained stable over the years, therefore, this limitation should not adversely affect the data.

Additionally, it would have been desirable to utilize the MMPI-2 directly rather than convert MMPI items into MMPI-2 items. Because of the relatively large number of eating-disordered MMPI protocols (354) available as opposed to the few eating-disordered MMPI-2 protocols available (60), it was deemed acceptable to use the conversion procedure in the study.

Every attempt was made to ensure that the general clinical sample did not include individuals with anorexic and/or bulimic symptomatology. I read progress notes and
treatment summaries for this population. It is possible that some symptomatology slipped past the counselor and me, and, therefore, these subjects could be included in the general clinical sample. It is believed that if this did occur, the incidence was extremely small and did not contaminate the study.

Organization of the Following Chapters

This chapter has provided an introduction to the problem of eating-disorders and the assessment of eating-disorders. Terms have been defined, limitations and delimitations have been delineated, and the heuristic value of the study has been set forth. Chapter 2 presents a comprehensive review of the literature and research pertaining to etiology, symptomatology, epidemiology, and impact of the eating disorders on the lives of those affected. Chapter 3 includes research methodology and design, procedures used to collect data, and data analysis procedures. Chapter 4 provides a detailed analysis of the data. In Chapter 5, I discuss the conclusions and implications of the study, and make recommendations for further study related to earlier detection and screening for eating disorders.
CHAPTER II

REVIEW OF THE LITERATURE

This chapter covers a comprehensive review of the eating disorders literature over the past 10 years as well as a review of pertinent research on the MMPI and its subscales. The following aspects of eating disorders are discussed: historical perspective; demographics; etiological factors; physical, behavioral, and psychological symptomatology; co-morbidity, and assessment. The MMPI is discussed in the context of its history; clinical, supplemental, and content scale development; applicability to eating disorders and its relationship to the MMPI-2.

Eating Disorders

Historical Perspective

Although popularly thought to be a phenomenon of the 1980s and 1990s, eating-disordered behaviors and attitudes have been exhibited by humankind far back into documented history. The current diagnoses of anorexia nervosa and bulimia nervosa have roots traced as far as antiquity (Habermas, 1989, 1992; Parry-Jones & Parry-Jones, 1991; Skrabanek, 1983; Stein & Laakso, 1988). The similarities of the behaviors over time are numerous, and the differences are likely due to the changing social climate of the past 2,000 years.
As far back as the Paleolithic era, gluttony followed the many famines and religious fasts, and these gluttonous feasts were terminated by vomiting (Powdermaker, 1973). Around 400-300 B.C., the Book of Medicines referred to "bolimos" translated "lust of the dog." Bolimos was described as stomach faintness due to physical coldness (first noted in Greek expeditionary forces), extreme hunger, weakness, and emptiness. Coetaneously, the Jewish Talmud noted "bootmot" as a ravenous and life-threatening ailment which led to impaired judgment about food consumption, decreased alertness, and an inability to concentrate. The antidote for this malady was the ingestion of honey and sweet foods. "Bulimia" was referred to as early as A.D. 100 as a physiological response to prolonged food deprivation and resulted in the sensation of being cold, faint, and exhausted. By A.D. 400, Aurelias wrote about two distinct diseases which he believed to be chronic in many individuals. These diseases were called "morbid hunger" which involved ravenous appetite, an absence of chewing the food, and subsequent vomiting; and "phagedaena" which involved emaciation, swelling in the lower face, and decayed teeth (Parry-Jones & Parry-Jones, 1995). Even in those ancient times, there are evidences of the behaviors currently associated with eating disorders.

Medieval times also are ripe with historical documentation of behaviors similar to those we classify as anorexia nervosa and bulimia nervosa (Boskind-White & White, 1986; Bruch, 1973; Parry-Jones & Parry-Jones, 1995; Wilson et al., 1983). Early Egyptians believed that food was the cause of disease, and they deliberately vomited on a monthly basis in order to rid their bodies of the impurities that the food brought. The
Roman vomitoriums, which were used to relieve Romans after their notorious gorging on lavish delicacies, have been described in history books throughout the ages (Bliss & Branch, 1960). Self-induced vomiting was also a means of penance used by ascetic medieval nuns, most notably Catherine of Siena who used a straw to induce vomiting to purify her soul (Parry-Jones & Parry-Jones, 1995). Religious fasts were also a means of body and soul purification. These fasting rituals, holy anorexia, were intended to liberate the self (usually female saints) from the evils of selfishness and materialism by transcending bodily needs, and were to lead to eternal salvation (Aronson, 1993; Bruch, 1973; Brumberg, 1988; MacCullock, 1912; Skrabanek, 1983). People in the Medieval period were caught between the opposing forces of the Roman Catholic Church, which taught that gluttony was one of the Seven Deadly Sins, and the real fear of diminishing food supplies which caused overconsumption during prosperous times and was, therefore, sinful (Parry-Jones & Parry-Jones, 1995).

In scientific study, these early accounts of self starvation and gluttonous behaviors are considered anecdotal, interesting stories, and hyperbole, but not scientifically or medically significant (Parry-Jones & Parry-Jones, 1995; Silverman, 1995; Skrabanek, 1983). It was not until 1689 that R. Morton documented the first medical accounts (one female and one male) of anorexia nervosa which he termed “nervous consumption” (Casper, 1983; Silverman, 1995) or “consumption of mental origin” (Aronson, 1993; Strober, 1986). Morton differentiated the common form of consumption from this nervous consumption. His female patient refused treatment and died of the illness. Both patients exhibited symptoms of indifference to starvation.
extreme emaciation, hyperactivity, and the female had amenorrhea (Aronson, 1993). "Caninus appetitus" was cited by James in 1743 (Parry-Jones & Parry Jones, 1995; Stunkard, 1993) and was described as intense preoccupation with food and episodic overeating which would lead to fainting and sometimes vomiting (Stein & Laasko, 1988; Stunkard, 1993). James also distinguished boulimus from illnesses associated with worms, ulcers, or normal pregnancy (Stein & Laasko, 1988). In the 1760s, Whytt reported cases which he called "gastric nerves" (Aronson, 1993, p. xiv). He cited episodes of unusual food aversion alternating with episodes of compulsive food cravings and resulting in marasmus—"sensible wasting of the body" (Silverman, 1995, p. 142). Repugnance of food and malnutrition were noted in 1789 by Mesmer and Naudeau (Bliss & Branch, 1960), and in the same year, Nandeau (possibly the same person as Naudeau) stated that the etiological factor of this illness was the pernicious influence of the patient's mother (Aronson, 1993). Seven forms of bulimia were proposed by W. Cullen in 1772 whereas Motherby described three distinct types of bulimia (pure hunger type, type associated with fainting, and type terminated by vomiting) in 1785 (as cited in Stein & Laakso, 1988: Stunkard, 1993).

In the late 1800s numerous other physicians had written about individuals with aberrant eating behaviors. The cases were significant enough that bulimia, as binge eating, was included in the Encyclopaedia Brittanica, in the Dictionnaire de Medecine et Chirurgie (Stunkard, 1993), The New Dictionary of Medical Science, and The Edinburgh Medical and Physical Dictionary (Stein & Laasko, 1988). While many of the descriptions were brief, the latter comprised a two-and-one-half page discussion of
bulimia and a paragraph on anorexia (Stein & Laasko, 1988). One account is of a girl who stole food from classmates and reportedly ate 8-10 pounds of bread in one day. Main symptoms were a preoccupation with food and consumption of enormous amounts of food with no apparent satiation. Three forms of bulimia were noted at this time: “cynorexia”—binge eating followed by vomiting; “hyperoexia”—repeated consumption of small amounts of food; and “polyphagia”—ingestion of large amounts of food with no satiety (Stunkard, 1993, p. 16). Louis-Victor Marce described pubescent girls who were experiencing a persistent distaste for food and who were convinced that they could not or would not eat. He used the term “cerebronervous” (p. 142) and considered these girls insane (Silverman, 1995). Sir William Gull (1873) coined the term anorexia nervosa (Casper, 1983; Crowther, Wolf, & Sherwood, 1992; Habermas, 1989; Strober, 1986) as he detailed his treatment of a 17-year-old female. He described this patient as emaciated due to loss of appetite, having occasional episodes of voracious appetite, experiencing amenorrhea, having decreased pulse and respiration, having a collapsed abdomen, being restless, gravitating toward physical exercise, and indicating the presence of no pain (Strober, 1986).

At approximately the same time as Pierre Janet’s writings, Charles Lasegue was treating eight patients between the ages of 18 and 32 whom he diagnosed as “anorexia hysterique,” which he believed had an emotional etiology and linked it to hypochondriasis (Casper, 1983; Janet, 1920; Lasegue, 1873; Strober, 1986). Hysterical anorexy was believed to have mental and physical aspects and was ascribed to the “action of the demon or to that of God” (Janet, 1920, p. 228). The key symptom was
the systematic refusal of food and was most frequently seen in women between the ages of 16-23 (Lasegue. 1873). Lasegue also found an “excessive fondness for physical exercise” in the patients (Janet. 1920, p. 239). It was believed that the motivation behind the exercise was to convince observers that the patient was strong and robust in order not to be urged or forced to eat more. Janet (1920) disputed this belief as well as the notion that the physical exercise was initiated to help the individual to grow thin. He stated that the individual feels a need to suppress the sense of fatigue and, by exercising, feelings of euphoria and happiness are produced. Needing food equates with weakness and depression and the euphoria negates the need for food. Janet (1920) also described bulimia, as it occurs in hysteria, as the inability to stop eating. He said that these patients feel “weakened, depressed and have taken the mania to revive themselves” (p. 265). In all of the symptomatology that correlates with the present understanding of anorexia and bulimia, the salient feature of fear of becoming fat was reported only by Worthington in 1875 and described anecdotally by Charcot several years later (Bruch, 1973). Charcot discovered a rose-colored ribbon tied around a female patient’s waist which was intended to ensure that the patient did not become fat. She stated that death was preferable to becoming fat like her mother (Bruch, 1973; Janet, 1920).

By the early 20th century, the aberrant eating behaviors described above were widely known in medical arenas and were diagnosed as specific illnesses of psychological origin (Binswager, 1958; Lindner, 1955). Janet (1920) termed the illnesses as anorexia and bulimia. In 1906 Pierre Janet noted in the case of Nadia
(who consumed only 2 small boullion cubes, 1 egg yolk, 1 teaspoon of vinegar, and 1 cup of tea daily) that there seemed to be a deep psychological aspect in which the refusal to eat was an outward expression of an inner turmoil (Aronson, 1993). Specifically, a fear of being fat and rejecting femininity (Boskind-White & White, 1986). Not long thereafter, however, M. Simmonds set forth his theory of "pituitary marasmus," cachexia of the pituitary, or pituitary lesions as the biological cause of anorexia and the psychological factors were largely ignored for about 40 years (Aronson, 1993; Bruch, 1985; Casper, 1983; Fairburn & Wilson, 1993; Strober, 1986). In the 1930s cachexia of the pituitary was thought to be separate from the psychogenic form of anorexia (Bruch, 1985; Casper, 1983). Both were poorly diagnosed and poorly treated at the time (Bruch, 1985). Similarly, bulimia was thought to be a symptom of emotional deprivation and poor social adaptation of juveniles and refugees, and it, too, was poorly diagnosed and poorly treated (Parry-Jones & Parry-Jones, 1995; Stein & Laakso, 1988). With the popularity of psychoanalytic thought came the theory that eating disorders were a function of unconscious conflict, oral fears, and regressive wishes and fantasies bringing the etiology back to a psychological one. Additionally, anorexia was seen as a conversion hysteria which was oral in nature and a symbol of the patient's rejection of sexuality (Boskind-White & White, 1986; Bruch, 1985; Strober, 1986).

Hilde Bruch was the forerunner in clinical writing in the mid-20th century (Bruch, 1985; Casper, 1983; Habermas, 1989; Strober, 1986). In 1961 she wrote a paper documenting 12 cases of anorexia nervosa which was a significant sample for the
time. She believes that the number would have been larger if the illness had not been frequently misdiagnosed (Bruch, 1973, 1985). Bruch brought the focus back to the psychological aspects of the disorder by discovering her patients' deep sense of ineffectiveness, faulty perceptions of body size and shape, and altered awareness of affective and visceral states. Bruch was perhaps the first person to see anorexia as an adaptive state—the individual's way to correct feelings of ineffectiveness and overcome feelings of external control (Bruch, 1973, 1978, 1982, 1985; Silverman, 1995; Strober, 1986).

By the early 1970s, anorexia nervosa was treated in specialized treatment centers, and bulimia was not yet widely accepted as a discrete eating disorder (Aronson, 1993; Boskind-White & White, 1986; Garner & Garfinkel, 1985; Parry-Jones & Parry-Jones, 1995). The ICD-9 (1977) defined bulimia as polyphagia, excessive eating, or hyperalimentation (Parry-Jones & Parry-Jones, 1995) but bulimia nervosa did not become recognized as a syndrome in the United States until 1979 when Russell distinguished it as a separate disorder (APA-DSM-III, 1980; Boskind-White & White, 1986; Casper, 1983; Hoek, 1993; Russell, 1979, 1988). Boskind-White and White (1983) coined the term bulimarexia and operationally defined it as “habitual behavior in terms of gorging, purging, and those salient dynamics that include perfectionism, obsessive concern with food and body proportions, isolationism, low self-esteem, and a strong commitment to please others, often at the individual's expense” (p. 20). By the 1980s the growing awareness by health-care professionals, as well as the public, created an environment open to research, clinical writing, and treatment approaches for
anorexia nervosa and bulimia nervosa. The negative effect of the interest in eating disorders has been the notoriety and glamorization of these serious disturbances. In spite of the plethora of research and the multitude of treatment approaches, the prevalence of eating disorders has been on a rapid rise throughout the 1980s and 1990s (Aronson, 1993; Boskind-White & White, 1986; Bruch, 1985; Casper, 1983; Garner, Garfinkel, & O'Shaughnessy, 1985; Habermas, 1989; Halmi et al., 1981; Hoek, 1993; Pyle, Halvorson, Neuman, & Mitchell, 1986).

**Sociocultural Perspective**

The history of eating-disordered symptomatology is a lengthy one which spans generations. The question arises as to what were and what continue to be the sociocultural aspects in disordered eating? There have always been numerous sociocultural influences on food consumption and weight, and those influences remain salient today. Immediate families, extended families, organizations, communities, societies (Sobal, 1995), and religious groups all affect issues of food, eating, and attitude about body weight. In this section I discuss remote sociocultural aspects. Because the social influences of the 20th century have had a direct impact on the current understanding of eating disorders, they are addressed later in this chapter under "Etiology."

Meat was the main food staple in Paleolithic times, and primitive women needed surplus fat acquired through consumption of large amounts of meat to sustain them during hunting season when the men were gone. The role of these women was as
preparers of food and bearers of children, and the image of fertility, health, and survival was uppermost. The ideal body was one of plumpness, roundness, and rotundity (Boskind-White & White, 1986; Bruch, 1973). Activities related to food (e.g., hunting, fishing, gathering, farming, and raising livestock), consumed the lives of early humans. Food was used to alleviate pain and despair, and was essential in rituals of hospitality. Because women were the preparers of the food, they were held in social and religious esteem (Boskind-White & White, 1986). The fear of starvation and unstable food supplies in early times were such a reality that Bruch (1973) has said that the history of humankind could be called “the chronicle of his quest for food” (p. 9). Fear of hunger is so universal that the withholding of food from another person has been used as punishment. The Holocaust is the most poignant example.

Throughout the course of history, women’s bodies have been viewed as the essence of womanhood. The shape and the size of the desirable woman’s body has changed through the years, but the focus on the body itself has not. Artistic depictions of women show bodies with large breasts and abdomen, and heavy hips and thighs. Roundness was associated with fertility, prosperity, vitality, and happiness (Bruch, 1973). By the 1700s, however, as well as in earlier Egyptian cultures, the ideal woman was slimmer with small waist, large breasts, and her body was intended to give men pleasure. Plumpness began to be seen by the 1800s as bourgeois and was no longer seen as the ideal body size and shape of the elite class. Curvaceousness, the hourglass figure, became desirable (Boskind-White & White, 1986). Ambrose Bierce
(1958) sums it up: "To men, a man is but a mind, who cares what face he carries? But woman's body is the woman" (cited in Garner & Garfinkel, 1985, p. 391).

Demographic Features

Numerous factors must be considered when reviewing the demographic features of the eating-disordered population as there is tremendous disparity between the studies undertaken in the past 2 decades.

1. Definitions and diagnostic criteria have changed since the 1970s.

2. There was, and continues to be, a lack of standardized instrumentation for measuring eating disorders.

3. Inclusive ages of the subjects vary from study to study which may alter findings.

4. Subject samples were procured from diverse settings, e.g., mental-health clinical settings, general medical practice settings, college settings, inpatient psychiatric settings, residential treatment settings, private schools, public schools, general population.

5. Sample sizes were often small and/or there were low response rates.

6. The tendency toward denial and minimization in eating-disordered individuals may alter results.

7. Covert and hidden symptomatology may go unreported.

8. Methodologies employed in the studies are quite diverse, e.g., self-report, screening measures, clinical interviews, observations, case registers, or a combination.

There is a popular belief that eating disorders are illnesses of adolescent or young Caucasian females who come from middle-to upper-class families (Calden, Lundy, & Schlater, 1959; Fallon & Rosen, 1985; Jourard & Secord, 1955; Roden, Silberstein, & Striegel-Moore, 1985; Singer & Lamb, 1966). Studies reveal that indeed there is truth to this belief, but it is not the complete truth. Eating disorders may extend far beyond the realm of young Caucasian females. Maceyko and Nagelberg (1985) reported a similar number of cases of bulimia in Black and Caucasian high-school females. Chandler, Abood, Lee, Cleveland, and Daly (1994) reported that pathogenic eating attitudes and behaviors occur more frequently in White females (16%) than in Black females (8%). It is hypothesized that Black females are more satisfied with their body size and shape than are White females thus accounting for the lower rate of eating pathology. Other researchers contend that there is a lack of information regarding ethnicity and race in the eating-disorder literature which should not be misconstrued to imply that eating disorders do not exist in non-Caucasian populations (Chandler et al., 1994; Davis & Yager, 1992; Hsu, 1987; Thompson, 1992). One of the reasons for this bias in research findings is that non-Caucasians are less likely to seek help than Caucasians and many of the studies are undertaken in treatment settings (Davis & Yager, 1992; Hsu, 1990; Jones, 1980). These women are also often overlooked or missing from studies because of clinicians' stereotypical
thinking, specifically, that eating disorders occur in Caucasian females (Silber, 1986; Thompson, 1992). There is a general lack of mental health research on African-Americans, Latinos, Asian Americans, Hispanics, and Native Americans and even less in reference to eating disorders (Thompson, 1992). Acculturation is believed to be a factor when nondominant-culture individuals do present with eating disorders. As minority individuals accept White culture and values (unrealistic expectation of thinness, women's role in society, change in women's social standards, attitudes toward obesity) they are more likely to develop eating-disorder symptomatology (Buchan & Gregory, 1984; Hoek, 1993; Hsu, 1990; Lacey & Dolan, 1988; Silber, 1986). Contradicting the acculturation theory, Yoshimura (1995) conducted a study of 31 Asian American females and found that acculturation was not significantly correlated with either the thin beauty standard or eating-disordered symptomatology. There clearly need to be more multicultural studies undertaken to obtain a true picture of the extent and magnitude of eating disorders in minority populations (Davis & Yager, 1992).

Another demographic feature is the common belief that eating disorders are linked to affluence or middle-upper middle-class society (DiNicola, 1990; Hoek, 1993; Vandereycken & Hoek, 1993). As far back as the 19th century, Fenwick (1880) observed that anorexia was found more frequently in wealthier classes of society than in lower classes. Studies which support this observation are Cooper and Fairburn (1983), Crisp, Hsu, Harding, and Hartshorn (1980), Fosson, Knibbs, Bryant-Waugh, and Lask (1987), Gowers, Crisp, Jonghin, and Bhat (1991), Higgs, Goodyer, and Birch (1989),

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Kendell, Hall, Hailey, and Babigan (1973), Morgan and Russell (1975), Pope, Hudson, and Yurgelun-Todd (1984a), Santonastao, Favaretto, and Canton (1987), Willi and Grossman (1983), and Szmukler (1985). It must be noted, however, that most of these studies were based on the most severe and recalcitrant cases: the Kendell et al. (1973) study included only eight cases, and Szmukler (1985) drew his conclusions from the preceding studies. Numerous studies found the traditionally quoted association between upper socioeconomic status and eating disorders to be biased (Garner & Garfinkel, 1980) and empirically unsupported (Dolan et al., 1989; Gard & Freeman, 1996; Pope, Champoux, & Hudson, 1987; Rand & Kulda, 1992). Gard and Freeman (1996) actually found that there is increasing evidence that bulimia is associated with lower socioeconomic classes. Perhaps a plausible explanation for the disparity in findings is that individuals in lower socioeconomic classes do not tend to see the behaviors as aberrant and do not seek mental-health services (Gard & Freeman, 1996). “A mental illness in a given culture may be simply a quantitative increase in behavior which is otherwise accepted as normal by that culture” (Thompson & Schwartz, 1982, p. 48).

The gender issue of anorexia and bulimia is far less debated. All studies agree that the occurrence of these disorders is far less in males than in females. Ratios between these groups range from 1:10 to 1:20 (Barry & Lippmann, 1990; Nudelman, Rosen, & Leitenberg, 1988). Age is another demographic variable to consider. It is widely accepted that eating disorders occur mostly in adolescence and young adulthood. It must be understood that anorexia and bulimia can also occur in children.
(Bryant-Waugh & Lask. 1993; Schmidt. Hodes. & Treasure. 1992) and in older adults (Beck. Casper. & Andersen. 1996; Cosford & Arnold. 1992; Hsu & Zimmer. 1988; Woodside & Garfinkel. 1992). Similar to the issue of ethnicity, young age is another stereotypical belief held by many clinicians. doctors. and family members which leads to the under-reporting and under-recognition of eating disorders in later life (Cosford & Arnold. 1992; Jonas et al.. 1984). Discussion is appropriate. however. when we consider age of onset for which there is no consensus as to how “onset” can be determined (Woodside & Garfinkel. 1992). Onset always occurs much earlier than detection and can only be determined by hindsight (Hoek. 1993; Woodside & Garfinkel. 1992). An exception is noted when researchers establish age of onset only in terms of overt behaviors rather than in terms of the subtle psychological and attitudinal features that are hallmarks of eating disorders (Hoek. 1993). Even retrospectively. the age of onset is important for issues of diagnosis (APA. 1987: Bryant-Waugh & Kaminski. 1993; Feighner et al.. 1972). prognosis (Garner & Garfinkel. 1988; Russell. 1988). etiology (Heavy. Parker. Bhat. Crisp. & Gowers. 1989). and exploration of genetic factors (Woodside & Garfinkel. 1992).

Studies reporting incidence and prevalence rates of anorexia and bulimia have resulted in disparate findings for many of the reasons delineated at the beginning of this section. In spite of the ambiguity. there is a range generally believed to be reflective of the incidence (the number of new cases in the population in a year) and prevalence (actual number of cases in a defined community at a certain point in time) of these eating disorders. The incidence of anorexia in the general population in Western
countries ranges from 1.34 to 8.2 per 1,000 population per year. The range of incidence for bulimia is much larger as it extends from 3.9 to 42 per 1,000 population per year (Bushnell et al., 1990; Hoek, 1993). Hoek (1993) engaged in a comprehensive review of this demographic feature and contends that the incidence rates for anorexia and bulimia are 8.1 and 11.4 per 1,000 population, respectively. Point prevalence rates for young females with anorexia range from 0.23% to 0.58% with Hoek (1993) settling on 0.28%. Point prevalence for young females with bulimia was found to be between 0.9% and 1.5%. Hoek (1993) believes 1% is the most accurate prevalence rate for bulimia nervosa. He also stresses that these rates have been based on those presenting as bulimics to health-care professionals and may not be representative of the general community (Hoek, 1993). Despite the methodological and definition problems, experts have still concluded that the incidence of eating disorders has increased sharply over the past 3 decades (APA, 1994; Bushnell et al., 1990; Hoek, 1993, 1995; Lucas et al., 1991).

Etiology

The etiology of anorexia and bulimia remains somewhat of an enigma to experts in the field. Rather than determining a single cause, it has been more beneficial to consider etiology in a multifaceted manner (Andersen, Morse, & Santmyer, 1985; Aronson, 1993; Bendfeldt-Zachrisson, 1992; Bruch, 1973; Cooper, 1995; Crowther, Tennenbaum et al., 1992; Emmett, 1985; Hsu, 1990; Humphrey, 1992; Johnson & Connors, 1987; Lacey, Coker, & Birtchnell, 1986; McFarland, 1995; Minuchin et al.,
Factors commonly believed to contribute to the manifestation of eating disorders are biology/genetics, family environment, personality features, sociocultural aspects, trauma, and dieting (Agras & Kirkley, 1986; Cooper, 1995; Emmett, 1985; Garfinkel & Garner, 1982; Halmi, 1992; Hsu, 1990; Humphrey, 1992; Johnson & Connors, 1987; Strober, 1992; Williamson et al., 1989). The presence of these factors in combination with one another is what may put an individual at risk for developing an eating disorder (Strober, 1992).

**Genetics**

There is a consensus among experts in the field that eating disorders aggregate in families. As early as 1860 Louis Victor Marce noted that hereditary aspects were cogent in predisposing an individual to the form of "hypochondriacal insanity" which matches the present-day description of anorexia (Silverman, 1989; Strober, 1991, 1995). The majority of genetic and familial studies undertaken support the familial risk factor although little is understood as to how and why this occurs (Halmi, Struss, & Goldberg, 1978; Hsu, 1990; Strober, 1991). To date, there are only two systematic methods to determine the genetic component of eating-disordered pathology: family-risk studies and twin studies (Hsu, 1990; Woodside, 1993). Other more complex genetic studies of segregation analysis and linkage analysis have been employed to study numerous psychiatric disorders but have not been applied to anorexia nervosa and bulimia nervosa (Woodside, 1993). Family-risk studies can be divided into two distinct methods: the family study method and the family history method. These methods
differ in that the former collects observations about the family from each individual separately. The latter gathers information from one individual who reports on other family members (Woodside, 1993). Regardless of methodology, in psychiatric studies there is always a great deal of subjective and anecdotal information (Woodside, 1993). Twin studies look at monozygotic (MZ) and dyzygotic (DZ) twins. When the concordance of eating disorders in monozygotic twins is significantly greater than in dyzygotic twins, genetic factors as opposed to environmental factors are believed to be at work (Woodside, 1993). In addition to the subjectiveness of psychiatric studies, studies to determine the genetic component to eating disorders have been fraught with other problems. The following is a listing of these problems:

1. Doubtful zygosity in twin studies (Accepted procedure for determining zygosity involves a blood-group analysis and/or placenta examination and the resemblance of physical appearance [Hsu, 1990].)

2. Inadequate diagnostic criteria (as has been noted as problematic in other eating disorder research)

3. Insufficient time lapse for follow-up for the non-anorectic twin or family member

4. No differentiation of restrictors vs. binge eaters

5. No accounting of subclinical forms of eating disorders

6. Reliance on self-selection process (Strober, 1991)

7. Small sample size, especially in twin studies
8. Reliance on family members' perceptions and memories to obtain family history (Halmi, 1992; Hsu, 1990; Strober, 1991).

Despite these research difficulties and the various methodologies and data analysis procedures employed, studies generally concur that there is an elevated occurrence of eating disorders in the family members of eating-disordered probands. Studies using the family-risk methodologies by Theander (1970), Crisp et al. (1980), Hudson, Pope, and Yurgelun-Todd (1983), Gershon-Schreiber, and Hamovit (1984) all demonstrated an increased risk for eating-disordered patients' relatives to develop an eating disorder themselves (Garfinkel, Moldofsky, & Garner, 1980; Halmi, Goldberg, & Eckert, 1977; Strober, 1991). In perhaps the most carefully conducted family study undertaken by Strober, Morrell, Burroughs, Salkin, and Jacobs (1985), it was found that 22% of the anorexics had eating disorders in the family background while only 3% of the psychiatric controls had anorexia in the family background. Similarly, but less dramatically, 12% of the bulimic patients had other family members with eating disorders as opposed to only 4% of the psychiatric controls. Additionally, this same study found that female relatives of an anorexic (9.7%) have a fivefold greater risk for developing an eating disorder compared to psychiatric non-anorectic controls (1.9%) (Strober et al., 1985). Studies also noticed the occurrence of secondary or subclinical eating disorders in relatives of anorexic patients (Crisp et al., 1980; Kalucy, Crisp, & Harding, 1977). Only one family study undertaken by Logue, Crowe, and Bean (1989) failed to find aggregation of anorexia nervosa in families. This may have been due to the small sample size used in the study (Strober, 1991). Generally, the lifetime risk of
anorexia among female relatives of eating-disordered individuals ranges from 1.7% to 2.2%, which represents roughly 3-20 times that in the general population (Stober, 1992).

The results of family studies on patients diagnosed with bulimia nervosa are not as clear nor have there been many studies completed in regard to family aggregation (Strober, 1992). One complicating factor is that some studies reported findings in reference to eating disorders rather than specifying which eating disorder. Strober et al. (1985) looked at both anorexic and bulimic patients and found that 12% of the bulimic patients had eating disorders in the family as compared with 4% of the controls. Kendler et al. (1991), in the most recent study of genetic epidemiology, found that both genetic and family environment present risk factors for developing bulimia. Kassett, Gershon, and Maxwell (1989) used a comprehensive family study approach and found a 9.6% occurrence of bulimia in relatives of bulimic probands as compared to 3.5% occurrence in relatives of normal controls. Additionally, anorexia nervosa was seen in 2.2% of the relatives of bulimic probands (Strober, 1991).

In twin studies, several studies found a differential concordance between monozygotic (MZ) pairs diagnosed with bulimia nervosa and dyzygotic (DZ) pairs diagnosed with bulimia. Fichter and Noegel (1990) found an 83% concordance in MZ pairs as opposed to 27% in DZ pairs. Hsu, Chesler, and Santhouse (1990) studied 11 twin pairs over a 3-year period and found a 33% concordance rate in MZ pairs as compared to a 0% concordance rate in DZ pairs. Treasure and Holland (1989) studied 67 twin pair probands and found that there was a high concordance for restricting
anorexics in MZ twins (66%) as opposed to 0% in DZ pairs. The studies clearly support the genetic factor in anorexia. The Treasure and Holland (1989) study also looked at bulimics and concluded that, unlike in anorexia, there is no evidence to support the genetic factor in the development of bulimia nervosa. Concordance for MZ pairs was 35% as compared to 29% in DZ pairs, which is not a statistically significant difference. Treasure and Holland (1989) determined that there is a genetic predisposition in the development of anorexia nervosa and environmental factors in the development of bulimia nervosa. The debate of genetics continues among the researchers. Some say it is not plausible that genetics could be the core etiology due to the apparently “willful character of the symptoms and their connection to prevailing cultural attitudes governing weight and shape” (Strober, 1992, p. 62). Others cite genetic research and epidemiology and conclude that genetics may influence individual differences of food intake regulation and psychopathology which may contribute to nongenetic factors (Strober, 1992). Most experts who have reviewed the research and treated these disorders believe that the most salient contributing factors in eating-disorder psychopathology is heredity and family environment and the interaction with life experiences (Hsu, 1990; Kendler et al., 1991; Strober, 1995).

Family Environment

Experts agree that family environment may influence and even contribute to eating-disordered attitudes and behaviors. What is not as clear is exactly what type of family environment fosters these eating attitudes and behaviors (Esparon & Yellowlees,
Theories regarding family involvement have been set forth by numerous writers with differing perspectives. Researchers have begun to explore the theoretical perspectives by empirical studies (Garfinkel, Garner, & Rose, 1983; Humphrey, 1988; Humphrey & Villejo, 1992; Kog & Vandereycken, 1985; Olson et al., 1982; Stern, Dixon, Jones, & Lake, 1989). Most eating-disorder studies which look at family environment used self-report instrumentation based on the individual’s perception of parental practices and attitudes (Calam, Waller, Slade, & Newton, 1990; Esparon & Yellowlees, 1992; Johnson & Flach, 1985; Kagan & Squires, 1985; Ordman & Kirschenbaum, 1986; Waller, Slade, & Calam, 1990a, 1990b). Additionally, many of the studies relied on retrospective information which can be faulty or distorted (Calam et al., 1990; Esparon & Yellowlees, 1992; Steiger, Liquornik, Chapman, & Hussain, 1991). A few observational studies were undertaken and these studies supported the findings of the self-report studies (Humphrey, 1989; Kog & Vandereycken, 1989; Minuchin et al., 1978; Selvini-Palazzoli, 1974, 1978; Szmuckler, Eisler, & Russell, 1985).

Theories of family involvement in the manifestation and maintenance of eating-disordered symptomatology are diverse. Minuchin et al. (1978) is perhaps the pioneer in describing the family/parental characteristics. They observed that the family needs the patient’s symptoms of regression to maintain the homeostasis of the family system. Anorectic families are portrayed as having depressed and anxious members (Stern et al., 1984; Winokur et al., 1980), being enmeshed, overprotective, conflict avoidant,
and triangulated (Minuchin et al., 1975; Minuchin et al., 1978; Selvini-Palazzoli, 1978). Additionally, Selvini-Palazzoli (1978) saw these families as needing to preserve socially superior appearance even in the face of desperation and unhappiness. She saw supreme family loyalty as well as a tendency toward self-sacrifice in the family members. Schwartz, Barrett, and Saba (1985) perceived families of bulimic patients as more appearance conscious, greatly influenced by cultural and social values (beauty, thinness, youth for females), and having more symbolic meanings regarding food than other families. Loyalty to family, emphasis on physical appearance, and rituals with food were also described by Roberto (1986) as well as the emphasis on achievement and success. Like others before them, Root, Fallon, and Friedrich (1986) acknowledged the overemphasis on weight and appearance in eating-disordered families and theoretically supported Minuchin et al. (1978) in describing the subsystems, boundary problems, and the uneven power structures in bulimic families. There are three basic family types set forth by Root et al. (1986): Perfect Family, Overprotective Family, and Chaotic Family. The characteristics of the Perfect Family include: importance of appearances, positive feelings at the expense of not recognizing or dealing with emotions seen as negative, family unity, achievement, and overconcern for the feelings of others. Characteristics of the Overprotective Family include: importance of cohesiveness, a lack of trust of anyone outside the family, the idea that the parents know what is best for their children, and that children are not competent to take care of themselves. Characteristics of the Chaotic Family include: themes of
emotional cut-offs, disengagement, mistrust, coercion, isolation, shifting coalitions, and victimization.

Family messages and family dynamics are salient features in the development of eating-disordered behaviors and attitudes (Root et al., 1986; Russell, Szmukler, Dare, & Eisler, 1987). Humphrey and Stern (1988) see the families of anorexics and bulimics to be quite different. They perceive families of anorexics as idealizing themselves as well as the anorexic daughter while bulimic families use projective identification to ward off their "bad" or undesirable aspects. Lastly, and more generally, issues of separation-individuation due to disturbances in communication, role structure, affect modulation, and boundary diffusion appear frequently in theoretical underpinnings of eating-disordered families (Humphrey, 1992).

All but one study using self-report methodology found a relationship between some aspects of family environment and the development of anorexia or bulimia. Kagan and Squires (1985) studied family cohesion and adaptability using the Family Adaptability and Cohesion Evaluation Scale (Olson, Bell, & Portner, 1978) and found these factors to be unrelated to dieting behavior. Worthy of note is the fact that the actual eating behaviors and attitudes were not clinically evaluated and the subjects were "normal" college females (Waller et al., 1990a). Additionally, dieting behavior is not necessarily synonymous with eating-disordered behaviors. Other studies, which may appear to contradict theoretical hypotheses, concluded that families with anorexic daughters are more positive, more loving, and more supportive than families of normal controls (Humphrey, 1988; Minuchin et al., 1978; Strober, 1981, 1992; Strober,
Authors all concur that a plausible explanation is that anorexics often respond with more denial and more of a need for the family to appear perfect than normals.

Many studies confirmed, at least in part, the theoretical constructs regarding family influence in eating disorder development (Rastam & Gillberg, 1991; Sights & Richards, 1984; Strober & Humphrey, 1987). A deficiency in emotional warmth, nurturance, understanding, and expression of positive feelings was found by Calam et al. (1990); Esparon and Yellowlees (1992); Garfinkel et al. (1983); Humphrey (1988); Steiger et al. (1991); Stern et al. (1989); and Waller et al. (1990b). Parental attempts to thwart the daughter's autonomy and independence were found through clinical observation by Bruch (1973, 1978); and empirically by Crisp (1967), Freelander and Siegel (1990), Humphrey and Villejo (1992), and Selvini-Palazzoli (1974). Perhaps dovetailing with thwarting independence is the characteristic of parental overprotectiveness. In one study, the fathers were singled out as being overprotective (Calam et al., 1990). Other studies did not find a difference between maternal and paternal overprotectiveness but found a general perception of overprotectiveness by both parents (Humphrey, 1988; Minuchin et al., 1978; Selvini-Palazzoli, 1974; Strober, 1981; Strober et al., 1982).

Conflict resolution was studied by Humphrey and Villejo (1992); Kog, Vertommen, and Degroote (1985); Minuchin et al. (1975); Sours (1980); and Stern et al. (1989), and it was found that in families of eating-disordered probands, the ability to resolve conflict was impaired while conflict itself was often high. Studies also
revealed a general lack of cohesiveness among family members (Humphrey & Villejo, 1992; Ordman & Kirschenbaum, 1986; Steiger et al., 1991; Stern et al., 1989; Waller et al., 1990a), and in families which seemed to be close, the closeness was not necessarily seen as helpful or supportive (Minuchin et al., 1975; Minuchin et al., 1978; Ordman & Kirschenbaum, 1986; Steiger et al., 1991). Rigidity, affectionless control, and adaptability were found to be more problematic in homes of eating-disordered subjects than in homes of normal controls (Bruch, 1973, 1978; Calam et al., 1990; Minuchin et al., 1978; Sights & Richards, 1984; Waller et al., 1990b). Ineffective communication (Garfinkel et al., 1983; Steiger et al., 1991), high expectations for achievement and success (Garfinkel et al., 1983; Stern et al., 1989), feelings of rejection (Esparon & Yellowlees, 1992; Humphrey, 1988), and homeostasis (Minuchin et al., 1975; Minuchin et al., 1978; Sours, 1980) are additional parental and family characteristics endorsed by eating-disordered probands and not by normal controls when employing self-report instrumentation.

Few observational studies have been undertaken and those that do exist tend to support the self-report. Hostile (Humphrey, 1989), critical (Szmuckler, Eisler, Gillis, & Hayward, 1985), and highly conflictual environments (Kog & Vandereycken, 1989) were found to be typical of bulimic families. Humphrey (1989) also found families of bulimic subjects to be less supportive and less trusting than families of controls. Humphrey (1989) also compared bulimic families to anorexic families and found that the latter were more affectionate, more neglectful, more confused in communication.
and fathers were more controlling and rigid than was observed in bulimic and noneating-disordered families.

There are other aspects of family which have not been adequately addressed in relation to eating disorders. Birth order (anecdotally special position in family, especially “baby,” has been noted), size of family, characteristics of siblings, educational role of parents/parenting style, and eating disorders in married patients have all been largely ignored, and perhaps hold more keys to understanding these complex illnesses (Vandereycken, 1995).

*Personality*

Premorbid personality features descriptive of eating-disordered patients are difficult to determine. To look at personality functioning retrospectively is questionable due to the subjectivity of memory and perception. Nevertheless, it has been essential to the understanding of these disorders and to the preventive and treatment endeavors to conceptualize the personality style of a young girl at risk for developing an eating disorder (Goldberg et al., 1980; Hsu, 1990; Strober, 1980; Wilson, 1984; Wonderlich, 1995).

It is a commonly held belief that as children and prior to the manifestation of eating-disordered behavior the anorexic was perfectionistic, emotionally overcontrolled (with negative emotions), conscientious, symbiotic in relation to parents, compliant, approval seeking, self-critical, and deficient in her sense of self (Anderson et al., 1985; Bruch, 1973; Garfinkel & Garner, 1982; Halmi, 1974; Hsu, 1990; Kay & Leigh.
1954; King, 1963; Morgan & Russell, 1975; Strober, 1980). These personality features were reported from clinical observations and in anecdotal form. Empirical studies have been undertaken to support or refute these observations. Generally, research has shown these characteristics and variations of these characteristics to be salient. Bruch (1973) and Selvini-Palazzoli (1978), through case studies, and Crisp (1980) and Casper, Hedeker, and McClough (1992), through systematic investigation, studied anorexic patients after diagnosis. These case studies and research studies found anorexics to have a pervasive sense of ineffectiveness, decreased interoceptive awareness, a lack of autonomy, and confusion about affective states. Neuroticism, introversion, obsessionality, self-doubt, and interpersonal anxiety (Ben-Tovim, Marilov, & Crisp, 1979; Garner, Olmsted, & Polivy, 1983; Pillay & Crisp, 1977; Smart, Beumont, & George, 1976; Solyom, Freeman, Thomas, & Miles, 1983; Stonehill & Crisp, 1977; Strober, 1980), perfectionism (Bastiani, Rao, Weltzin, & Kaye, 1995; Bruch, 1973; Strober, 1980, 1981), passive submission, separation-individuation impairment (Bruch, 1973; Sours, 1974; Strober, 1980, 1981), black-white/dichotomous thinking (Andersen, 1986; Bruch, 1978), self-denying, self-critical, stereotypical thinking, and an inability/unwillingness to be flexible (Strober, 1980, 1981) have all been found to describe personality features of the young girl who later develops anorexia nervosa. Geist (1984, 1985) came up with similar findings in regard to excessive compliance, maternal symbiosis, and the subordination of the self (Geist, 1984). Interestingly, Geist (1985) also found that, as a young child, the anorexic may
have retreated from pleasurable activities and sensations due to a paucity of self-regulatory structures which rendered her fearful of losing control.

Many professionals in the field of eating disorders have described the early childhood features of a pre-anorexic as endearing, highly responsible, intellectually superior, conscientious, conforming to rules and regulations, self-controlled--a model child (Hsu, 1990; Strober, 1980). One study by Ranseen and Humphries (1992), however, failed to find the above average intellectual capacity in 100 female eating-disordered patients whom they tested. Instead, they found intellectual performance of the eating-disordered females to follow a normal distribution with the highest number of scores falling in the average range.

In looking at personality features of eating-disordered individuals, researchers have encountered similar problems in definitions and diagnostic criterion as they have in other eating disorder research (Pryor, 1995). Strober (1980) compared binging/purging anorexics (probably Bulimia Nervosa today) to restricting anorexics and found many similarities except in four areas: bulimics have decreased self-control (more impulse problems), greater sociability, were more psychologically minded, and were more adaptable and flexible than restricting anorexics. Strober's (1980) study supported earlier studies on this population (Beumont, 1977; Beumont, George, & Smart, 1976; Russell, 1979).

Impulse control problems occurring even before the onset of the illness were found by numerous studies (Casper, Eckert, Halmi, Goldberg, & Davis, 1980; Garfinkel et al., 1980; Garner et al., 1985; Goodsitt, 1983; Lacey, 1982; Mitchell,

Sociocultural Influences

There has been a long-standing debate as to whether or not social and cultural norms are the cause of eating disorders. Most experts agree that, although sociocultural aspects play a role in the manifestation and maintenance of eating
disorders, it is unclear as to the extent of the deleterious influence (King, 1993). Most assuredly, sociocultural aspects are not the sole causative factor of eating disorders (Abramson & Valene, 1991; Bendfeldt-Zachrisson, 1992; Gaillac & Samuel-Lajeunesse, 1992; Garner & Garfinkel, 1985; Halmi, 1992; Johnson & Connors, 1987; Levine & Smolak, 1992; Striegel-Moore, 1993; Waller, Hamilton, & Shaw, 1992). The notion of sociocultural influences is supported in part by default: no biological marker or specific event has been shown to be the primary cause of eating disorders (and we are a society geared toward cause and effect). Instead, biology, personality, psychosocial stressors, and family environment are both predisposing and precipitating factors but no singular aspect has been shown to be causative (Cooper, 1995; Halmi, 1992; McFarland, 1995; Woodside, 1993).

When examining the issue of body size and fasting/restricting food consumption from historic times to modern times, there has been a change in motivation for engaging in this behavior. Fasting was undertaken in prior centuries as a purification of the soul and as a way to find God. The major concern was for the development of the inner self (Bell, 1985; MacCullock, 1912). Modern-day women, on the other hand, undertake diets/restricting of food in order to achieve the ideal body size, shape, and weight as proscribed by society and made ubiquitous by the media. The major concern is to gain approval of the public self (Bordo, 1990; Jourard & Secord, 1955; Murray, Touyz, & Beumont, 1995; Wolf, 1990).

The culture of the last half of the 20th century has been riddled with an obsession with thinness (Brown, Cross, & Nelson, 1990; Dickstein, 1989; Jourard & Secord,
1955; Nasser, 1988; Roden et al., 1985; Shaw & Waller, 1995; Schwartz, Thompson, & Johnson, 1985; Striegel-Moore, Silberstein, & Roden, 1986; Wolf, 1990). In the 1978 Nielson survey, it was found that 56% of women ages 24-54 dieted and 76% of the women who dieted did so for cosmetic reasons rather than for health. Additionally, the culture’s diet fetish was evident in the plethora of diet and weight-related articles appearing in women’s magazines. Garner, Garfinkel, Schwartz, and Thompson (1980) found the mean number of diet-related articles to be 17.1 from 1959 to 1969 and 29.6 from 1969 to 1979. While Elizabeth Taylor was idolized as the epitome of beauty in the 1950s and 1960s, she was replaced in the 1970s by Twiggy and her prepubescent body (Schwartz, Thompson, et al., 1985; Wolf, 1990). Garner et al. (1980) looked at the cultural norms of ideal weight across a 20-year span from 1959 through 1978 as those norms related to the reality of the female population. Women were shown prototypes of feminine beauty (Playboy Magazine, Playmates and Miss America). As the 20 years unfolded, women selected increasingly slimmer women as ideal when compared to women in general. Interestingly, as the ideal female body became slimmer, the real female body became heavier, and society’s revulsion of obesity took hold (Braddon, Rodgers, Wadsworth, & Davies, 1986; Goldblatt, Moore, & Stunkard, 1965; Lawrence, 1987; Silverstone, Gordon, & Stunkard, 1969; Wooley & Wooley, 1979).

The eating-disordered woman’s self-worth is linked to body size and shape (Brownell & Fairburn, 1995; Casper, Halmi, Goldberg, Eckert, & Davis, 1979; Fairburn & Garner, 1986; Murray et al., 1995; Shaw & Waller, 1995). She is often
hyperobservant of the bodies of female counterparts and experiences a decrease in self-esteem when exposed to media representations of the ideal female body (Fallon & Rosen, 1985; Irving, 1990; Jourard & Secord, 1955; Richins, 1991; Wolf, 1990). In a study done with university females, weight-preoccupied females perceived the campus environment as placing significantly more emphasis on physical appearance and weight than did the non-weight-preoccupied females (Connor-Greene, Striegel-Moore, & Cronan, 1994). Murray et al. (1995) studied females diagnosed with eating disorders as the clinical sample and a group of females and a group of males in the workplace as control groups. Results showed that female patients were more likely to compare their body size and shape with those of other women than were female controls. They were also more likely to be affected by comments made by others regarding their body and eating. Female controls were also slightly more likely to state that they were influenced by same-sex comments on body size and were more comparative with other females than were the male controls. Generally, this study suggested that females are more likely to compare their body with other same-sex individuals than are males, to feel that their body is noticed by others, to have their body criticized by others, and to be in an environment where weight/diet/appearance are discussed. Additionally, females were more distressed by the evaluation of others which impacted self-esteem than were the males. Still other studies point to the social climate of thinness, sex-role issues, and the competitiveness of eating-disordered females as sociocultural factors in the development of eating-disorders (Brown et al., 1990; Dickstein, 1989; Roden et al., 1985; Striegel-Moore, Silberstein, et al., 1986).
Along with the issue of thinness is the complex construct of body image. Although the issue of body image is difficult to measure due to lack of consensus regarding definition, i.e., whole body versus parts of the body, most experts agree that body-image disturbances are common in eating disorders (APA, 1994; Bruch, 1962; Cooper & Fairburn, 1993; Fairburn, Cooper, & Cooper, 1986; Hamilton & Waller, 1993; Slade & Russell, 1973). Still others have found that there is no set body-image disturbance in anorexics and bulimics (Hsu & Sobkiewicz, 1991; Myers & Biocca, 1992; Slade & Brodie, 1994). It is important to note that these latter researchers were hoping to find a specific body image disturbance whereas most research has been geared to more general disturbances of the way in which the patients experience their bodies.

The changing role of women has also been a sociocultural aspect that has been targeted for its role in the development of eating disorders. Barnett (1986), Bemporad, Ratey, O'Driscoll, & Daehler (1988), Kaplan (1991), and Wooley (1991) agree that women's role has changed dramatically in the last 4 decades. These changes, and the responsibilities and fears they engender, have filtered down to young girls. Freedom to pursue careers and intellectual endeavors and freedom to explore sexual desires have weighed heavily on females in general. These same freedoms to the at-risk female may be terrifying due to her "good little girl" status and her morality based on obedience and submission (Kaplan, 1991; Wooley, 1991). The emerging equality with men may also contribute to eating disorders with at-risk individuals. The pressure to compete in the male world may propel a female into obtaining a body that symbolizes androgeny,
athleticism, and non-reproductive sexuality (Bennett & Gurin, 1982; Orbach, 1978). Sours (1980) contends that anorexia is a symbol of cultural forces which pushes a vulnerable child to succeed and master or control her environment. Chernin (1981) points up that current American culture admires the discipline and aestheticism of the anorexic thereby making the pursuit of anorexia a worthwhile endeavor.

In the sociocultural arena of the late 20th century, to be a successful "self" requires a successful body which involves employing cosmeticians, dieticians, plastic surgeons, exercise physiologists, exercise equipment, special diet foods, etc. (Brumberg, 1988; Turner, 1984). The appeal to consumerism and acceptable hedonism in the face of a strong work ethic and virtue in stifling gratification creates a social contradiction which fosters the confusion and complexity in eating disorders (Bordo, 1990; King, 1993).

The question remains, If sociocultural factors influence eating-disordered attitudes and behaviors, why are all women not susceptible to the messages to the extent that they develop anorexia or bulimia?

Dieting

The role of dieting as a trigger in the development of eating disorders has been well documented (Abraham & Beumont, 1982; Agras & Kirkley, 1986; Davis, Freeman, & Garner, 1988; Dwyer, 1985; Fairburn & Cooper, 1984; Garfinkel & Garner, 1982; Halmi, 1974; Heatherton & Polivy, 1992; Johnson & Connors, 1987; Polivy & Herman, 1985, 1987, 1995; Polivy, Herman, Olmsted, & Jazwinski, 1984;
Rosen, Tacy, & Howell, 1990; Russell, 1979; Sohlberg, 1991; Vanderheyden, Fekken, & Boland, 1988; Williamson, 1990; Wilson, 1995). It is important to note, however, that not all individuals who diet become anorexics or bulimics (Herman & Polivy, 1988; Polivy, 1989; Polivy & Herman, 1985, 1987; Ruderman & Grace, 1987, 1988).

Dieting involves making a conscious decision that somehow life would improve if weight/body size was decreased. When this desire to lose weight (whether the individual is overweight or not) is coupled with other psychological disturbances such as lack of self-worth, depression, interpersonal distrust, feelings of ineffectiveness, fears of maturing, familial and interpersonal difficulties, and low self-esteem, an eating-disorder may be the consequence. Dieting behavior, as well as other eating-disordered behaviors and attitudes, occurs on a continuum rather than on an all-or-nothing polarity (Johnson-Sabine, Wood, Patton, Mann, & Wakeling, 1988; Szmukler, Eisler, Gillis, et al., 1985). Several studies have provided evidence that dieting behavior in conjunction with personality factors may lead directly to the onset of eating disorders (Johnson-Sabine et al., 1988; Patton, 1988; Szmukler, Eisler, Gillis, et al., 1985). Dieting is one of the salient contributing factors in a susceptible individual (Dwyer, 1985; Hsu, 1990; Polivy & Herman, 1995; Wilson, 1995) but it is not sufficient, in and of itself, to be the cause of anorexia nervosa and bulimia.

Trauma and Loss

Experts have found that one or more psychologically traumatic events have often been a precursor to the manifestation of eating-disordered attitudes and behaviors.
(Chewning-Korpach, 1993; Connors & Morse, 1993; Hsu, 1990; Oppenheimer, Howells, Palmer, & Chaloner, 1983; Palmer, 1995; Rice, 1996; Root & Fallon, 1988; Rorty & Yager, 1993; Rorty, Yager, & Rossotto, 1994; Schwartz & Gay, 1993; Schwartz et al., 1985; Strober, 1984; van der Kolk & Fisler, 1994; Vanderlinden, Vandereycken, van Dyck, & Vertommen, 1993; Waller, Ruddock, & Pitts, 1993; Wooley, 1993; Zerbe, 1993, 1995). Sometimes the event is being teased about being fat. It may also have to do with interpersonal conflict, family difficulties, personal illness, sense of personal failure, death or illness in a family member, or separation from the family environment (Crisp et al., 1980; Dally, 1969; Morgan & Russell, 1975; Sohlberg, 1991; Theander, 1970). Traumatic events may have occurred during childhood, often in the form of sexual abuse (Connors & Morse, 1993; Hall, Tice, Beresford, Wooley, & Hall, 1989; Kearney-Cooke, 1988; Kearney-Cooke & Striegel-Moore, 1994; Kinzl, Traweger, Geunther, & Biebl, 1994; Miller, 1993; Oppenheimer et al., 1983; Palmer, Oppenheimer, Dignon, Chaloner, & Howells, 1990; Pribor & Dinwiddie, 1992; Rice, 1996; Schwartz & Gay, 1993; Sloan & Leichner, 1986; Waller, 1993; Zerbe, 1993, 1995), or more recently to the onset of the eating-disordered symptoms (Kalucy et al., 1977).

The issue of early childhood sexual abuse as related to later incidence of eating disorders remains controversial. Researchers have argued over what constitutes sexual abuse and what methodology to employ (Pope & Hudson, 1992), as well as whether to differentiate between the subgroups of eating-disordered categorization, i.e., anorexia with purging, bulimia with history of anorexia, bulimia purging type, eating disorder
not otherwise specified. A study involving only bulimics, a narrowly defined definition of sexual abuse, and interview procedure, found only 5.4% probands reporting childhood sexual abuse (Lacey, 1990). Two studies reported a 69% rate of sexual abuse in the eating-disordered sample when subjects were diagnosed with any of the full spectrum of eating disorders, using a broad definition of sexual abuse, and employing self-report methodology (Folsom, Krahn, & Canum, 1989; Folsom, Krahn, Nairn, & Gold, 1993). It does appear that sexual abuse is not unique to eating-disordered individuals but rather is common in other psychiatric patients as well (Briere & Runtz, 1988; Folsom et al., 1993; Palmer, Chaloner, & Openheimer, 1992; Pribor & Dinwiddie, 1992; Vize & Cooper, 1995). It seems important that mental-health professionals acknowledge the occurrence of sexual abuse in some eating-disordered patients in order to assess the nature and extent of the interactions of these etiological factors.

Physical Symptoms

Eating disorders are thought to be largely psychological in nature but result in a complex array of physical symptomatology which may in fact serve to propagate the disorder (Mitchell, 1986a, 1986b). The most obvious physical symptom of anorexia nervosa is emaciation (APA, 1980, 1987, 1994; Emmett, 1985; Halmi, 1992; Hsu, 1990; Kaplan & Garfinkel, 1993; Siegel, Brisman, & Weinshel, 1988; Spack, 1985). Other physical symptoms include amenorrhea, dry skin which sometimes has a yellowish tinge, cold intolerance, inability to maintain warmth in extremities, lanugo
over face, trunk, and extremities, constipation, abdominal bloating, peripheral edema, dental problems (APA, 1994; Hsu, 1990; Kaplan & Garfinkel, 1993; Brownell & Foreyt, 1986), and brittle hair and nails. Medical aspects include metabolic disturbances, gastrointestinal complications, cardiovascular abnormalities, fluid and electrolyte imbalances, dental problems, hypotension, hypothermia, hemotological changes, and endocrine complications (APA, 1994; Brownell & Foreyt, 1986; Emmett, 1985; Fairburn, 1995; Goldbloom & Kennedy, 1995; Kaplan & Garfinkel, 1993; Mitchell, Pomeroy, & Huber, 1988). The difficulty for therapists is that anorexia begins long before the emaciation, amenorrhea, and other medical complications are evident. Clinicians need to be cognizant of the subtleties of these disorders to identify problems sooner.

Bulimia is often difficult to detect in its early stages due to the lack of the physical evidence of emaciation (Johnson & Connors, 1987; Mitchell, 1995; Pike, Loeb, & Walsh, 1995; Spack, 1985). Bulimics are typically within normal weight range, perhaps slightly overweight or slightly underweight (APA, 1987, 1994; Fairburn, 1984; Johnson & Connors, 1987; Pike et al., 1995). Detection may occur through routine dental examination as recurrent vomiting eventually leads to erosion of tooth enamel and increased incidence of cavities. Additionally, some individuals experience swelling of the parotid glands, broken blood vessels in the eyes, and calluses on the back of the hand used to induce vomiting (APA, 1994; Cooper & Fairburn, 1983; Hsu, 1990; Mitchell, 1995; Pike et al., 1995; Siegel et al., 1988; Spack, 1985; Zwann & Mitchell, 1993). Occasionally, an individual may have an
esophageal rupture (APA, 1994). Menstrual irregularities, electrolyte disturbances, gastrointestinal complications, cardiovascular effects, neurological abnormalities secondary to electrolyte disturbances, and metabolic abnormalities may be evident upon examination and laboratory procedures (APA, 1994; Hsu, 1990; Mitchell, 1986b, 1995; Pike et al., 1995; Spack, 1985; Zwann & Mitchell, 1993). Additionally, various purging modalities (e.g., laxative abuse, diuretic abuse, overexercise, diet pills, ipecac syrup) may result in physical and/or psychological addictions which complicate the treatment process (Zwann & Mitchell, 1993).

Behavioral Symptoms

Even before the physical manifestations of anorexia nervosa and bulimia nervosa are apparent, the behavioral signs are noticeable. Initially, both anorexics and bulimics typically complain about being fat and begin dieting or restricting certain types of food to remedy their fatness (APA, 1994; Beumont, 1995; Hsu, 1990; Siegel et al., 1988). They often talk about and read about food, food preparations, diets, and appearance. Anorexics will institute strange rituals around food, e.g., cutting food up into small pieces, moving food around on plate or playing with the food, counting bites of food or number of times chewing, catering meals for others while refusing to eat (Beumont, 1995; Siegel et al., 1988), only eating certain combinations of foods, etc. Anorexics may avoid situations where food will be present (Beumont, 1995; Siegel et al., 1988), they may bring their own food to a dinner party or gathering, or they may claim that they have already eaten and are not hungry. Some anorexics also have episodes of
binge eating, purging with laxatives (Beumont, 1995; Pryor, Wiederman, & McGilley, 1996), diuretics, enemas, vomiting, or exercise (APA, 1994; Beumont, 1995; Siegel et al., 1988), and/or chewing and spitting food (McCutcheon & Nolan, 1995). Other behaviors in which anorexics often engage are nonfood related and include frequent weighing (several times daily); complaints of being globally fat or being fat in specific areas of the body while being obviously thin or emaciated, wearing layers of clothing due to hypothermia and to disguise weight loss; obsessive need to assess body size and shape in mirror or with tape measure; and long, regimented exercise routines, or general overactivity (APA, 1994; Beumont, 1995; Hsu, 1990). Anxiety and anger outbursts may occur when these rituals and routines are interrupted (Beumont, 1995) and the anorexic will go to any length to restore her sense of safety and homeostasis.

While the anorexic may be very proud of her ability to restrict/deny her food intake, the bulimic is very secretive in her behavior of binge eating and purging by way of vomiting, laxative, or diuretic abuse. Rarely does a bulimic binge in public or among friends and family (APA, 1994; Beumont, 1995; Fairburn et al., 1986; Pike et al., 1995; Siegel et al., 1988). Vast quantities of missing food are often the first outward signal that a bulimic is in the family’s or household’s midst (Siegel et al., 1988). Mandatory visits to the bathroom after eating are typical for bulimics who self-induce vomiting and who abuse laxatives (Fairburn et al., 1986; Mitchell & Boutacoff, 1986; Pike et al., 1995; Siegel et al., 1988). Other bulimics, especially during later stages of the illness, may leave vomitus in plastic bags (Beumont, 1995), between the pages of a magazine, or in heating vents in their rooms (Clinical account). They may
also engage in chewing and spitting out food (McCutcheon & Nolan, 1995). The bulimic may hide and sneak food, make frequent stops at fast-food restaurants, steal food from grocery stores, and/or avoid public eating (Bulik, Beidel, Duchmann, Weltzin, & Kaye, 1991; Pike et al., 1995; Siegel et al., 1988). Voracious spending of money and shoplifting nonfood items are also frequently seen in the bulimic's behavior (Casper et al., 1980; Fairburn et al., 1986; Mitchell, Flectcher, Gibeau, Pyle, & Eckert, 1992; Rowston & Lacey, 1992) as is substance abuse (APA, 1994; Bulik, 1987b; Bulik, Sullivan, et al., 1992; Casper et al., 1980; Earleywine, Finn, & Peterson, 1992; Fairburn et al., 1986; Goldbloom, 1993; Holderness, Brooks-Gunn, & Warren, 1994; Hudson, Weiss, Pope, McElroy, & Mirin, 1992; Peveler & Fairburn, 1990; Pyle et al., 1981; Selby & Moreno, 1995). During the course of the illness, the bulimic's weight often fluctuates by 10-15 pounds (Beumont, 1995; Fairburn et al., 1986) necessitating several sizes of clothes in her closet. Similar to the anorexic, the bulimic may overexercise, obsess about food, diets, and weight, and express excessive fear of being or becoming fat (APA, 1994; Beumont, 1995; Fairburn et al., 1986; Siegel et al., 1988).

Psychological Symptoms

The psychological symptoms of individuals at risk or diagnosed with eating disorders are multifaceted, complex, and diverse (Bulik, Sullivan, Weltzin, & Kaye, 1995; Cooper, 1995; Cooper & Fairburn, 1993; Crisp, 1965, 1983; McFarland, 1995; Smith & Steiner, 1992; Strober, 1983; Williamson et al., 1995). There remains the unanswered question as to whether the psychological features predated or postdated the
onset of the eating disorder, or whether they are a direct consequence of the malnutrition. As with any other mental-health issue, there are also tremendous individual differences even within the same diagnostic group (Beumont, 1995; Crisp, 1983; Garfinkel et al., 1980; Hsu, 1990; Stunkard, 1993). Anorexia nervosa and bulimia nervosa may also weave in and out of each other over time rendering distinct and unique features of each impossible to define (Cooper, 1995; Cooper & Fairburn, 1993; Garfinkel et al., 1980; Garner, 1993; Hsu, 1988, 1990; Kendler et al., 1991; Russell, 1985). An additional complication is understanding and taking into account the dynamic life force that anorexia and bulimia take on during the course of the disease (Beumont, 1995, Cooper, 1995; Russell, 1985). The psychological symptoms during the early stages of illness may or may not be present during later stages and/or may be replaced by other features (Beumont, 1995). A frequently seen example would be the adolescent female who is described as submissive, compliant, and sweet but who becomes rebellious, self-righteous (virtuous), and intolerant of others' imperfections as the disease progresses. Another example is the anorexic who exhibits an abundance of physical and psychological energy in the early stages but who gives way to lethargy and depression in later stages of anorexia. It is my opinion that the studies in current literature do not take this nonstatic nature of eating disorders seriously, which makes documenting the psychological features more difficult. In this section a broad spectrum of psychological symptoms will be discussed. Some of these symptoms can become severe and develop into comorbid illnesses and are discussed in the next section.

Looking at the DSM-III (APA, 1980; see Appendix A), DSMIII-R (APA, 1987;
see Appendix B), and DSM-IV (APA, 1994; see definitions in chapter 1) criteria is a logical place to begin discussion on the psychological features of anorexia nervosa and bulimia nervosa. Both eating disorders and subtypes (Bunnell, Shenker, Nussbaum, Jacobson, & Cooper, 1990; Casper, Offer, & Ostrov, 1981; Garner, Olmsted, & Garfinkel, 1983) involve the aspect of self-evaluation being inordinately influenced by body size and shape and fear of being fat (Buvat-Herbaut, Hebbinckuys, Lemaire, & Buvat, 1983; Fairburn, 1988; Freeman, Thomas, Solyom, Koopman, 1985). Numerous studies have been undertaken to support the diagnostic criterion. Cooper and Fairburn (1987), Eldredge et al. (1990), Fairburn and Garner (1986), and Streigel-Moore, McAvay, and Rodin (1986) found that in eating-disordered subjects’ self-worth was based on weight and perceived body size to a greater extent than normals. Parallel to weight being the main criterion for self-worth is low self-esteem found in the eating-disordered population and documented anecdotally (Bruch, 1973, 1978; Nagelberg, Hale, & Ware, 1984; Selvini-Palazzoli, 1974) and empirically (Garner & Garner, 1986; Taylor & Cooper, 1986; Thompson & Thompson, 1986; and Williams et al., 1993). Eating-disordered females tend to focus on the imperfect areas of their bodies. They may determine their entire body as being fat or specific body parts (thighs, hips, buttocks, abdomen, breasts) as fat and imperfect regardless of actual size (APA, 1987, 1994; Garner & Bemis, 1985; Phelan, 1987; Taylor & Cooper, 1986; Thompson & Thompson, 1986). Striving for perfection in all areas of their lives, eating-disordered individuals detest the perceived imperfections about their bodies (Striegel-Moore et al.,
1986) and exhibit varying degrees of body image distortion (APA, 1987, 1994; Taylor & Cooper, 1986; Thompson & Thompson, 1986).

Mood disorders in the form of clinical depression or simply depressive symptomatology often accompany eating disorders. There has been a plethora of research to document this phenomenon (Braun, Sunday, & Halmi, 1994; Breaux & Moreno, 1994; Fornari et al., 1992; Herzog, 1984; Kennedy et al., 1994; Laesle, Wittchen, Fichter, & Pirke, 1989; Norman & Herzog, 1983; Rebert, Stanton, & Schwartz, 1991; Rosen, Murkofsky, Steckler, & Skolnick, 1989; Smith & Steiner, 1992; Strober & Katz, 1987; Williamson, Kelley, Davis, Ruggiero, & Blouin, 1985; Wilson & Lindholm, 1987), and it has been concluded that depression and anxiety are the most common pathological affective states of eating-disordered individuals (Fornari et al., 1992; Swift, Andrews, & Barklage, 1986). Depressive features may precede the eating-disordered behavior and/or be the consequence of under/malnourishment. Depression may also contribute to the recalcitrant nature and high recidivism in eating disorder treatment. Features of anxiety and anxiety disorders are prevalent in eating-disordered patients as well (Braun et al., 1994; Bulik et al., 1991; Hudson, Harrison, & Yurgelun-Todd, 1983; Piran, Kennedy, Garfinkel, & Owens, 1985; Piran, Lerner, Garfinkel, Kennedy, & Brouillette, 1988; Rothenberg, 1988; Walsh, Roose, Glassman, Gladis, & Sadik, 1985; Williamson et al., 1985) and may extend beyond the anxieties related to negative scrutiny of body size and shape (Bulik et al., 1991) and eating/food issues (Buree, Papageorgis, & Hare, 1990).

The issue of ineffectiveness may be a variant of the depressive state as eating-
disordered-individuals perceive themselves as being unable to impact change in their lives or their behaviors (Bruch, 1973; Garner, 1990; Garner et al., 1983). Another term to represent this domain is locus of control. Studies have shown that eating-disordered females experience a sense of ineffectiveness, or an external locus of control, in multiple aspects of their lives, not just with food and weight (Bruch, 1978; Garfinkel, 1981; Hood, Moore, & Garner, 1982; McLaughlin, Karp, & Herzog, 1985; Rogers & Petrie, 1996; Selvini-Palazzoli, 1974; Strober, 1982; Wagner, Halmi, & Maguire, 1987; Weiss & Ebert, 1983; Williams et al., 1993). Hood et al. (1982) and Strober (1982) both found that the lower the sense of ineffectiveness, the higher the psychopathology. Additionally, when anorexics were compared to depressed, conduct disordered (Strober, 1982), and bulimics (Wagner et al., 1987), it was found that restricting anorexics experienced the least sense of ineffectiveness with food but not necessarily with other areas of life. Impaired impulse control has been noted by researchers and eating-disorder specialists (Casper et al., 1992; Fahey & Eisler, 1993; Hatsukami, Owen, Pyle, & Mitchell, 1982; Jones & Edelmann, 1989; Lacey & Evans, 1986; Pyle et al., 1981; Strober, 1981, 1983; Williamson et al., 1985). Kaye, Bastiani, and Moss (1995) and Sohlberg (1991) reported that impulse control in anorexics differs from impulse control in bulimics. Additionally, Sohlberg (1991) suggested that anorexics overcontrol their impulses in regard to otherwise pleasurable activities, specifically eating. Bulimics, on the other hand, display a lack of impulse control in regard to pleasurable activities (e.g., eating, shoplifting, alcohol/drug use, and sexual activity). This distinction is intuitive and may have biochemical as well as
behavioral aspects (Sohlberg, 1991). Other studies measuring cognitive and behavioral aspects of impulse control and obsessive-compulsive tendencies in eating disorders as opposed to normal controls resulted in restricting anorexics scoring in the direction of hypercontrol as compared to bulimics or normals, and bulimics scoring in the direction of hypocontrol as compared to anorexics and normals (Toner, Garfinkel, & Garner, 1987; Wonderlich, Swift, Slotnick, & Goodman, 1990; Woznica, 1990).

Along with the issue of impaired impulse control are the findings that eating-disordered females experience higher rates of anger attacks and aggression than controls (Breaux & Moreno, 1994; Brunner, Maloney, Daniels, Mays, & Farrell, 1989; Fava, Anderson, & Rosenbaum, 1990; Fava, Rappe, West, & Herzog, 1995; Hatsukami et al., 1982; Kagan & Squires, 1984; Rebert et al., 1991) due, at least in part, to serotonergic dysregulation (Coccaro et al., 1989; Kaye & Weltzin, 1991).

Alexithymia, restrained emotional expression and the inability to identify and distinguish between emotional states (Sifneos, 1973), has been noted by Bagby, Taylor, and Atkinson (1988). Bourke, Taylor, Parker, and Bagby (1992). Cochrane, Brewerton, Wilson, and Hodges (1993), Schmidt, Jiwany, and Treasure (1993), and Troop, Schmidt, and Treasure (1995). In each of these studies the eating-disordered groups (anorexics, bulimics, and anorexics with bulimia) scored higher on the alexithymia scales than did controls. Other authors have found that anorexics were no more likely to be restrained in their emotional expression and impaired in identification of emotional states than controls (Engel & Meier, 1988; Pierloot, Houben, & Acke, 1988). The discrepancy may be accounted for by the instrumentation used in the
studies. The latter studies, which did not find evidence of alexithymia in the eating-disordered groups, used speech samples, personality inventories, and projective measures as opposed to the Taylor Alexithymia Scale, which has been shown to be a valid and reliable measure of alexithymia (Taylor, Bagby, Ryan, & Parker, 1990) and superior to other self-report instruments (Bagby et al., 1988). Self-directed hostility in the form of high levels of self-criticism, guilt, and shame has been documented anecdotally (Bruch, 1978; Selvini-Palazzoli, 1974) and has been empirically supported by research studies (Goodsitt, 1985; Leon, Carroll, Cherryk, & Finn, 1985; Rampling, 1985; Steiger, Goldstein, Mongraine, & VanderFeen, 1990; Teusch, 1988; Tiller, Schmidt, Ali, & Treasure, 1995; Williams et al., 1993; Zerbe, 1995). This same characteristic of self-directed hostility in eating-disordered females was not supported in a study undertaken by Rogers and Petrie (1996). In this study, which used The Hostility and Direction of Hostility Questionnaire (Caine, Foulds, & Hope, 1967) and consists of 51 selected MMPI items, there appeared to be no relationship between eating-disordered symptomatology and self-directed hostility. One explanation for the contradiction may be due to the sample studied, i.e., female undergraduates exhibiting subclinical signs of eating disorders as opposed to females with diagnosable eating disorders. Self-sacrifice or asceticism was also found to be more pervasive in eating-disordered subjects than in non-eating-disordered subjects (Bell, 1985; Bemporad et al., 1988; Casper, 1983; Garner, 1990; Garner et al., 1983; Rampling, 1985).

Dissociative features have been noted by Gleaves and Eberenz (1993, 1995), Schumaker, Warren, Schreiber, and Johnson (1994), Torem (1986), and Vanderlinden...
et al. (1993). Eating-disordered probands scored significantly higher on dissociation scales than did non-eating-disordered probands, and the severity of dissociative symptoms was associated with depression in the eating-disordered groups (Gleaves & Eberenz, 1995).

One of the features that makes eating disorders difficult to diagnose in early stages, in order to provide effective treatment and to accurately study, is that of denial and distortion (Pryor, Johnson, Wiederman, & Boswell, 1995; Vitousek, Daly, & Heiser, 1991). The prominence of denial in eating-disordered individuals has been largely noted in descriptive accounts (Halmi, 1974). In some studies, denial and distortion have been inferred by looking at the validity scales of personality inventories (Crisp, Hsu, & Stonehill, 1979; Gomez & Dally, 1980; Stonehill & Crisp, 1977; Vandereycken & Vanderlinden, 1983). Crisp (1967) considered anorexics' reluctance to self-reveal to be a typical characteristic of this population. In one study, self-reporting measures discriminated between anorexics who were "admitters" and "deniers." On the MMPI, admirers showed greater elevation on the neurotic and psychotic scales than the deniers. Deniers tended to appear more self-defended and socially extraverted than admirers (Vandereycken & Vanderlinden, 1983).

al., 1985; Renshaw, 1990). Sexual inhibitions have been described by Bruch (1973, 1978) and Selvini-Palazzoli (1978) and are assumed to be due to the patient’s fears of growing up and becoming a woman. The anorexic’s denial of pleasurable activities and self-sacrifice (my clinical observations), body shame and disgust (Zerbe, 1995), fears of sexual responsiveness (Crisp, 1980; Sours, 1980), and guilt (Zerbe, 1992) may also contribute to psychosexual dysfunction.

Co-morbidity

It is well known that eating disorders do not appear in isolation from other psychological illnesses and issues. General psychological features (i.e., depression, anxiety, self-esteem, denial, perceived control, ineffectiveness, rigidity, alexithymia, body-image distortion, perfectionism, impulse control, self-sacrifice, locus of control, self-directed hostility, anger, shame and guilt, and dissociative features) were addressed in the preceding section. These Axis I syndromes may either predate the eating disorder (Brewerton, Lydiard, Ballenger, & Herzog, 1993; Cantwell, Sturzenberger, Burroughs, Salkin, & Green, 1977; Toner, Garfinkel, & Garner, 1988) or may develop after the onset of the eating disorder (Halmi et al., 1991). This section looks at co-morbid diagnoses, specifically personality disorders (Axis II), substance abuse/dependence, major depressive disorder, and obsessive compulsive disorder.

Personality disorders have long been thought to co-exist with eating disorders in many patients. The research, however, is fraught with inconsistencies due to the methodological discrepancies (Kennedy, McVey, & Katz, 1990; Pope & Hudson,
lack of consensus regarding definitions, and differences in DSM criteria over the years (Braun et al., 1994; Herzog, Keller, Lavori, Kenny, & Sacks, 1992; Piran, Lerner, et al., 1988; Pope & Hudson, 1989). Prevalence of at least one personality disorder in bulimic patients ranges from 77% (Powers, Coovert, Brightwell, & Stevens, 1988) to as low as none (Frankel et al., 1988). Many studies found prevalence rates between these extremes (Ames-Frankel et al., 1992; Gartner, Marcus, Halmi, & Loranger, 1989; Herzog et al., 1992; Levin & Hyler, 1986; Piran, Kennedy, Garfinkel, & Whynot, 1988; Pope, Frankenburg, Hudson, Jonas, & Yurgelun-Todd, 1987; Reich, Nduaguba, & Yates, 1988; Rossiter, Agras, Telch, & Schneider, 1993; Schmidt & Telch, 1990; Wonderlich et al., 1990). Similar discrepancies were found when studying personality disorders in anorexic patients. Prevalence rates of 80%, 33%, and 22% were found by Wonderlich et al. (1990), Gartner et al. (1989), and Herzog et al. (1992) respectively. When combining all eating-disorder patient groups, Kennedy et al. (1990) used a self-report measure and found a prevalence rate of 93% for personality disorders upon admission to in-patient treatment and 79% upon discharge. Norman, Blais, and Herzog (1993) used the Millon Clinical Multiaxial Inventory (MCMI) to determine prevalence of personality disorders in eating-disordered patients and found that 84% of all subjects fit the criteria for having an Axis II disorder. These studies, reviewed by Swift and Wonderlich (1988), confirmed a high rate of personality disorders in anorexia and bulimia.

The most commonly found personality disorder in the eating-disordered population is Borderline Personality Disorder (Herzog et al., 1992; Kennedy et al., 1992).
Borderline Personality Disorder was found in subjects with bulimia nervosa by Gwirtsman, Roy-Byrne, and Yager (1983), Levin and Hyler (1986), and Piran, Lerner, et al. (1988), whereas Pope et al. (1987) did not find an association between bulimia nervosa and Borderline Personality Disorder. This inconsistency may be due to the fact that some of the features of Borderline Personality Disorder may be state dependent rather than stable traits and may remit with treatment (Garner et al., 1990).

Obsessive-Compulsive Disorder (not to be confused with Obsessive-Compulsive Personality Disorder) has been noted in eating-disordered patients for decades. Palmer and Jones (1939), Rahman, Richardson, and Ripley (1939), and Meyer and Weinroth (1957) described obsessive-compulsive behaviors such as excessive orderliness, obsessive fear of dying, counting compulsions, and compulsive eating rituals in eating-disordered patients. More recently, research has revived the notion that there is a relationship between Obsessive-Compulsive Disorder and eating disorders (Bulik, Beidel, Dutchman, Weltzin, & Kaye, 1992; Rothenburg, 1986, 1988; Rubenstein et al., 1993). It is important to note that most of the literature examines the relationship between anorexia nervosa and Obsessive Compulsive Disorder rather than bulimia because there is a paucity of data on bulimia nervosa and Obsessive Compulsive Disorder. This is perhaps because it has been only recently that bulimia has been recognized as a distinct disorder from anorexia nervosa (Hsu, Kaye, & Weltzin, 1993).

One study by Rubenstein et al. (1993) did isolate bulimia nervosa and its relationship to Obsessive Compulsive Disorder. In this study, incidence and lifetime
prevalence of OCD in bulimic patients were examined by administering three separate self-report questionnaires (e.g., the Yale Brown Obsessive Compulsive Scale [YBOCS], the Maudsley Obsessive-Compulsive Inventory [MOCI], and the Symptom Checklist 90-R) and one structured interview. Results from this study concluded that the lifetime prevalence of OCD in bulimic patients was high (32%) and that an additional 24% met criteria for subthreshold OCD, and 44% had no indicators of OCD. Furthermore, and in keeping with the diagnosis of OCD (APA, 1994), many of the obsessions and compulsions were unrelated to food, weight, or body image.

Studies using various methodologies, such as interview (Hsu, Crisp, & Harding, 1979; Kay & Leigh, 1954; Morgan & Russell, 1975), self-report Leyton Obsessional Inventory (Rogers & Petrie, 1996; Smart et al., 1976; Solyom, Freeman, Thomas, & Miles, 1983; Strober, 1980), and Crown-Crisp Experiential Index (Hsu & Crisp, 1980; Stonehill & Crisp, 1977), found significant prevalence of Obsessive Compulsive Disorder in anorectic patients. Additionally, Hsu and Crisp (1980), Rogers and Petrie (1996), and Stonehill and Crisp (1977) found that the obsessional features remained even after recovery had been considered successful. Several studies, however, found contradictory results. Using the Maudsley Obsessive Compulsive Inventory, Fahey (1990), Channon and DeSilva (1985), and Weiss and Ebert (1987) found no significant increase in obsessional scores of eating-disordered patients. Additionally, two of these studies (Channon & DeSilva, 1985; Hsu, Crisp, & Callender, 1992) found elevated pre-recovery scores which returned to normal range after recovery. Hsu et al. (1992) also found that anorexics who remained unrecovered at a 20-year follow-up continued
to obtain elevated obsessional scores. A thorough review of these studies leads experts to conclude that there is still no definitive conclusion regarding the association between eating disorders and Obsessive Compulsive Disorder (Hsu et al., 1993).

Substance abuse, specifically alcohol abuse, has frequently been noted in eating-disordered patients and has a large body of research to support clinical observation (APA, 1994; Brisman & Siegel, 1984; Bulik, 1987a, 1987b, 1991; Casper et al., 1980; Earleywine et al., 1992; Holderness et al., 1994; Hudson et al., 1992; Peveler & Fairburn, 1990; Pyle et al., 1981; Selby & Moreno, 1995; Taylor, Peveler, Hibbert, & Fairburn, 1993). Anorexics were found to have a 6-33% lifetime prevalence of alcohol problems when the anorexia had co-existing bulimic features (Eckert, Goldberg, Halmi, Casper, & Davis, 1979; Henzel, 1984; Hudson, Pope, & Yurgelun-Todd, 1983; Hudson, Pope, Yurgelun-Todd, Jonas, & Frankenburg, 1987). When anorexics without bulimic symptoms were studied there was no apparent increased vulnerability toward alcohol misuse than was found in normal controls (Halmi et al., 1991). Other more recent studies have looked at bulimics as distinct from anorexics and have found that bulimics have significantly greater co-morbidity of alcohol abuse and dependency than do anorexics and normal controls (Beary, Lacey, & Merry, 1986; Bulik, 1987a, 1987b; Bulik et al., 1992; Garfinkel et al., 1980; Goldbloom, Naranjo, Bremner, & Hicks, 1992; Henzel, 1984; Hudson et al., 1987; Hudson et al., 1992; Jones, Cheshire, & Moorhouse, 1985; Lacey & Mourelis, 1986; Mitchell et al., 1985; Selby & Moreno, 1995; Wilson, 1992).

Of equal importance to substance abuse in the eating-disordered patients is the
occurrence of eating disorders in women who are receiving treatment for substance abuse (Marcus & Halmi, 1988; Taylor et al., 1993). Many studies concluded that there is a higher incidence of eating disorders in substance-abusing patients than in controls. Prevalence rates of 13%, 17%, 26%, and 30% were found by Hudson et al. (1992), Striegel-Moore, Cronan, Goebel, Pena, and Scheibe (1992), Peveler and Fairburn (1990), and Goldbloom et al. (1992) respectively. Only Corrigan, Johnson, Alford, Bergeron, and Lemmon (1990) found that 8% of chemically dependent females scored in the direction of bulimia. They concluded that this was not significantly different than the prevalence of bulimia in the non-chemically dependent population. Experts concur that alcohol misuse, abuse, and dependency are issues which must be assessed and treated simultaneously with the eating disorder when present.

Assessment

Assessment instruments abound in the field of eating disorders but clinicians, experts, and researchers agree that assessment is a complex process due to the multifaceted nature of eating disorders and ill-defined features (Beumont, Abraham, Argall, & Simpson, 1981; Dally & Gomez, 1979; Fairburn & Beglin, 1994; Garfinkel & Garner, 1982; Garner, 1990; Garner & Garfinkel, 1980; Palmer, 1979; Strober, 1980, 1981). Studies also show that there are often false-positives in eating-disorder diagnoses (deZwaan et al., 1993; Freeman & Henderson, 1988; Johnstone-Sabine et al., 1988; King, 1986; Pyle et al., 1986; Schotte & Stunkard, 1987; Spitzer et al., 1993; Szmukler, 1982; Williams, Schaefer, Shisslak, Gronwaldt, & Comerci, 1986) as well
as false-negatives. At least two stages are optimal for confirming or disconfirming the diagnosis of anorexia or bulimia, i.e., self-report questionnaire and thorough clinical interview, both of which were used in several studies (Button & Whitehouse, 1981; Clark & Palmer, 1983; Meadows, Palmer, Newball, & Kenrick, 1986; Nagelberg et al., 1984; Nevo, 1985; Shefer, 1987; Whitehouse & Button, 1988).

Eating-disorder assessment instruments to be discussed in this review of literature are the Eating Disorder Inventory-2 (EDI-2; Garner, 1990), the Eating Attitudes Test (EAT; Garner & Garfinkel, 1979), the Stirling Eating Disorder Scales (SEDS; Williams et al., 1994), the Questionnaire for Eating Disorder Diagnosis (Q-EDD; Mintz et al., 1997), and the Structured Interview for Anorexia and Bulimia Nervosa (SIAB; Fichter et al., 1991). The Weight Management Questionnaire (WMQ; Mintz & Betz, 1988), the Body Attitude Test (BAT; Probst, Vandereycken, van Coppenolle, & Vanderlinden, 1995), the Dieting Status Measure (DiSM; Strong & Huon, 1997), the Eating Disorders Examination (EDE; Cooper & Fairburn, 1987), the Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985), and the Yale-Brown-Cornell Eating Disorder Scale (YBC-EDS; Sunday, Halmi, & Einhorn, 1995) are additional eating-disorder assessment instruments which are less widely used.

The 64-item EDI-2 (Garner, 1990) was derived from the original Eating Disorder Inventory (Garner, Olmsted, & Polivy, 1983) and is comprised of the same eight subscales designed to apprise psychological and behavioral traits of anorexia nervosa and bulimia: (1) Drive for Thinness, (2) Bulimia, (3) Body Dissatisfaction, (4) Ineffectiveness, (5) Perfectionism, (6) Interpersonal Distrust, (7) Interceptive
Awareness, and (8) Maturity Fears and includes three new provisional constructs: (1) Asceticism, (2) Impulse Regulation, and (3) Social Insecurity. The EDI was designed to address the cognitive and the behavioral characteristics observed in eating-disordered patients in clinical settings. The internal consistency of the EDI subscales needed to meet the criterion of alpha > .80 for an eating-disorder sample. Reliability coefficients for the original EDI subscales fell between .83 and .93 for the eating-disorder sample thus meeting the established criterion. In the updated version, EDI-2, reliability coefficients of the subscales fell between .80 and .92. The provisional subscales of Asceticism, Impulse Regulation, and Social Insecurity resulted in alphas of .70, .77, and .80 of which only Social Insecurity met with the internal consistency criterion. Schoemaker, Verbraak, Breteler, and van der Staak (1997) studied the discriminant validity of the EDI-2 with bulimic subjects and found only three scales, Bulimia, Interoceptive Awareness, and Asceticism, to discriminate the bulimic group from the general psychiatric control group.

Test-retest reliability is tenuous (Nunnally, 1978) for this population due to the possibility of intervening events (treatment), memory of earlier responses, changes in psychological states, and denial or minimization. However, three test-retest reliability studies were undertaken with nonpatient samples (Crowther, Lilly, Crawford, Shepherd, & Oliver, 1990; Wear & Pratz, 1987; Welch, 1988, as cited in Garner, 1990). With a 1-week interval, the Bulimia (alpha = .79) and Interoceptive Awareness (alpha = .67) did not meet the desired criterion of alpha = .80 (Welch, 1988, as cited in Garner, 1990). The highest test-retest reliability coefficients were received for the
3-week interval where all the subscales exceeded the criterion with the exception of Maturity Fears (alpha = .65). Other subscale coefficients ranged from .81 to .97 (Wear & Pratz, 1987). The poorest reliabilities were found by Crowther et al. (1990) after a 1-year interval. None of the subscales met the alpha = .80 criterion and the range was between .41 and .75.

In order for an item to be retained in the EDI it had to meet three criterion to demonstrate validity: (1) it had to differentiate between the eating-disorder sample and normal female controls; (2) it had to be more highly correlated with its intended subscale than with any other subscale; and (3) internal consistency of items in any one subscale had to reach criterion of alpha = .80 for the eating-disorder sample (Garner et al., 1983). There is a significant body of research which shows the soundness and clinical relevance of the EDI subscales in measuring the experience, attitudes, and behaviors of eating-disorder patients. Content, criterion, convergent, and discriminant validity have all been shown to be acceptable, and many of the studies have been replicated in a variety of settings (Garner, 1990).

The Eating Attitudes Test (EAT-40; Garner & Garfinkel, 1979) has been used to identify patients at risk for anorexia nervosa. It is a 40-item self-report questionnaire and has a 26-item shortened version (EAT-26) which measures three domains: (1) dieting, (2) oral control, and (3) bulimia with food preoccupation (Garner, Olmstead, Bohr, & Garfinkel, 1982). It was tested on patients with identified anorexia nervosa and on control female subjects most of whom were in their 20s. Internal consistency reliability studies resulted in coefficient alpha = .94 for the combined samples of
anorexics and normals. For anorexics alone, the coefficient was .79 (Garner &
Garfinkel, 1979). The instrument was designed according to the definition of anorexia
nervosa given by Feighner et al. (1972). Because the understanding and criterion have
been redefined in recent years, the EAT no longer reflects anorexia nervosa as set forth
in the DSM-IV (Garner et al., 1982; Mintz et al., 1997). Additionally, the EAT-40 is
found to result in a relatively high rate of false-positives in nonclinical samples
(determined as such after clinical interview) (Johnsone-Sabine et al., 1988: Meadows et
al., 1986). The EAT authors have cautioned against using this self-report instrument to
diagnose anorexia in nonclinical individuals and state that high scores in these
individuals may indicate “disturbed eating patterns” but not necessarily anorexia
nervosa (Garner et al., 1982, p. 877).

The Stirling Eating Disorder Scale (SEDS: Williams et al., 1994) is an 80-item
measure developed to assess eight dimensions of eating disorders: (1) anorexic dietary
behavior, (2) anorexic dietary cognitions, (3) bulimic dietary behavior, (4) bulimic
dietary cognitions, (5) high perceived external control, (6) low assertiveness, (7) low
self-esteem, (8) self-directed hostility. Internal consistency resulted in Cronbach alpha
> .8 for each of the eight subscales, and split-half reliability coefficients ranged from
.72 to .99. Test-retest reliability after a 3-week interval also produced highly significant
correlations from .85 to .98. In the between-group validity calculations, all eight scales
discriminated between the combined eating-disorder group and the control group. The
anorexic group and the bulimic group were significantly different on the four dietary
scales but not on the four nondietary scales, which was predicted. Concurrent validity
was indicated as the SEDS was compared to six other measures of eating disorders, self-esteem, locus of control, and assertiveness (Williams et al., 1994).

In order to operationalize the DSM-IV criteria into a self-report measure, the Questionnaire for Eating Disorder Diagnosis (Q-EDD) was developed (Mintz et al., 1997). The Q-EDD differentiates between eating-disordered and non-eating-disordered individuals, between asymptomatic and symptomatic eating-disordered individuals, and between those with anorexia and those with bulimia (Mintz et al., 1997). Convergent validity was supported by comparing the Q-EDD to the Bulimia Test (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991) and the EAT (Garner et al., 1982). Criterion validity resulted in an accuracy rate of 98% and the overall kappa value for level of agreement between Q-EDD categories and the structured clinical interview was .94. Incremental validity, or the extent to which the Q-EDD improved the diagnostic accuracy above existing instruments, was calculated only on the BULIT-R and was shown to increase accurate diagnosis from 54% to 78%. Test-retest reliability also used kappa and found in the eating-disordered and non-eating-disordered groups kappa = .64; in the eating-disordered, symptomatic, and asymptomatic groups kappa = .54. Q-EDD diagnoses were stable over a 2-week period and less stable over a 1-3-month period. Overall, the Q-EDD is a reliable and valid instrument and takes only about 10 minutes to complete, making it convenient and noninvasive (Mintz et al., 1997).

The clinical interview has long been deemed necessary in the assessment of eating disorders. The Structured Interview for Anorexia and Bulimia Nervosa (SIAB) (Fichter et al., 1991) is a semi-structured interview thought to be superior to self-report...
assessment due to the tendency of eating-disordered patients to deny and conceal their symptoms and because of the difficulty in objectively defining some symptomatology (Fichter et al., 1991). It was designed to assess both specific and general psychopathology in patients and to assess family interaction and family pathology in the patient. Six psychopathology components were produced (SIAB-P): (1) body image and ideal of slimness; (2) social integration and sexuality; (3) depression; (4) compulsion and anxiety; (5) bulimic symptoms; and (6) laxative abuse. There were four components produced on the family domain (SIAB-FAM): (1) parental and marital dissatisfaction; (2) achievement orientation and performance expectancy; (3) rigidity and disturbed family interactions; and (4) family closeness and enmeshment. Interrater reliability and internal consistency both resulted in high reliability coefficients Cronbach's alpha = .93. The SIAB discriminates well between healthy controls and eating-disordered patients and includes both present and past evaluation. Validity was established by comparing the SIAB to self-report measures Anorexia Nervosa Inventory for Self-rating (ANIS) and Eating Disorder Examination (EDE) (Cooper & Fairburn, 1987). It was shown to be a valid and reliable measure of both specific and general, past and present, psychopathology of eating-disordered patients and their families (Fichter et al., 1991).

Minnesota Multiphasic Personality Inventory

History

The first version of the MMPI was developed by Starke Hathaway, Ph.D., and J.
Charnley McKinley, M.D., who were both working at the University of Minnesota Hospital, and was published in 1943 (Buchanan, 1994; Butcher & Williams, 1992; Dahlstrom & Dahlstrom, 1980; Dahlstrom, Welsh, & Dahlstrom, 1972, 1975; Graham, 1987, 1993). The Zeitgeist was ready for the merger of psychiatry and clinical psychology in order to medically classify (diagnose), operationalize, and measure human behavior, attitudes, and functioning. The pre-World War II era, during which the MMPI was developed, was one of economic depression and partial funding was procured from the Works Progress Administration (WPA), a depression-era employment (New Deal) program. Psychology up to this time had been largely considered an academic science with little applicability. The MMPI altered that with its widespread application in medical, clinical, industrial, university, and correctional settings (Buchanan, 1994, Dahlstrom et al., 1972, 1975). Additionally, the methods of assessment at the time were not adequate and sufficient: psychiatric interviews were lengthy and costly, existing personality inventories did not meet diagnostic needs, and projective tests, depending upon the patronage of psychiatrists trained in a psychodynamic setting, were not conducive to mass screenings and did not meet diagnostic needs (Buchanan, 1994). Hathaway (1983) summarized it succinctly: “The entire venture (the MMPI) began because Dr. McKinley and I wanted to condense those long psychiatric interviews, which were very expensive for the patient” (p. iv).

**Empirical Keying**

Hathaway and McKinley used the empirical keying approach as opposed to the
more popular logical keying approach (Graham, 1987, 1993). The difference in these approaches is significant because the former determines empirically which items differentiate between groups of subjects while the logical keying approach generated items rationally or logically with considerable face validity. It was believed that empirical keying would minimize the ability of the subject to falsify or distort his/her responses in order to achieve his/her desired presentation because items contributing to a specific scale were not logically derived (Graham, 1987, 1993).

Item Generation

Items for the MMPI were generated from psychological and psychiatric case histories, clinical experiences, psychiatric and psychological textbooks, and on earlier scales and inventories of personality and social attitudes (Buchanan, 1994; Graham, 1987, 1993). Items were written in simple, first-person, declarative sentences to which the respondent could reply "true," "false," or "cannot say." Over a thousand items were considered for inclusion, and Hathaway and McKinley selected 504 items which they believed were reasonably discrepant from one another (Graham, 1987, 1993). Many items were found to be objectionable largely because they dealt with bodily functions and religion (Butcher & Tellegen, 1966), and new normative data were sought. The original MMPI was revised to the current MMPI-2.

Scale Development

Subjects were selected from the University of Minnesota hospitals. "Normals" consisted of visitors of patients in the hospitals, a group of recent high-school
graduates, a group of WPA workers, and a select group of medical patients (Graham, 1993). The criterion group were those who had been psychiatrically diagnosed by the staff at the university hospital. This second group was made up of patients who fit the diagnostic categories of one of the recognized psychopathologies at the time (Graham, 1993). These diagnostic subgroups of the criterion group had to be distinct. In cases where a patient had multiple diagnoses, the patient was excluded from the clinical reference group. Specific subgroups were: hypochondriasis, depression, hysteria, psychopathic deviate, paranoia, psychasthenia, schizophrenia, and hypomania. These subgroups ultimately responded in a manner significantly different enough from each other and from normals to form distinct clinical scales named for each diagnostic label. Cross-validation studies were undertaken to ensure the applicability of the MMPI in differential diagnoses (Graham, 1993). The manifest content of the items was unimportant, and no item was eliminated based on its connection or lack of connection to the psychopathology in question (Buchanan, 1994; Dahlstrom, 1956). The Masculinity-Femininity scale and the Social Introversion scale were developed after the initial eight basic scales to bring the total basic scales to 10. These same 10 scales make up the clinical scales of the MMPI-2. Validity scales were also derived: Cannot Say (?), Lie (L), Frequency (F), and Correction (K), and of these four scales, only the L scale was rationally derived while F and K were empirically derived (Buchanan, 1994; Graham, 1993).
Harris-Lingoes Subscales

Because the standard clinical or basic scales of the MMPI were constructed by empirical keying and are heterogeneous in nature, the Harris-Lingoes subscales were constructed logically by examining the content of the items within six of the basic scales (2, 3, 4, 6, 8, 9) and are more homogeneous in nature. Scales 1 and 7 were not analyzed due to their relative existing homogeneity, and scales 5 and 0 were excluded because they were not part of the standard clinical scales. In the development of the Harris-Lingoes subscales, items were grouped together logically which were deemed to represent a similar attitude, trait, and/or content. General support for these subscales was reported by Comrey (1957a, 1957b, 1957c, 1958a, 1958b, 1958c, 1958d; Comrey & Marggraff, 1958) who used factor analysis to determine intercorrelations of the items within each subscale. The Harris-Lingoes subscales are interpretively useful, can augment interpretation, and continue to be routinely scored and reported by the MMPI-2 automated scoring services. Clinicians are cautioned, however, about interpreting these subscales without considering the standard clinical scales (Graham, 1993).

Content Subscales

Content subscales were developed by Wiggins (1969) using the entire item pool to construct 13 content categories. Wiggins used both logical and empirical procedures to develop these psychometrically sound subscales. With the development of the MMPI-2, however, some of the items contributing to these subscales were deleted and new content subscales were developed from the MMPI-2 item pool (Butcher, Graham,
Williams. & Ben-Porath. 1990). Expert judges and raters were used to assign items to subscales and the provisional subscales were given to two groups of psychiatric patients and two groups of non-psychiatric individuals. The final analysis was done conceptually--did the items fit together by content? Unlike the standard clinical scales, the 15 content subscales eliminated items which were statistically related but not logically related to the domain in question (Graham, 1993).

Supplementary Subscales

Items were recombined in multiple ways to construct more than 450 supplementary subscales (Caldwell, 1988; Dahlstrom et al., 1972, 1975). Construction, psychometric properties, and heuristic value of these supplementary subscales differed markedly and many were deleted in the MMPI-2 (Graham, 1993). Supplementary subscales pertinent to this study are the Alexithymia Scale, MacAndrew Alcoholism Scale-Revised, and the Addiction Potential Scale because of the empirical keying method used in the construction of each.

The Alexithymia subscale was developed by Kleiger and Kinsman (1980) utilizing the same empirical criterion methodology in scale construction as the original MMPI. They studied a sample of 100 respiratory patients and retained items which differentiated alexithymic individuals from non-alexithymic individuals based on the criterion instrument, the Beth Israel Hospital Psychosomatic Questionnaire (BIQ) (Sifneos, 1973). Several years later the Alexithymia Scale was reassessed. This subscale and its validity were found to be questionable, in part, due to the murkiness
of alexithymia as a personality construct and the less than desirable psychometric properties of the external criterion (BIQ) (Bagby, Parker, & Taylor, 1991: Bagby et al., 1988). Nevertheless, the procedure of empirical keying has been used successfully when the criterion group is well defined (Briggs & Cheek, 1986).

The MacAndrews (MAC) subscale (MacAndrew, 1965) was developed by empirical keying to differentiate alcoholic from non-alcoholic men and had the added feature of eliminating items which were obviously intended to measure excessive drinking (MacAndrew, 1967). Alcoholics, like eating-disorder individuals, are likely to deny, minimize, or lie about alcohol/food-related items. MacAndrew set out to develop a subtle scale to increase the chances of accurate assessment (Graham, 1993). Numerous studies have been undertaken which result in support for the 49-item MAC scale as being discriminatory between alcoholics and non-alcoholics (Apfeldorf & Hunley, 1975; MacAndrew, 1965, 1967; Rhodes, 1969; Rich & Davis, 1969; Rohan, 1972; Schwartz & Graham, 1979; Whisler & Cantor, 1966; Williams, McCourt, & Schneider, 1971). Caution is given when using this scale with African-Americans and women, and for diagnosing alcoholism based on the MAC alone. High scores (over 24) should be looked at as indicators that further assessment is needed and not as decisive (Graham, 1993). In spite of its critics (Gottesman & Prescott, 1989), the MAC scale is the most widely used personality-based indicator of substance abuse (Weed, Butcher, McKenna, & Ben-Porath, 1992).

Similar to the MAC, the Addiction Potential Scale (APS; Weed et al., 1992) was empirically derived and designed to identify personality characteristics and life patterns
related to substance abuse. The scale is comprised of 39 heterogenous items which have no apparent connection to substance use or abuse (four items were discarded due to their obvious reference to substance abuse) (Weed et al., 1992). Data on this scale are scant and clinicians are urged to use high scores as an indicator that further evaluation is warranted (Graham, 1993; Weed et al., 1992).

MMPI Applicability to Eating Disorders

The MMPI is not only widely utilized in a multitude of settings, it is also widely researched. There have been over 8,000 validity studies undertaken throughout the MMPI's more than 50-year history (Anastasi, 1988; Graham, 1987; Groth-Marnat, 1990). Many studies have utilized the MMPI in order to facilitate understanding of the personality features of eating-disordered individuals (Bulik et al., 1991; Bulik et al., 1992; Casper et al., 1992; Hatsumaki et al., 1982; Leon et al., 1985; Lilienfield, 1995; Scott & Baroffio, 1986; Scott & Thoner, 1986; Vandereycken & Vanderlinden, 1983). Other studies attempted to ascertain MMPI code types or specific profile configurations which are indicative of eating-disordered symptomatology (Baer-Barkley, 1998; Biederman, Habelow, Rivinus, Harmatz, & Wise, 1986; Casper et al., 1992; Leon, Lucas, et al., 1985; Norman & Herzog, 1983; Pendleton, Moll, Tisdale, & Marler, 1990; Small et al., 1981).

The most consistent configuration found was the V-shaped pattern involving scale 4-5-6 (Psychopathic Deviate, Male/Female, and Paranoia subscales, respectively) (Baer-Barkley, 1998; Norman & Herzog, 1983; Pendleton et al., 1990; Shisslak et al.,
1990). Greene (1990b) has described females with this 4-5-6 V-configuration as hostile and angry yet unable to adequately express their anger and hostility. This may then result in passive-aggressive tendencies. Johnson and Connors (1987) and Root et al. (1986) stated that this indirect expression of anger is associated with eating-disordered pathology.

Additional MMPI elevations noted have been on scales 2 and 7 (Depression and Psycasthenia, respectively) by Biederman et al. (1986); Casper et al. (1992); Norman and Herzog (1983); Scott and Baroffio (1986); Scott and Thoner (1986); Small et al. (1981). Elevations on these scales are indicative of the depressive and obsessional features frequently observed in eating-disordered individuals.

**MMPI/MMPI-2 Relationship**

One of the goals of the MMPI revision was that the integrity of the original instrument be maintained in order to take advantage of the plethora of MMPI research which existed (Butcher & Pope, 1992; Duckworth & Anderson, 1986; Graham, 1987, 1993; Graham, Timbrook, Ben-Porath, & Butcher, 1991; Greene, 1990a, 1990b). Of the 566 items on the MMPI, 394 were retained in identical form in the MMPI-2, and an additional 66 items were modified in wording but not in meaning. Ninety items, considered offensive or obsolete, were deleted, and 107 new items were incorporated in the new version (Levitt, 1990). The revision committee held to the claim that the research derived from the MMPI would be transferable to the MMPI-2 due to the similarities of the reliabilities of the scales and the factor structure of the two versions.
Chojnacki and Walsh (1992) and Levitt, Browning, and Freeland (1992) supported the claim of Ben-Porath and Butcher (1989) regarding the consistency and interpretive usefulness of the MMPI specialty scales from the MMPI-2. Generally speaking, the "results of our study are favorable toward MMPI and MMPI-2 consistency, showing that variance in scores between the two instruments exist, but it is not very large" (Chojnacki & Walsh, 1992, p. 288). In looking at the code-type congruence, it was found that there was greater congruence between the two versions of the test than between two administrations of the same version (Graham et al., 1991). Levitt (1990) studied the impact the MMPI-2 on special scales, that is, the Harris and Lingoes Scales (1955, 1968), the Wiggins Content Scales (Wiggins, 1966), and selected scales, and found that most of the special scales developed for the original instrument remain usable in the newer instrument. Likewise, a comparison of MMPI and MMPI-2 T-scores was undertaken, and it was found that the earlier version resulted in slightly higher T-scores for women than T-scores on the latter version (with the exclusion of Mf scale) but the profile configurations were not significantly altered (Ward, 1991). The consensus of the researchers seems to uphold the original claim of the members of the revision committee that the new instrument is consistent enough with the original instrument to make use of the research on the validity and clinical scales of the original as well as most of the special scales (Butcher & Pope, 1992).
CHAPTER III

METHODOLOGY

Overview

Eating disorders are life-threatening disorders which have been infiltrating the lives of American females (males to a lesser degree) for many years. The problem has been escalating throughout the second half of this century. Mental-health practitioners are limited in their ability to screen for these disorders at an early stage, and hence, eating-disordered individuals may go untreated or ineffectively treated for years. The MMPI-2 is the most widely used psychological instrument by mental-health professionals. An elevated score on this proposed subscale would alert clinicians to undertake a full eating-disorder assessment or refer the client to someone with specialized training in eating disorders.

Restatement of the Problem

The focus of this study was to identify items on the MMPI which differentiate eating-disordered females from non-eating-disordered females. After the identification of these items, the goal was to form a subscale to screen for eating disorders as early detection is optimal in the treatment of these life-threatening disorders. The methodology and statistical procedures employed in this study are presented in this
chapter. The following sections are included in this chapter: Overview, Restatement of the Problem, Research Sample, Instrumentation, Research Design, Research Procedures, Data Collection Procedures, and Data Analysis Procedures.

Research Sample

This study has four phases: Phase 1 involved the original data collection and analysis; Phase 2 involved the determination and analysis of the expert judges’ opinions; Phase 3 involved the cross-validation data collection and analysis; and Phase 4 involved scoring the proposed subscale, completing the principal components analysis, and finalizing the proposed MMPI-2 eating-disorder subscale. The population from which the initial sample, referred to as Phase 1, was drawn was eating-disordered individuals in the Michiana area who had previously been evaluated for the presence of anorexia nervosa, bulimia nervosa, or eating disorder not otherwise specified. A sample of 354 MMPI answer sheets of diagnosed eating-disordered individuals was selected from the files of Sheridan P. McCabe, Ph.D., consulting psychologist for Healthy Options for Problem Eaters (HOPE). A sample of 238 non-eating-disordered individuals’ MMPI profiles was selected from the files at Psychological and Family Consultants (PFC), Elkhart, Indiana. These are known-group selections. Only female profiles were used in this study.

The sample for Phase 3, the cross-validation study, was comprised of 24 eating-disordered females and 27 non-eating-disordered females. Group membership was predetermined according to eating-disorder or non-eating-disorder DSM-IV diagnosis...
which was made by each subject’s therapist. Area therapists and the HOPE program were approached to ask patients to participate in Phase 3 of this study.

**Instrumentation**

The instrument used for Phase 1 of this study was the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI, developed by Hathaway and McKinley in 1943, is a personality inventory composed of 566 true-false items and was designed to diagnose patients into different categories of neuroses and psychoses. Currently, the instrument is used in mental-health settings, hospital psychiatric units, university counseling centers, employment and career centers, and in industrial settings (Graham, 1990, 1993). For further discussion about the history, composition, and revision of the MMPI refer to chapter 2.

The cross-validation portion of this study, Phase 3, utilized the proposed 87 item questionnaire and the Eating Disorders Inventory-2 (EDI-2). The EDI-2, developed by Garner (1990), is aimed at the delineation and measurement of psychological features or symptom clusters thought to be relevant in understanding eating disorders. It contains measurement on eight subscales: drive for thinness (DT), bulimia (B), body dissatisfaction (BD), ineffectiveness (I), perfectionism (P), interpersonal distrust (ID), interoceptive awareness (IA), and maturity fears (MF), and three provisional subscales: asceticism (A), impulse regulation (IR), and social insecurity (SI). Further discussion of the EDI-2 is found in chapter 2.
**Research Design**

This research project involved scale development for the screening of eating disorders utilizing the 566 items on the MMPI. A Known-Group Comparison Design, based on prior diagnosis of an eating disorder, was used in which the directional responses to items on the MMPI of eating-disordered individuals were compared to the directional responses to the same items of non-eating-disordered individuals. All 566 items were compared for each subject in the two groups, and empirical keying (t-tests) was used to determine items which differentiate between eating-disordered individuals and non-eating-disordered individuals.

A weakness of this research design is the lack of randomization. Because a large sample size was desired, I opted to use all available and appropriate subjects' answer sheets rather than to randomly select from within those answer sheets. This research used MMPI answer sheets from inventories which were administered over the past 10 years (eating-disordered sample: 1987-1995; non-eating-disordered sample: 1987-1997) giving rise to the question of temporal factors. Additionally, external validity could be threatened by this time element. Content validity could be questioned due to the fact that the items generated for the MMPI were not specifically intended for the eating-disordered population. It is also possible that the revised MMPI, the MMPI-2, contains items not in the original MMPI which would discriminate between eating-disordered and non-eating-disordered individuals. In that event, some pertinent items may have been omitted.

One strength of this design is that empirical keying was used to determine the
subscale. This method is consistent with the development of the clinical subscales of
the MMPI and the MacAndrews-revised (MAC-R) subscale which screens for
substance abuse. Empirical keying minimizes the likelihood of distorted responses in
the form of denial, minimization, and approval seeking, which are likely to occur with
eating-disordered subjects. Another strength of this study is the relatively large sample
size used: eating-disordered sample Phase 1 \( (n = 354) \) and non-eating-disordered
sample Phase 1 \( (n = 238) \). Much of the research on eating disorders has employed
considerably fewer eating-disordered and control subjects. Furthermore, the subjects in
both eating-disorder and non-eating disroder groups were derived from community
samples and included females between the ages of 13 and 60 in the eating disorder
group in Phase 1, and between the ages of 15 and 73 in the non-eating-disorder group
in Phase 1. This is in contrast to much of the existing research which has been
undertaken with college and university populations and gives an age-biased sample. It
is not clear whether this subscale will be generalizable to males with eating disorders or
to compulsive overeaters.

Research Procedures

Phase 1: Initial Study

In Phase 1, the 354 profiles representing the eating-disordered population were
obtained from Sheridan P. McCabe, Ph.D., Consulting Psychologist, Memorial
Hospital/ Healthy Options for Problem Eaters (HOPE), South Bend, Indiana.
Permission to use the profiles was requested and granted from Jan Howard, Director

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of The Human Subjects Committee of Memorial Hospital. for the use of the MMPI answer sheets. The 238 non-eating-disordered answer sheets were obtained from the outpatient clinical practice at Psychological and Family Consultants (PFC), Elkhart, Indiana. Permission to use profiles from PFC was requested and granted from Michael W. Oyer, M.A., owner and director of PFC; and Sheridan P. McCabe, Ph.D., clinical director of PFC. Each female file was examined for the presence of an MMPI answer sheet. Files with only an MMPI Short Form were eliminated. Remaining files were scrutinized to detect any symptomatology or diagnosis of an eating-disorder. Only female profiles generated from clients with no indication of eating-disordered symptoms were included in the non-eating-disordered group. All profiles in both groups were used without identifying information except age to protect the anonymity and to uphold the confidentiality of the individuals.

Statistical Package for the Social Sciences (SPSS) was used to run individual $t$-tests for each of the 566 items. Statistical significance was determined at the .01 level. One hundred forty items met the statistical criterion for Phase 1. Thirteen MMPI items which met the statistical requirements but do not also appear in the MMPI-2 were eliminated. A series of factor analyses were performed on the remaining 127 items but, upon examination of the factor solutions, no meaningful underlying structure was present in the resulting clusters of items. Additionally, some items did not load in any factor at all. For this reason, looking at the global meaning was deemed preferable. See chapter 4 for further discussion.
Phase 2: Expert Judges

In Phase 2, expert judges were utilized to narrow the field of items for the proposed subscale. Four eating-disorder experts were asked to review the 127 items derived from the empirical keying or independent t-tests. This panel of experts was comprised of one psychological evaluator, one eating-disorder researcher, and two eating-disorder clinicians. The directions given to the experts were to select those items which they deemed conceptually congruent with eating-disordered psychopathology and to assign a True or False response to each item selected. Concurrence of three of the four experts on an item and the direction of the “correct” response (True or False) was needed to include the item in the subscale. This process resulted in 90 items being selected. Three of the 90 items were duplicate items and were not retained leaving 87 items to be used in Phase 3.

Phase 3: Cross-Validation

Cross-validation was accomplished by administering the 87 items which comprise the proposed eating-disordered subscale to a new research sample. An eating-disordered group ($n = 24$) and a non-eating-disordered group ($n = 27$) was procured from Psychological and Family Consultants, the HOPE program, St. Anthony’s Memorial Health Centers, and area clinicians. Only females were used and subject age was the only demographic available. Subjects and therapists alike were provided with an explanation of the study and signed consent forms stating that they were willing participants and understood the nature of the study. Samples of the consent forms and
the explanation of the cross-validation study are located in Appendix E and Appendix F, respectively. Each subject, regardless of diagnostic group, was asked to complete the 87-item proposed questionnaire as well as the EDI-2. I scored the EDI-2 and entered the scores into the computer along with each subject’s T/F responses to the proposed eating-disorder subscale. Graph-style profiles were generated from the EDI-2, and were made available to therapists regardless of the eating-disorder or non-eating-disorder indicators. The two groups’ responses were compared to determine if these items do indeed differentiate eating-disordered from non-eating-disordered individuals.

Phase 4: Finalization of Proposed Subscale

Phase 4 involved six steps: (1) scoring the Phase 3 questionnaires for the eating-disorder group and non-eating-disorder group according to the expert judges responses; (2) deriving the group means and standard deviations; (3) determining each item’s correlation with the total scale; (4) eliminating items which do not meet the item total correlation criteria of 0.33 (Gable & Wolf, 1993); (5) deriving new group means and standard deviations and checking for statistical significance; (6) computing Cronbach reliability coefficients on the finalized proposed subscale.

Data Collection Procedures

Patients beginning the HOPE program were routinely given the MMPI during the assessment process. Clients seeking psychological help at PFC were often given the MMPI to aid in diagnosis and treatment. The data for Phase I were collected by procuring the answer sheets from the MMPIs which had been completed between 1987
and 1995 by patients in the HOPE program and between 1987-1997 by patients from PFC.

Regarding the data for Phase 2, the cross-validation was collected by administering the 87 items in the proposed eating-disorders subscale along with the EDI-2 to clients receiving counseling at PFC, HOPE, St. Anthony Memorial Health Centers, and other counseling sites in the Michiana area. Of the 33 non-eating-disorder packets distributed, 27 were returned by the February 17, 1999, deadline. Two were returned after data analysis was completed and, therefore, could not be used. Forty-one eating-disorder packets were distributed and resulted in a return of 24. All participants, whether diagnosed with an eating disorder or other psychological disorder, completed both instruments along with a consent form.

**Data Analysis Procedures**

Empirical keying, or independent t-tests, was used to compare the responses to each item by the two research groups. This method of determining differentiation between groups is congruent with that of the original MMPI and the MAC-R subscale. The logical keying approach was considered for this project but it was deemed less desirable than the empirical keying approach. Logical keying includes items based on the obviousness of the content. Eating-disordered individuals, similar to alcoholics, are likely to deny or misrepresent themselves on obvious items. It is for this same reason that the development of this subscale by utilizing a panel of expert judges during Phase 1 was rejected. Items were determined to differentiate between the eating-disorder
group and the non-eating-disorder group if they met the .01 criterion established by the researcher. Of the 140 items meeting the .01 criterion, 13 items had been eliminated during the revision of the MMPI which resulted in the MMPI-2. Those 13 items were deleted, leaving 127 items.

Further analysis was undertaken by four expert judges in Phase 2. Three out of four eating-disorder experts had to concur on any one item as being characteristic of eating-disorder symptomatology and in terms of directionality for the item to be included in the proposed subscale. The inclusion of experts in the field of eating-disorders was deemed appropriate as a way to rationally balance the purely statistical analysis of the original 127 items. In this way, the 127 items was reduced to 87 items, which is less cumbersome and more efficacious for a subscale. See Appendix G.

Upon completion of data collection in Phase 3, items were again scrutinized by empirical analysis with the criterion of .01 to determine which items hold statistical significance in the cross-validation. Two analyses were undertaken due to several individual discrepancies between the therapist-determined diagnostic group (eating-disordered or non-eating-disordered) and the results of the EDI-2. There were 2 subjects whom therapists identified as non-eating-disordered who scored in the eating-disordered range on the EDI-2. Likewise, there were 4 subjects whom therapists identified as eating disordered who did not obtain profiles indicative of eating disorders on the EDI-2. This discrepancy necessitated two separate analyses: one utilizing diagnostic group compared to clinical group; one utilizing EDI-2 group compared to clinical group. For further discussion refer to Research Procedures, Phase 3.
comparing the eating-disordered diagnostic group to the clinical group (non-eating-disordered group), 34 items differentiated eating-disordered subjects from non-eating-disordered subjects at the .01 criterion level. When using the EDI-2 classification group (those subjects who obtained EDI-2 profiles indicative of eating disorders), 46 items differentiated the eating-disordered group from the clinical group at the .01 criterion level.

In Phase 4 group means and standard deviations were found for the eating-disorder sample and the non-eating-disorder sample. Each item was analyzed in terms of its correlation with the total structure of the questionnaire. Items were retained that met the item total correlation criterion of 0.33. Internal consistency using Cronbach's alpha coefficient was then determined.

Summary

The methodology for this study involved scale development and included 4 phases: initial study (Phase 1), expert judges (Phase 2), cross-validation (Phase 3), and finalization of proposed subscale (Phase 4). The research sample for Phases 1 and 3 was divided into two distinct groups: eating-disordered and non-eating-disordered. The eating-disordered group for Phase 1 came from the files of the HOPE program and the non-eating-disordered group came from the files of PFC. In Phase 3, the eating-disordered sample and the non-eating-disordered sample were obtained from clinical case loads from area mental-health agencies.

Phase 2 entailed requesting four experts to review the 127 MMPI-2 items which
statistically differentiate eating-disordered from non-eating-disordered patients and to select those which they deemed to be characteristic of eating-disorders. Seventy-five percent concurrence of the experts in terms of inclusion and True or False response was necessary for the item to be retained in the subscale. Eighty-seven items met the criterion and comprise the proposed eating-disorder subscale.

Phase 4 involved scoring the 87 items from the Phase 3 sample of eating-disordered and non-eating-disordered subjects. Means and standard deviations of the raw scores were calculated and statistical significance computed. Additionally, each item was analyzed as to its correlation with the total. Those not meeting the 0.33 criterion were eliminated and new means and standard deviations were sought. Phase 4 resulted in the proposed MMPI-2 eating-disorder subscale being finalized.
CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Restatement of the Problem

The focus of this study was to identify items on the MMPI which differentiate eating-disordered females from non-eating-disordered females. After the identification of these items, the goal was to develop a proposed subscale to screen for eating disorders as early detection is optimal in the treatment of these life-threatening disorders. This chapter presents the data and their analysis. The following sections are included: Restatement of the Problem; Description of the Sample: Phase 1 and Phase 3; Item Selection: Phase 1 (t-test results and decisions based on factor analysis), Phase 2 (results of expert judges), Phase 3 (cross-validation), Phase 4 (finalization of proposed subscale), and Summary.

Research Sample

The population from which the initial sample, referred to as Phase 1, was drawn was eating-disordered females in the Michiana area who had previously been evaluated for the presence of anorexia nervosa or bulimia nervosa. A sample of 354 MMPI answer sheets of diagnosed eating-disordered individuals who were beginning treatment was selected from the files of Sheridan P. McCabe, Ph.D., consulting psychologist for...
Healthy Options for Problem Eaters (HOPE). A sample of 238 non-eating-disordered females’ MMPI answer sheets was selected from the files at Psychological and Family Consultants, Elkhart, Indiana. These are known-group selections. The eating-disordered sample \((n = 314)\) included females ages 13-60 \((M = 26.05, SD = 9.00)\). The non-eating-disordered sample \((n = 218)\) included females ages 15-73 \((M = 31.92, SD = 10.92)\). Of the 593 subjects, only 532 (314 eating-disordered subjects and 218 non-eating-disordered subjects) indicated their age, resulting in 10.3% missing data. See Table 1.

<table>
<thead>
<tr>
<th>Group</th>
<th>(N)</th>
<th>Mean</th>
<th>(SD)</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
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In Phase 3, the cross-validation study, the sample was comprised of 24 eating-disordered females and 27 non-eating-disordered females. In this portion of the study, the ages of the eating-disorder sample \((n = 24)\) were 18-54 \((M = 33.33, SD = 10.85)\).
The ages of the non-eating-disorder sample \((n = 26)\) were 20-56 \((M = 38.15, SD = 10.91)\). It should be noted that the smaller sample size \((n = 50)\) for determining means and standard deviations is reflective of missing data, e.g., subjects omitting age. See Table 2.

**TABLE 2**

**AGE DESCRIPTION OF PHASE 3 SAMPLE**

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<th>(SD)</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
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*Item Selection*

Phase 1: Initial Study

Initially, the Phase 1 MMPI items selected were those which differentiated, through empirical keying, eating-disordered subjects from non-eating-disordered subjects at the criterion level of .01. Empirical keying, or \(t\)-test analysis, resulted in 140 items meeting the differential criterion. Of those 140 items, 13 items do not appear in the MMPI-2. Since the MMPI-2 is the version currently being used in
mental-health settings, only those 127 items which met the .01 criterion and also appear in the MMPI-2 were considered.

A series of exploratory factor analyses was conducted in an effort to reduce the number of variables. I thought that there might be some distinct underlying structures which would emerge from the set of 127 items. Factor loadings of 0.30 (Tabachnick & Fidell, 1989) was used as a criterion for inclusion in any factor. Principal components analysis using orthogonal rotations was conducted. Orthogonal solutions offer ease of interpretation, description, and reporting (Tabachnick & Fidell, 1989). The initial analysis resulted in 34 factors (eigenvalues of 1 or greater). An examination of the scree plot suggested 6-8 factors. Subsequent analyses restricting the number of factors to 6, 7, and 8 were conducted. In all cases, the principal components analysis without rotation indicated that most of the items loaded on the first factor (accounting for 27 to 30 percent of the variance) with little distinct meaning for the other factors. Appendix D shows an orthogonally (varimax) rotated 6-factor solution. The results of the factor solution indicate numerous eating-disorder characteristics including anxiety, depression, social introversion, anger, hysteria, hypochondriasis, mania, type A personality, paranoia, assertiveness, low self-esteem and sexual issues. Interestingly, however, items measuring any particular characteristic were not found to cluster together in any one factor. Instead, each factor was comprised of an intermingling of eating-disorder characteristics. This pattern of results was also found in the 7 and 8-factor solutions. Additionally, a number of items did not load on any factor. Perhaps the 127 items
represent a global measure of eating disorders. A panel of expert judges was sought to assist in this determination.

Phase 2: Expert Judges

When I examined the 127 items as a global measure which differentiated eating disorders from non-eating disorders, I saw indicators of numerous eating-disorder characteristics such as anxiety, worry, self-esteem, trust, paranoia, asseriveness, and sexual issues. In addition, there were items which did not appear to be conceptually related to eating disorders and yet statistically differentiated eating disorders from non-eating disorders in Phase 1. Therefore, to further refine the instrument, I invoked the help of eating-disorder experts. Four eating-disorder experts were enlisted to respond to the 127 items which were retained from Phase 1 and to select those which they deemed to be characteristic of eating-disordered attitudes, thoughts, feelings, or behaviors. Three out of four experts needed to concur on retention and the predicted eating-disordered individual's response (T/F) in order for that item to be included in the instrument. Appendix C shows the content of the items, each judge's opinion, and the predicted eating-disordered response. Eighty-seven items met the criteria in Phase 2 and made up the proposed eating-disorder questionnaire to be administered in Phase 3, the cross-validation.

Phase 3: Cross-validation

In Phase 3, eating-disordered and non-eating-disordered subjects were asked to complete two questionnaires: the EDI-2 and the proposed eating-disorder questionnaire.
The 87-item proposed questionnaire appears in Appendix G. The cross-validation was more complex than the initial phase due to the introduction of the EDI-2. It was discovered that 14.8% of the subjects who were diagnosed as non-eating-disordered by their respective therapist obtained EDI-2 profiles consistent with the EDI-2 normative data for eating disorders \((n = 4)\). Similarly, 8.3% of the subjects who were in the eating-disordered group obtained EDI-2 profiles which were not characteristic of eating disorders according to the EDI-2 norms \((n = 2)\).

Empirical keying used in the cross-validation resulted in 34 items meeting the .01 significance level when the groupings were eating-disordered or non-eating-disordered as determined by therapist diagnosis. Table 3 lists the means, standard deviations, and significance levels of the 34 items which differentiate eating disorders from non-eating disorders when grouped by diagnosis. When grouped by EDI-2 classification, Table 4 shows that there were 46 items which met the .01 significance level. The results of the cross-validation study, Phase 3, were not consistent with the results of Phase 1, in which 127 items differentiated eating disorders from non-eating disorders, and Phase 2, in which 87 of the 127 items were judgmentally deemed to be valid measures of eating disorders. Ideally, the cross-validation phase would have produced results similar to the initial phase of this scale-development research. To explain this discrepancy, it is important to understand the differences between the Phase 1 and Phase 3 samples in terms of size and stage of treatment. The Phase 1 sample was considerably larger \((n = 592)\) than the Phase 3 sample \((n = 51)\) thereby reducing the chance of the Phase 1 results being due to some artifact. Additionally, as eating-
disordered individuals participate in treatment, the psychological and behavioral features are likely to diminish. The Phase 1 sample consisted of individuals in the early stages of treatment whereas the Phase 3 sample was less homogeneous in terms of treatment stage and duration of the illness. Some of the Phase 3 eating-disordered subjects had undergone 2 to 5 years of treatment prior to this research ($n = 11$) and had exhibited eating-disordered symptoms for many years prior to treatment. In retrospect, it would have been desirable to consider the duration of illness and the length of treatment of each individual who participated in Phase 3.

It was decided that the results derived from Phase 2, as opposed to Phase 3, were the most appropriate to be used for the eating-disorder subscale for three reasons: (1) Phase 2 was based on the empirical data derived from Phase 1 in which 127 items differentiated eating-disordered females from non-eating-disordered females; (2) Phase 2 incorporated the empirical data with conceptual data by using expert judges; (3) Phase 2 was derived from Phase 1 which was comprised of a significantly larger sample size and more uniformity in treatment stage than Phase 3. Thus, the proposed MMPI-2 eating-disorder subscale consisted of the 87 items identified in Phase 2 and not the 34 items or 46 items identified by diagnostic group or EDI-2 classification, respectively, in Phase 3.

Phase 4: Finalization of Proposed Subscale

Steps 1 and 2 in Phase 4 involved scoring the responses on each subject's eating-disorder questionnaire in both groups and obtaining the group mean score. One
eating-disordered subject's eating-disorder questionnaire was not scored due to an
inordinate number of items (31) responded to in an ambiguous manner (e.g.,
sometimes, maybe, usually) instead of the required True or False response format.

Table 5 shows the means and standard deviations for the two groups on the 87-item

TABLE 3
GROUP STATISTICS BY DIAGNOSIS

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Table 3 - Continued.

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Note. **Significance criterion = 0.01
*Significance criterion = 0.05
True response = 1; False response = 2

TABLE 4

GROUP STATISTICS BY EDI-2 CLASSIFICATION

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<th>SD</th>
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Note: **Significance criterion = 0.01
*Significance criterion = 0.05
True response = 1; False response = 2

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The $t$ statistic reveals a significant difference between the mean scores suggesting that as a subscale, these 87-items are able to significantly differentiate between eating-disordered and non-eating-disordered subjects.

Step 3 entailed determining each item's correlation with the total scale using 0.33 (Gable & Wolf, 1993) as a cut-off for scale revision. Sixty-eight items were retained. As shown in Table 6, the Cronbach’s reliability coefficient for the 87-item subscale 0.963. Table 6 contains the item analysis for Step 3.

Items which did not meet the 0.33 correlation criterion were eliminated in Step 4 which resulted in a revised 68-item proposed eating-disorder subscale. In Step 5 the means were calculated for eating-disordered and non-eating-disordered diagnostic groups using only the 68 items retained in the questionnaire and statistical significance was maintained. Table 7 is a summary of Step 5.

The item analysis for the 68-item questionnaire is found on Table 8. The item-total correlation ranged from 0.345 to 0.760. The total scale reliability is 0.971 which suggests that there is high agreement among the 68 items and that they are measuring a common underlying construct. See Appendix H for item content. I also looked at the distribution of eating-disorder scores and non-eating-disorder scores and observed that there is considerable overlap. Figure 1 illustrates the overlap. Figure 2 shows the group means and standard deviations for the 68-item questionnaire as they would appear in a normal distribution. Again, overlap is evident and caution should be exercised in terms of diagnosing an eating disorder when the score is in the overlap area.
TABLE 5

GROUP MEANS FOR 87-ITEM QUESTIONNAIRE

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Summary

The results of this research are indicative of the efficacy of utilizing the MMPI-2 to screen for eating disorders. In Phase 1, 127 MMPI items of the original 566 MMPI items differentiated eating-disordered \((n = 354)\) from non-eating-disordered subjects \((n = 238)\). The mean age in this sample was 26.05 for the eating-disordered group and 31.92 for the non-eating-disordered group with 10.3% missing age data.

In Phase 2, four expert judges were requested to identify items which they believed were characteristic of eating disorders. Items were retained when three out of four judges agreed upon the item and the likely eating-disordered response to the item.

In this way, the 127 items were reduced to 87, which was deemed less cumbersome.

Phase 3, the cross-validation was undertaken using the proposed eating-disordered 87-item subscale and the EDI-2. Eating-disordered \((n = 24)\) and non-eating-disordered \((n = 27)\) subjects were identified by their therapists and completed the questionnaires.
TABLE 6
CORRECTED ITEM-TOTAL CORRELATION ANALYSIS
FOR THE 87-ITEM SUBSCALE

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TABLE 6—Continued.

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Note. Item correlation criterion = 0.33
Item # refers to item # on the questionnaire in Appendix G
Alpha = reliability if item is deleted

TABLE 7

DIAGNOSTIC GROUP MEANS FOR 68-ITEM PROPOSED SUBSCALE

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The mean age of the eating-disordered group was 33.33 and the mean age of the non-eating-disordered group was 38.15, with only one case of missing data. The results of Phase 3 were somewhat disappointing as not all of the 87 items identified during Phases 1 and 2 differentiated the two groups when analyzed by empirical keying (34 items by diagnostic group and 46 items by EDI-2 classification). This is perhaps due to the
Phase 1 eating-disordered sample being taken from individuals just entering treatment whereas the Phase 3 eating-disordered sample contained individuals who have been in treatment for several months, and in some cases, years. Scoring and finalization of the proposed MMPI-2 eating-disorder subscale were done in Phase 4. Of the 87 items identified in Phase 2 of this study, 17 did not meet the 0.33 correlation coefficient criterion and were thus eliminated. The remaining 68 items performed very well as evidenced by their ability to differentiate between eating-disordered and non-eating-disordered subjects as well as being highly internally consistent.
## TABLE 8

CORRECTED ITEM-TOTAL CORRELATION COEFFICIENT FOR FINALIZED
MMPI-2 PROPOSED EATING-DISORDER SUBSCALE

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Note. Alpha = reliability if item deleted
TABLE 9

COMPILATION OF PHASE 3 RESULTS WITH 68-ITEM QUESTIONNAIRE

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Note. Dx: ** Significance criterion = .01; *Significance criterion = .05
EDI-2 Classification: ++Significance criterion = .01; +Significance criterion = .05

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Figure 1. Overlap of eating disorder and non-eating disorder scores in cross-validation.
Figure 2. Phase 4: 68-item questionnaire group means.

Non-eating disorder:
mean = 23.2
SD = 16.7

Eating disorder:
mean = 46.0
SD = 13.8
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter summarizes the research problem, the significance of the study, the research methodology, and the results. Explanations are given as to why the results that were derived in each phase were obtained. Recommendations for mental-health practitioners are delineated. Lastly, recommendations for further research are given.

Restatement of the Problem

Eating disorders are life-threatening disorders which have been infiltrating the lives of American females for many years. It is estimated that 5 million Americans suffer from anorexia nervosa or bulimia nervosa (Hotelling, 1998). The problem has been escalating throughout the second half of this century. Mental-health practitioners are limited in their ability to screen for these disorders at an early stage for several reasons. First, due to limitations placed on them by insurance and managed-care companies, mental-health professionals may not have authorization to assess for eating disorders. (Many insurance policies will not even cover treatment for anorexia and bulimia.) Second, assessment instruments in existence today are largely transparent and symptom-based. These transparent and symptom-based instruments allow for client denial and minimization which may render diagnosis inconclusive. Third,
eating-disorder assessment is not undertaken unless there is significant evidence that it is warranted. Eating-disordered individuals are generally very adept at concealing the illness, and frequently no assessment is pursued. Fourth, many counselors and therapists are simply not adequately informed about the subtleties of eating-disorder signs and symptoms and miss the indicators completely. Lastly, clients who are not deemed to be in the at-risk population (e.g., Caucasian, female, middle to upper-middle class, adolescent or young adult) are frequently overlooked in terms of the eating-disordered symptoms. Hence, eating-disordered individuals may go untreated or ineffectively treated for years.

The MMPI-2 is the most widely utilized psychological instrument administered by mental-health professionals (Greene, 1990b). An elevated score on this proposed subscale would alert clinicians to undertake a full eating-disorder assessment or refer the client to someone with specialized training in eating disorders even in the absence of overt symptomatology.

Summary

Methodology

Sample

The methodology for this study involved scale development and included four phases: initial study (Phase 1), expert judges (Phase 2), cross-validation (Phase 3), and finalization of proposed subscale (Phase 4). Research samples were used for Phase 1 and Phase 3. In both phases the sample was divided into two distinct groups: eating-
disordered and non-eating-disordered. The eating-disordered group for Phase 1 ($n = 354$) came from the files of the HOPE program of Memorial Hospital in South Bend, Indiana, and the non-eating-disordered group ($n = 238$) came from the files of PFC in Elkhart, Indiana. In Phase 3, the eating-disordered sample ($n = 24$) and the non-eating-disordered sample ($n = 27$) were obtained from the clinical case loads from area mental-health practitioners.

Instrumentation

The instrument used for Phase 1 of this study was the MMPI. The MMPI, developed by Hathaway and McKinley in 1943, is an objective personality inventory composed of 566 true-false items and was designed to diagnose patients into different categories of neuroses and psychoses. The instrument is now used in its revised form, MMPI-2, which was normed on a more representative sample than the MMPI and which omitted items believed to be objectionable. The MMPI-2, similar to the MMPI, has been widely researched and is widely known (Graham, 1990, 1993). Currently, the MMPI-2 is used in mental-health settings, hospital psychiatric units, university counseling centers, employment and career centers, and in industrial settings. Additionally, much of the research involving the MMPI is applicable to the revised MMPI-2 (Graham, 1990, 1993).

The cross-validation portion of this study, Phase 3, utilized the proposed 87-item questionnaire and the Eating Disorder Inventory-2 (EDI-2). The EDI-2, developed by Garner (1990), is aimed at the delineation and measurement of
psychological features or symptom clusters thought to be relevant in understanding eating disorders. It contains measurement on eight subscales: drive for thinness (DT), bulimia (B), body dissatisfaction (BD), ineffectiveness (I), perfectionism (P), interpersonal distrust (ID), interoceptive awareness (IA), maturity fears (MF), and three provisional subscales: asceticism (A), impulse regulation (IR), and social insecurity (SI). It was used in this stage of the scale development as a cross-check for therapist diagnosis of eating disorder or no eating disorder.

Research Procedures

In Phase 1: the initial study, 354 eating-disorder patients' MMPI answer sheets and 238 non-eating-disordered patients' MMPI answer sheets were analyzed by individual t-tests for each of the 566 items. One hundred twenty-seven MMPI items appear in the MMPI-2 and also met the statistical criterion of .01, indicating that those items differentiate eating-disordered subjects from non-eating-disordered subjects.

In Phase 2: expert judges, four eating-disorder experts reviewed the 127 MMPI-2 items which statistically differentiated eating-disordered from non-eating-disordered patients and selected those items which they deemed to be characteristic of eating disorders. Three out of four judges had to agree on an item in two aspects before that item could be included in the questionnaire. First, the item had to be judged as characteristic of eating disorders. Second, the judges had to agree whether or not an item would receive a True response or a False response by an eating-disordered individual. Eighty-seven items met the criterion and comprised the proposed eating-
disorder questionnaire to be used in Phase 3 of this scale development.

In Phase 3: the cross-validation, the 87-item eating-disorder questionnaire and the EDI-2 were administered to a new research sample of eating-disordered and non-eating-disordered patients. The two groups' responses were compared by empirical keying to determine if the 87 items do indeed differentiate eating-disordered from non-eating-disordered individuals.

Phase 4: finalization of proposed eating-disorder subscale, involved scoring the 87 items from the Phase 3 sample of eating-disordered and non-eating-disordered subjects. Means and standard deviations of the raw scores were calculated and statistical significance computed. Additionally, each item was analyzed as to its correlation with the total, and those not meeting the 0.33 criterion were eliminated. New means and standard deviations were sought. Phase 4 resulted in the proposed MMPI-2 eating-disorder subscale being finalized.

Results

The results of this research are indicative of the efficacy of utilizing the MMPI-2 to screen for eating disorders. In Phase 1, 127 MMPI items of the original 566 MMPI items differentiated eating-disordered ($n = 354$) from non-eating-disordered ($n = 238$) subjects at the .01 criterion. The mean age in this sample was 26.05 for the eating-disordered group and 31.92 for the non-eating-disordered group with 10.3% missing age data.

In Phase 2, four expert judges were asked to identify items which they thought
were characteristic of eating disorders. Each item on which three out of four judges agreed was a likely eating-disordered response was retained. Forty items were eliminated bringing the 127-item questionnaire to 87 items.

In Phase 3, the cross-validation, the mean age of the eating-disordered group was 33.33 and the mean age of the non-eating-disordered group was 38.15 with only one case of missing data. Phase 3 resulted in a discrepancy between grouping subjects by therapist's DSM-IV diagnosis and grouping subjects by EDI-2 classification. When grouped by therapist's diagnosis there were 34 items which differentiated the eating-disordered group from the non-eating-disordered group. On the other hand, when grouped by EDI-2 classification, there were 46 items which differentiated the eating-disordered and non-eating-disordered groups at the .01 level.

In Phase 4, scoring and finalization of the proposed MMPI-2 eating-disorder subscale was done. Of the 87 items identified in Phase 2 of this study, 17 did not meet the 0.33 correlation coefficient criterion and were thus eliminated. The remaining 68 items performed very well, as evidenced by its high internal consistency and its ability to differentiate between eating-disordered subjects and non-eating-disordered subjects.

Discussion

Phase 1: Initial Study

The results of Phase 1, in which 140 MMPI items (reduced to 127 MMPI-2 items) statistically differentiated eating-disordered from non-eating-disordered subjects, were not surprising due to the fact that the MMPI was developed to assess abnormal
thoughts, attitudes, and behavior. Eating-disordered symptoms and characteristics envelop multiple abnormal psychological features which can be measured on the MMPI. Psychological characteristics of eating disorders are shared by other psychological illnesses and have been researched and assessed by the MMPI. The most notable of the eating-disordered characteristics shared by other psychological illnesses are depression, anxiety, and somatic complaints. Thus, to find a large number of items which tap into eating-disordered characteristics was anticipated.

It is my opinion that the factor analysis was inconsequential because eating-disordered symptomatology is all-pervasive, complex, and permeates all areas of the individual's life. Hence, high factor loadings in the SPSS-generated 6-factor solution included items from diverse conceptual domains rather than items describing a single factor. Because the factors made no logical sense regardless of how many factor solutions were attempted, and because I desired a less lengthy and cumbersome measure than the 127 items in Phase 1, the Phase 2 87-item questionnaire was implemented.

Phase 2: Expert Judges

The four expert judges consisted of three females and one male. They also could be identified as one eating-disorder psychological evaluator, one eating-disorder researcher, and two eating-disorder clinicians. None of the expert judges themselves is recovering from an eating disorder. The judges' responses given to the 127-item questionnaire were interesting. The eating-disorder psychological evaluator was the
only male judge, and he included 28 of the 127 items as indicative of eating-disordered characteristics. The eating-disorder researcher, who was an expert judge, has limited direct experience with treating eating disorders and endorsed 102 of the 127 items as being indicative of eating-disordered characteristics. The eating-disorder clinician from the Northern Arizona University Counseling and Testing Center, and the eating-disorder therapist and director of the HOPE program, endorsed 117 and 119 of the 127 items, respectively. As a researcher, clinician, and recovering anorexic myself, I found my responses (not taken into consideration for this study) to be similar to those of the clinicians who have the most direct involvement with eating-disordered patients. This serendipitous finding leads me to believe that perhaps when evaluation and research are devoid of on-going, personal contact with the eating-disordered individual, much of the complexity and subtleties are overlooked. Another explanation of the differences in the number of endorsed items could have to do with gender. The question arises: Could it be that males, even males educated in eating disorders, are less inclined to view the multiplicity of eating-disorder symptoms? Alternatively, could female eating-disorder specialists be overly sensitive or over-identify with the eating-disorder symptomatology? Obviously, the results of four experts in eating disorders are not sufficient to draw conclusions but they could generate some interesting hypotheses for future studies.

Phase 3: Cross-validation

Seventy-five percent concurrence of the judges in terms of inclusion and
expected eating-disordered response was necessary for an item to be retained in the eating-disorder questionnaire. Eighty-seven items remained to make up the eating-disorder questionnaire to be used in Phase 3. Phase 3, the cross-validation, did not produce the desired result, that is, the 87 items on the questionnaire derived from Phases 1 and 2 did not all differentiate eating disorders from non-eating disorders at the .01 level. Additionally, a complication was discovered when several subjects, who were diagnosed eating-disordered by their therapists using DSM-IV criteria, did not exhibit eating-disordered characteristics on the EDI-2. This eating-disorder diagnostic group with non-eating-disordered, or ambiguous EDI-2 profiles, is probably due to the length of time and the intensity of the eating-disorder treatment process. Many of the subjects had been in treatment for their eating disorders for several years and had made significant psychological gains but who, nevertheless, are diagnosed with anorexia nervosa or bulimia nervosa. Additionally, because the EDI-2 is comprised of items which are very obvious in terms of eating-disordered attitudes, thoughts, and behaviors, some subjects may have answered in the “healthy” direction in order to please the therapist or researcher or may have merely denied their symptoms.

Similarly, several non-eating-disordered subjects obtained profiles on the EDI-2 which were consistent with eating-disordered symptomatology. This phenomenon exemplifies the possibility of therapists overlooking the eating-disordered signs and symptoms which are often covert and subtle. Eating-disordered patients are also very adept at denying or covering up symptoms during interview which may make eating issues difficult to detect. Additionally, eating-disordered subjects may have had other
significant pathology which deterred the therapist from detecting the eating-disordered problems. These explanations give support to the saliency of this research whereby eating disorders can be screened by a less targeted and a less symptom-specific instrument. In this way, eating-disordered individuals may be helped sooner.

Other factors which may have contributed to the discrepancy between Phase 1 and Phase 3 results may be the age of the subjects and the time span. In both phases, the eating-disordered sample is 5 years younger than the non-eating-disordered sample. In Phase 1, however, the mean age of both groups is 28.46 whereas the mean age of both groups in Phase 3 is 36.84. It is possible that the maturity level of the Phase 3 sample may have slightly distorted the results. The time span in which the MMPI items were administered to eating-disordered and non-eating-disordered in Phase 1 was 1987-1995. In Phase 3, the items were administered to both groups during a limited time frame, January 15, 1999, to February 15, 1999. Although the MMPI and MMPI-2 have been widely researched in the past 50 years and have been found to be very stable, it is possible that the time lapse between administrations contributed to the difference in the Phase 1 and Phase 3 results. Last, it is also possible that the cross-validation subjects had a different test-taking attitude, due to the knowledge that they were participating in a research study, from the initial sample, which took the MMPI as a standard part of clinical assessment.

In retrospect, it might have been desirable to procure subjects for Phase 3 of this study who were just entering treatment for their eating disorders as was the case in Phase 1. This would not have totally resolved the possibility of approval-seeking
responses, but it would have corrected for the treatment dynamic. I did explore seeking subjects who were in the early stages of treatment by contacting numerous treatment centers throughout the country. I realized, however, that it would take several years to complete the study due to the reduced number of patients admitted to eating-disorder treatment facilities.

It seems prudent to also consider the discrepancy between the results of Phase 1: the initial study and Phase 3: the cross-validation as a strength of this proposed MMPI-2 eating-disordered subscale. In spite of the relative homogeneity of the two research groups, there were still significant differences between the eating-disordered subjects' responses and the non-eating-disordered subjects' responses. This suggests that even when there is similarity in symptomatology which is measured on this proposed MMPI-2 eating-disorder subscale, many items still differentiate eating-disordered females from non-eating-disordered females.

Phase 4: Finalization of Proposed Subscale

In Phase 4, items not meeting the 0.33 correlation criterion were eliminated, bringing the total number of items for the proposed MMPI-2 eating-disorder subscale to 68 items. Since Phase 4 was strictly statistical, explanation of the findings is not warranted.

Conclusions

The results of this research indicate the suitability of the MMPI-2 in screening for anorexia nervosa and bulimia nervosa. There appear to be items in the MMPI-2
which distinguish eating-disordered individuals from non-eating-disordered individuals.

Some of the items make sense because of the salient characteristics of eating disorders, and the symptoms can be operationalized based on the literature review. While I was able to find items which discriminated eating disorders from non-eating disorders, the items, as a group, appear to be a global measure and do not identify specific factors. Further administrations of the proposed subscale are necessary on a larger sample size of eating-disordered patients in order to establish adequate psychometric properties.

Recommendations

Clinical Practice

Clinicians will need to be cautious about using this cluster of 68 items as an eating-disorder screening device at this stage in the development. However, I have undertaken several psychological evaluations in my practice in recent weeks (after the close of data collection) and have taken advantage of my research by administering this proposed questionnaire. In three of the cases, the female clients were asked to complete the 68-item questionnaire as a screening device even though the presenting problems were not directly eating-disorder related. Interestingly, each individual's score on the proposed MMPI-2 eating-disorder subscale was +/- 1 $SD$ of the eating disorder mean calculated in Phase 4. Upon further assessment, all three clients obtained scores on the EDI-2 that were indicative of eating disorders and admitted during interview that they were engaging in eating-disordered behaviors. I appreciate the clinical benefits that my research has already afforded me and hope that this
subscale will be further studied and made available to mental-health practitioners.

Future Research

There is no question that further research is necessary to establish reliability and validity for this proposed MMPI-2 eating-disorder subscale. Basic item identification for a subscale has been ascertained in the present study by using empirical keying, expert judges, correlations, and principal component analysis. The criteria for item inclusion or elimination has been stringent in each phase of this research. Future direction should include administering the instrument to a large number of eating-disordered individuals in the early stages of treatment and to a large number of non-eating-disordered individuals to determine if its differential ability is maintained. It would also be well to consider administering the MMPI-2 in its entirety to a new sample of eating-disordered and non-eating-disordered subjects to observe if the score on the eating-disordered items is affected when the items are incorporated into the whole MMPI-2.

More research needs to be undertaken to enhance the early detection and diagnosis of eating disorders. Because of the secretiveness and denial of anorexia nervosa and bulimia nervosa, the screening instruments, as opposed to the assessment instruments, need to address the subtle characteristics rather than the obvious. Early detection and intervention may enable women with these disorders to live healthier, happier, and more fulfilling lives.
APPENDIX A

DIAGNOSTIC CRITERIA
APPENDIX A-1

DSM-III EATING DISORDER DIAGNOSIS

DSM-III diagnostic criteria for Anorexia Nervosa (p. 69, 1980):

A. Intense fear of becoming obese, which does not diminish as weight loss progresses.
B. Disturbance of body image, e.g., claiming to "feel fat" even when emaciated.
C. Weight loss of at least 25% of original body weight or, if under 18 years of age, weight loss from original body weight plus projected weight gain expected from growth charts may be combined to make the 25%.
D. Refusal to maintain body weight over a minimal normal weight for age and height.
E. No known physical illness that would account for the weight loss.

DSM-III diagnostic criteria for Bulimia (pp. 70-71, 1980):

A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time, usually less than two hours).
B. At least three of the following:
   (1) consumption of high-caloric, easily ingested food during a binge
   (2) inconspicuous eating during a binge
   (3) termination of such eating episodes by abdominal pain, sleep, social interruption, or self-induced vomiting
   (4) repeated attempts to lose weight by severely restrictive diets, self-induced vomiting, or use of cathartics or diuretics
   (5) frequent weight fluctuations greater than ten pounds due to alternating binges or fasts
C. Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily.
D. Depressed mood and self-deprecating thoughts following eating binges.
E. The bulimic episodes are not due to Anorexia Nervosa or any known physical disorder.
APPENDIX  A-2

**DSM-III-R EATING DISORDER DIAGNOSIS**

**DSM-III-R** diagnostic criterion for Anorexia Nervosa are (p. 63-1987):

A. Refusal to maintain body weight over a minimal normal weight for age and height, e.g., weight loss leading to maintenance of body weight 15% below that expected: or failure to make expected weight gain during period of growth, leading to body weight 15% below 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, size, or shape is experienced, e.g., the person claims to "feel fat" even when emaciated, believes that one area of the body is "too fat" even when obviously underweight.

D. In females, absence of at least three consecutive menstrual cycles when otherwise expected to occur (primary and secondary amenorrhea). (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration).

**DSM-III-R** diagnostic criteria for Bulimia Nervosa are (p. 64, 1987):

A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time).

B. A feeling of lack of control over eating behavior during the eating binges.

C. The person regularly engages in either self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise in order to prevent weight gain.

D. A minimum average of two binge eating episodes a week for at least three months.

E. Persistent overconcern with body shape and weight.
APPENDIX B

RESEARCH PERMISSION LETTERS
November 4, 1998

Roscann Woodka
1340 Garland Rd
South Bend, IN 46614

Dear Roscann:

RE: APPLICATION FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

Review Category: Exempt Action Taken: Approved
Protocol Title: Eating Disorders: Screening for Eating Disorders Utilizing the Minnesota Multiphasic Personality Inventory

On behalf of the Human Subjects Review Board (HSRB) I want to advise you that your proposal has been reviewed and approved. You have been given clearance to proceed with your research plans.

All changes made to the study design and/or consent form after initiation of the project require prior approval from the HSRB before such changes are implemented. Feel free to contact our office if you have any questions.

The duration of the present approval is for one year. If your research is going to take more than one year, you must apply for an extension of your approval in order to be authorized to continue with this project.

Some proposal and research designs may be of such a nature that participation in the project may involve certain risks to human subjects. If your project is one of this nature and in the implementation of your project an incidence occurs which results in a research-related adverse reaction and/or physical injury, such an occurrence must be reported immediately in writing to the Human Subjects Review Board. Any project-related physical injury must also be reported immediately to the University physician, Dr. Loren Hamel, by calling (616) 473-2222.

We wish you success as you implement the research project as outlined in the approved protocol.

Sincerely,

Human Subjects Review Board

cc: Jimmy Kijai
June 27, 1996

Roseann M. Woodka, M.S.
1340 Garland Road
South Bend, IN 46614

Dear Ms. Woodka:

This letter serves to acknowledge the receipt of the protocol, "Screening for Eating Disorders Utilizing MMPI-2". I have determined that the protocol qualifies for expedited review and therefore will not require review by the full IRB. I have, however, asked Deanna Kvietkis, Director of the Records Management Department to also review the protocol.

As Chair of the IRB, it is my pleasure to inform you that the protocol has been approved for a one year period, commencing June 27, 1996 and expiring June 26, 1997. Please be advised that a progress report will be required at the end of the period or at the conclusion of the study.

Again, thank you for your interest in conducting research at Memorial Hospital of South Bend. If you are in need of further assistance, please feel free to contact me at 284-3221.

Sincerely,

Janet Howard, R.N., M.S.N.
Chair, Institutional Review Board

cc: Valerie Staples, Program Coordinator, HOPE
    IRB Files
May 20, 1997

Roscann M. Woodka, M.S.
1340 Garland Road
South Bend, IN 46614

Dear Ms. Woodka:

It has been nearly one (1) year since you submitted the protocol, "Screening for Eating Disorders Utilizing MMPI-2" to the Institutional Review Board. This letter serves as a reminder that a one-year progress report is now due. Kindly complete the report using the enclosed form and submit it at your earliest convenience so that it is available for consideration at the next IRB meeting.

Thank you for your continued interest in conducting research at Memorial Hospital.

Sincerely,

Janet Howard, R.N., M.S.N.
Chair, Institutional Review Board

JH/abh

cc: IRB file
June 15, 1998

Roseann Woodka, M.S.
700 Blackbird Roost Street, Apt. 221
Flagstaff, AZ 86001-6251

Dear Ms. Woodka:

It has been one (1) year since you submitted the protocol, "Screening for Eating Disorders Utilizing MMPI-2" to the Institutional Review Board. This letter serves as a reminder that a one-year progress report is now due. Kindly complete the report using the standard format and submit it at your earliest convenience so that it is available for consideration at the next IRB meeting.

Thank you for your continued interest in conducting research at Memorial Hospital.

Sincerely,

Janet Howard, R.N., M.S.N.
Chair, Institutional Review Board
APPENDIX B-5.

Memorial
Hospital of South Bend
Quality of Life

September 2, 1998.

Roscarn M. Woodka, MS
1340 Garland Road
South Bend, IN 46614

Dear Ms. Woodka:

At its meeting on September 2, 1998, the IRB reviewed the progress report for the protocol, "Screening for Eating Disorders Utilizing the MMPI-2". As Chair, it is my pleasure to inform you that the Board has granted approval for continuation of the protocol for a one (1) year period commencing September 2, 1998 and expiring September 1, 1999. Please be advised that at the end of the one year period, another progress report will be required.

Thank you for your continued cooperation in conducting research at Memorial Hospital of South Bend. If you are in need of further assistance, please feel free to contact me at 284-3221.

Sincerely,

Janet Howard, R.N., M.S.N.
Chair, Institutional Review Board

JH/abh

cc: IRB file
November 23, 1998

Roseann M. Woodka, M.S.
1340 Garland Road
South Bend, IN 46614

Dear Ms. Woodka:

This letter serves to acknowledge the receipt of the amendment to your protocol, “Screening for Eating Disorders Utilizing MMPI-2”. I have determined that the materials qualify for expedited review and therefore will not require review by the full IRB.

As Chair of the IRB, it is my pleasure to inform you that the amendment and consent forms have been approved for immediate use. Please remember to report the results of the cross validation in your next progress report.

Again, thank you for your continued interest in conducting research at Memorial Hospital of South Bend. If you are in need of further assistance, please feel free to contact me at 284-3221.

Sincerely,

[Signature]

Janet Howard, R.N., M.S.N.
Chair, Institutional Review Board

cc: Valerie Staples, Program Coordinator, HOPE
    IRB Files
RESEARCH REQUEST TO USE DATA

TITLE: Screening for Eating Disorders Utilizing the MMPI-2.

PRINCIPLE INVESTIGATOR: Roscann M. Woodka, M.S., C.F.T.

RESEARCH CHAIRMAN: Jimmy Kijai, Ph.D.
Andrews University, Berrien Springs, MI.

DATA REQUESTED: MMPI answer sheets from files of female clients who have terminated counseling.

PURPOSE: Doctoral research

CONFIDENTIALITY: Only the MMPI answer sheets are needed for this research. Names and background of individuals are not pertinent except regarding age and sex. Files will be read in order to ensure that answer sheets be placed in the appropriate group (eating disorder/non-eating disorder). A coding system will be employed to respect anonymity and confidentiality. The researcher will abide by the APA Ethical Guidelines in all areas of this study.

Roscann M. Woodka
Name of researcher

Signature of researcher

1340 Garland Road
Address

South Bend, Indiana 46614
City, State, Zip

Signature of Chairman
Date

Request granted
Date of acceptance

137

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APPENDIX C

EXPERT JUDGES' RESPONSES
APPENDIX C

PHASE 2: EXPERT JUDGES’ RESPONSES

<table>
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<th>Response</th>
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<td>1. I have a good appetite.</td>
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<tr>
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<td>2. I wake up fresh and rested most mornings.</td>
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<tr>
<td>F</td>
<td>8.</td>
<td>3. My hands and feet are usually warm enough.</td>
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<tr>
<td>F</td>
<td>9.</td>
<td>4. My daily life is full of things that keep me interested.</td>
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<td>F</td>
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<td>5. I am very seldom troubled by constipation.</td>
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<td>T</td>
<td>18.</td>
<td>6. I am troubled by attacks of nausea and vomiting.</td>
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<tr>
<td>T</td>
<td>22.</td>
<td>7. No one seems to understand me.</td>
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<tr>
<td>T</td>
<td>28.</td>
<td>8. I am bothered by an upset stomach several times a week.</td>
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<tr>
<td>T</td>
<td>31.</td>
<td>9. I find it hard to keep my mind on a task or job.</td>
<td>X</td>
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<tr>
<td>T</td>
<td>39.</td>
<td>10. My sleep is fitful and disturbed</td>
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<tr>
<td>T</td>
<td>46.</td>
<td>11. I prefer to pass by school friends, or people I know but have not seen for a long time unless they speak to me first.</td>
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<tr>
<td>T</td>
<td>56.</td>
<td>12. I wish I could be as happy as others seem to be.</td>
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<tr>
<td>T</td>
<td>59.</td>
<td>13. I am troubled by discomfort in the pit of my stomach every few days or oftener.</td>
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<tr>
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<td>14. I am an important person.</td>
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<td>15. Most of the time I feel blue.</td>
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<td>17. I am certainly lacking in self-confidence.</td>
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<td>18. I usually feel life is worthwhile.</td>
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<td>19. I do not mind being made fun of.</td>
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<td>20. I do many things which I regret afterwards (I regret things more often than others seem to).</td>
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<tr>
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<td>89.</td>
<td>21. My hardest battles are with myself.</td>
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<td>23. I am happy most of the time.</td>
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<td>24. Some people are so bossy that I feel like doing the opposite of what they request even though I know they are right.</td>
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<td>26. Often I can’t understand why I have been so irritable and grouchy.</td>
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<td>27. I have never vomited blood or coughed up blood.</td>
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APPENDIX C-Continued.

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APPENDIX C - Continued.

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<tr>
<td>T</td>
<td>442. 80. I must admit that I have at times been worried beyond reason over something that really did not matter.</td>
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<td>X  X  X  X</td>
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<td>452. 83. I strongly defend my own opinions as a rule.</td>
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<tr>
<td>T</td>
<td>454. 84. The future seems hopeless to me</td>
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<tr>
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<td>463. 85. Several times a week I feel as if something dreadful is about to happen.</td>
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<tr>
<td>T</td>
<td>464. 86. I feel tired a good deal of the time.</td>
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<td>X  X  X</td>
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<tr>
<td>T</td>
<td>369. 87. I am apt to pass up something I want to do when others feel that it isn’t worth doing.</td>
<td></td>
<td>X  X  X</td>
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</table>
APPENDIX D

TABLE OF FACTOR ANALYSIS
APPENDIX D

TABLE OF FACTOR ANALYSIS

<table>
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Note: Scale names - Hypochondriasis (Hs); Depression (D); Hysteria (Hy); Psychopathic Deviate (Pd); Masculinity-Femininity (Mf); Paranoia (Pa); Psychasthenia (Ps); Schizophrenia (Sc); Hypomania (Ma); Social Introversion (Si); Depression (Dep); Anxiety (A) and (ANX); Anger (ANG) Type A Personality (TPA).
APPENDIX E

RESEARCH CONSENT FORMS
APPENDIX E-1

Andrews University
School of Education
Department of Educational and Counseling Psychology
INFORMED CONSENT

Eating Disorders: Screening for Eating Disorders
Utilizing the Minnesota Multiphasic Personality Inventory

I understand that the primary reason for conducting this research is to develop a subscale from the existing items on the Minnesota Multiphasic Personality Inventory (MMPI) which would screen for eating disordered thoughts, feelings, and behaviors.

I understand that I will complete two questionnaires as part of the study: the proposed eating disorders subscale and the Eating Disorders Inventory - 2 (EDI-2).

I understand that my identity (except for age and research group) will be kept anonymous.

I understand that all of my responses will be kept anonymous and will be used solely for research purposes.

I understand that I will have no direct contact with the researcher unless I am a client at Psychological and Family Consultants or St. Anthony Hospital.

I understand that the researcher will send test results to my therapist to be used therapeutically.

I understand that I may benefit from awareness of the results and may seek assistance from my primary therapist should the testing cause distress.

I understand that my time commitment in terms of completing the questionnaires should be less than one hour.

I understand that if I wish to contact an impartial third party not associated with this study regarding any complaint that I may have about the study, I may contact Dr. Elsie Jackson, Andrews University, Educational and Counseling Psychology Department, Berrien Springs, MI 49104. Telephone number: 616-471-3308 for information and assistance.

I understand that I may also contact the researcher, Roiscann Woodka, at 219-522-6292 or her advisor, Jimmy Kijai, at Andrews University, Educational and Counseling Psychology Department, Berrien Springs, MI 49104. Telephone number: 616-471-6340 for information and assistance.

I understand that I may withdraw from the study at any time if I feel distressed.

I have read the contents of this consent form and have had my questions answered to my satisfaction.

Participant ____________________________ Date ____________

Witness ____________________________ Date ____________

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INFORMED CONSENT FOR H.O.P.E.

Eating Disorders: Screening for Eating Disorders
Utilizing the Minnesota Multiphasic Personality Inventory

I understand that the primary reason for conducting this research is to develop a subscale from the existing items on the Minnesota Multiphasic Personality Inventory (MMPI) which would screen for eating disordered thoughts, feelings, and behaviors.

I understand that I will complete two questionnaires as part of the study: the proposed eating disorders subscale and the Eating Disorders Inventory - 2 (EDI-2).

I understand that my identity (except for age and research group) will be kept anonymous.

I understand that all of my responses will be kept anonymous and will be used solely for research purposes.

I understand that I will have no direct contact with the researcher unless I am a client at Psychological and Family Consultants or St. Anthony Hospital.

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I understand that my time commitment in terms of completing the questionnaires should be less than one hour.

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I understand that I may also contact the researcher, Roscann Woodka, at 219-522-6292 or her advisor, Jimmy Kijai, at Andrews University, Educational and Counseling Psychology Department, Berrien Springs, MI 49104. Telephone number: 616-471-6340 for information and assistance.

I understand that I may contact Jan Howard, Chairperson, Institutional Review Board at Memorial Hospital, South Bend Indiana for further information and assistance. Telephone number: 219-284-3221.

I understand that I may withdraw from the study at any time if I feel distressed.

I have read the contents of this consent form and have had my questions answered to my satisfaction.

Participants' Date

Witness Date
APPENDIX E-3

Andrews University
School of Education
Department of Educational and Counseling Psychology

Therapist Informed Consent

Eating Disorders: Screening for Eating Disorders
Utilizing the Minnesota Multiphasic Personality Inventory

I understand that the primary reason for conducting this research is to develop a subscale from the existing items on the Minnesota Multiphasic Personality Inventory (MMPI) which would screen for eating disordered thoughts, feelings, and behaviors.

I understand that each prospective participant will be asked to complete two questionnaires: the proposed eating disorders subscale and the Eating Disorders Inventory-2 (EDI-2). This will require approximately one hour of time.

I understand that the participants be female.

I understand that the female clients I ask to participate have a diagnosis of Anorexia Nervosa or Bulimia Nervosa according to the DSM-IV criteria. Individuals who are primarily binge eaters without compensatory behaviors are not being solicited for this study.

I understand that if I have a question about a potential participant's diagnosis I may contact the researcher, Roseann Woodka, at 219-522-6292.

I am willing to take part in the development of this research by asking individuals with the diagnosis of Anorexia Nervosa or Bulimia Nervosa if they would be willing to participate.

I understand that my client’s anonymity and confidentiality will be maintained according to the APA Code of Ethics for research.

I understand that I will receive feedback from the researcher regarding the results of this study.

I concur with the parameters defined for this study. I have read the contents of this consent form and have listened to the verbal explanation given by the researcher. I agree that I will not disclose the content of the test results to anyone except my client. My questions concerning this study have been answered to my satisfaction. I hereby give voluntary consent to participate in this study. I have also been given a copy of this consent form.

______________________________  __________________________
Therapist’s signature                Date

______________________________  __________________________
Witness                                Date

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Andrews University

School of Education
Department of Educational and Counseling Psychology

Therapist Informed Consent
Non-Eating Disordered Control Group

Eating Disorders: Screening for Eating Disorders
Utilizing the Minnesota Multiphasic Personality Inventory

I understand that the primary reason for conducting this research is to develop a subscale from the existing items on the Minnesota Multiphasic Personality Inventory (MMPI) which would screen for eating disordered thoughts, feelings, and behaviors.

I understand that each prospective participant will be asked to complete two questionnaires: the proposed eating disorders subscale and the Eating Disorders Inventory-2 (EDI-2). This will require approximately one hour of time.

I understand that the participants be female.

I understand that the female clients I ask to participate have a diagnosis other than Anorexia Nervosa or Bulimia Nervosa according to the DSM-IV criteria in order to serve as the control group. Also, individuals who are primarily binge eaters without compensatory behaviors are not being solicited for this study.

I understand that if I have a question about a potential participant's diagnosis I may contact the researcher, Roscann Woodka, at 219-522-6292.

I am willing to take part in the development of this research by asking individuals without the diagnosis of Anorexia Nervosa or Bulimia Nervosa if they would be willing to participate.

I understand that my client's anonymity and confidentiality will be maintained according to the APA Code of Ethics for research.

I understand that I will receive feedback from the researcher regarding the results of this study.

I concur with the parameters defined for this study. I have read the contents of this consent form and have listened to the verbal explanation given by the researcher. I agree that I will not disclose the content of the test results to anyone except my client. My questions concerning this study have been answered to my satisfaction. I hereby give voluntary consent to participate in this study. I have also been given a copy of this consent form.

Therapist's signature ___________________________________ Date __________________

Witness ___________________________________ Date __________________
APPENDIX F

EXPLANATION OF CROSS-VALIDATION
APPENDIX F

CROSS-VALIDATION
Eating Disorders: Screening for Eating Disorders
Utilizing the Minnesota Multiphasic Personality Inventory

PURPOSE OF THE STUDY
The purpose of this study is to identify items on the Minnesota Multiphasic Personality Inventory (MMPI) which differentiate between eating disordered and non-eating disordered females. After the identification of these items, the goal is to develop an eating disorders subscale for the MMPI-2 which will screen for anorexia nervosa and bulimia nervosa.

CROSS-VALIDATION RESEARCH SAMPLE
For the purpose of cross-validation, female subjects will be placed into one of two groups: eating disordered or non-eating disordered according to prior diagnosis by a mental health clinician or treatment center staff. The cross-validation sample size will be not less than 30 females in each group.

INSTRUMENTATION
Two instruments will be used for cross-validation purposes: the proposed eating disorder subscale and the Eating Disorders Inventory - 2 (EDI-2). Both instruments will be provided by the researcher.

RESEARCH PROCEDURES
Cross-validation will be accomplished by administering those items which comprise the proposed eating disordered subscale and the EDI-2 to a new research sample. The sample will consist of an eating disordered group and a non-eating disordered group. Only females will be used and subject age will be the only demographic available. The two groups' responses will be compared by empirical keying to determine if these items do indeed differentiate eating disordered from non-eating disordered females. Additional cross-validation will take place by comparing the EDI-2 scores and the scores on the proposed subscale for both groups. The data collection for the cross-validation will conclude no later than January 31, 1999.

LOCATION OF THE STUDY
Each participant will complete the research instruments at her own therapist's office or treatment center.

CONFIDENTIALITY AND INFORMED RISK
A number will be assigned to each participant for identification. The response sheets will be coded with that number so that no names will be used. This will afford each participant her anonymity and confidentiality.

All response sheets and coded information will remain in a locked file drawer to which the researcher will have sole access. When the data analysis is completed and the referring therapist has received feedback, the data will be transferred to the office of the dissertation chairperson, Dr. Jimmy Kijai, and will be kept in a locked file drawer.

Each subject will be advised that her participation is completely voluntary and that she may refuse to continue at any time without experiencing negative consequences from the researcher or her therapist.
APPENDIX G

PHASE 3: 87-ITEM QUESTIONNAIRE
APPENDIX G

PHASE 3: 87-ITEM QUESTIONNAIRE

NAME:_________________________________________________

This questionnaire consists of numbered statements. Read each statement and decide whether it is true (or mostly true) as applied to you or false (or mostly false) as applied to you. Mark your answers on the line preceding each numbered item. Remember to give your own opinion of yourself.

___1. I have a good appetite.
___2. I wake up fresh and rested most mornings.
___3. My hands and feet are usually warm enough.
___4. My daily life is full of things that keep me interested.
___5. I am very seldom troubled by constipation.
___6. I am troubled by attacks of nausea and vomiting.
___7. No one seems to understand me.
___8. I am bothered by acid stomach several times a week.
___9. I find it hard to keep my mind on a task or job.
___10. My sleep is fitful and disturbed.

___11. I prefer to pass by school friends, or people I know but have not seen for a long time, unless they speak to me first.
___12. I wish I could be as happy as others seem to be.
___13. I am troubled by discomfort in the pit of my stomach every few days or oftener.
___14. I am an important person.
___15. Most of the time I feel blue.
___16. My feelings are not easily hurt.
___17. I am certainly lacking in self-confidence.
___18. I usually feel that life is worth while.
___19. I do not mind being made fun of.
___20. I do many things which I regret afterwards (I regret things more or more often than others seem to).

___21. My hardest battles are with myself.
___22. I don’t seem to care what happens to me.
___23. I am happy most of the time.
___24. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.
___25. I have a great deal of stomach trouble.
___26. Often I can’t understand why I have been so cross and grouchy.
___27. I have never vomited blood or coughed up blood.
___28. I commonly wonder what hidden reason another person may have for doing something nice for me.

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29. Criticism or scolding hurts me terribly.
30. Sometimes I feel as if I must injure either myself or someone else.
31. I certainly feel useless at times.
32. I have often lost out on things because I couldn't make up my mind soon enough.
33. I would rather win than lost in a game.
34. Most nights I go to sleep without thoughts or ideas bothering me.
35. I am neither gaining nor losing weight.
36. I have never felt better in my life than I do now.
37. I do not tire quickly.
38. I like to know some important people because it makes me feel important.
39. What others think of me does not bother me.
40. I seldom or never have dizzy spells.
41. I am worried about sex matters.
42. I feel weak all over much of the time.
43. I have very few headaches.
44. Everything tastes the same.
45. I have used alcohol excessively.
46. I frequently find myself worrying about something.
47. Some of my family have habits that bother and annoy me very much.
48. At times I feel that I can make up my mind with unusually great ease.
49. I have been inspired to a program of life based on duty which I have since carefully followed.
50. I have been quite independent and free from family rule.
51. I brood a great deal.
52. I have difficulty in starting to do things.
53. It does not bother me that I am not better looking.
54. I am entirely self-confident.
55. Something exciting will almost always pull me out of it when I am feeling low.
56. I have often felt that strangers were looking at me critically.
57. I am likely not to speak to people until they speak to me.
58. Life is a strain for me much of the time.
59. I am so touchy on some subjects that I can't talk about them.
60. Even when I am with people I feel lonely much of the time.
APPENDIX G, continued

61. I am more sensitive than most other people.
62. I cannot keep my mind on one thing.
63. I easily become impatient with people.
64. I feel anxiety about something or someone almost all the time.
65. I have no dread of going into a room by myself where other people have already gathered and are talking.
66. I have several times given up doing a thing because I thought too little of my ability.
67. Sometimes some unimportant thought will run through my mind and bother me for days.
68. I am more sensitive than most other people.
69. Even when I am with people I feel lonely much of the time.
70. I am not unusually self-conscious.

71. I very seldom have the blues.
72. People often disappoint me.
73. I feel unable to tell anyone all about myself.
74. Often, even though everything is going fine for me, I feel that I don’t care about anything.
75. At times I think I am no good at all.
76. I worry quite a bit over possible misfortunes.
77. I am apt to pass up something I want to do because others feel that I am not going about it in the right way.
78. I enjoy social gatherings just to be with people.
79. I have used alcohol moderately (or not at all).
80. I am often sorry because I am so cross and grouchy.

81. I feel like giving up quickly when things go wrong.
82. I usually “lay my cards on the table” with people that I am trying to correct or improve.
83. I must admit that I have at times been worried beyond reason over something that really did not matter.
84. I do not try to cover up my poor opinion or pity of a person so that he won’t know how I feel.
85. I have often felt guilty because I have pretended to feel more sorry about something than I really was.
86. I strongly defend my own opinions as a rule.
87. The future seems hopeless to me.
88. Several times a week I feel as if something dreadful is about to happen.
89. I feel tired a good deal of the time.
90. I am apt to pass up something I want to do when others feel that it isn’t worth doing.
APPENDIX H

PROPOSED MMPI-2 EATING-DISORDER SUBSCALE
APPENDIX H

PROPOSED MMPI-2 EATING-DISORDER SUBSCALE

NAME: ________________________________________________

This questionnaire consists of numbered statements. Read each statement and decide whether it is true (or mostly true) as applied to you or false (or mostly false) as applied to you. Mark your answers on the line preceding each numbered item. Remember to give your own opinion of yourself.

  1. I wake up fresh and rested most mornings.
  2. My hands and feet are usually warm enough.
  3. My daily life is full of things that keep me interested.
  4. I am very seldom troubled by constipation.
  5. I am troubled by attacks of nausea and vomiting.
  6. No one seems to understand me.
  7. I find it hard to keep my mind on a task or job.
  8. My sleep is fitful and disturbed.
  9. I prefer to pass by school friends, or people I know but have not seen for a long time, unless they speak to me first.
 10. I wish I could be as happy as others seem to be.
 11. I am troubled by discomfort in the pit of my stomach every few days or oftener.
 12. I am an important person.
 13. Most of the time I feel blue.
 14. My feelings are not easily hurt.
 15. I am certainly lacking in self-confidence.
 16. I usually feel that life is worthwhile.
 17. I do not mind being made fun of.
 18. I do many things which I regret afterwards (I regret things more often than others seem to).
 19. I don’t seem to care what happens to me.

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APPENDIX H, continued

_20. I am happy most of the time.
_21. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.
_22. I have a great deal of stomach trouble.
_23. Often I can’t understand why I have been so irritable and grouchy.
_24. I commonly wonder what hidden reason another person may have for doing something nice for me.
_25. Criticism or scolding hurts me terribly.
_26. Sometimes I feel as if I must injure either myself or someone else.
_27. I certainly feel useless at times.
_28. I have often lost out on things because I couldn’t make up my mind soon enough.
_29. Most nights I go to sleep without thoughts or ideas bothering me.
_30. I am neither gaining nor losing weight.
_31. I have never felt better in my life than I do now.
_32. I do not tire quickly.
_33. I seldom or never have dizzy spells.
_34. I am worried about sex.
_35. I feel weak all over much of the time.
_36. I frequently find myself worrying about something.
_37. Some of my family have habits that bother and annoy me very much.
_38. At times I feel that I can make up my mind with unusually great ease.
_39. I brood a great deal.
_40. It does not bother me that I am not better looking.
_41. Something exciting will almost always pull me out of it when I am feeling low.
_42. I have often felt that strangers were looking at me critically.
_43. I am likely not to speak to people until they speak to me.
_44. Life is a strain for me much of the time.
_45. I am so touchy on some subjects that I can’t talk about them.
_46. Even when I am with people I feel lonely much of the time.
_47. I am more sensitive than most other people.
APPENDIX H, continued

__48. I cannot keep my mind on one thing.
__49. I easily become impatient with people.
__50. I feel anxiety about something or someone almost all the time.
__51. I have no dread of going into a room by myself where other people have already gathered and are talking.
__52. Sometimes some unimportant thought will run through my mind and bother me for days.
__53. I am not unusually self-conscious.
__54. I very seldom have spells of the blues.
__55. People often disappoint me.
__56. I feel unable to tell anyone all about myself.
__57. Often, even though everything is going fine for me, I feel that I don't care about anything.
__58. At times I think I am no good at all.
__59. I worry quite a bit over possible misfortunes.
__60. I am apt to pass up something I want to do because others feel that I am not going about it in the right way.
__61. I enjoy social gatherings just to be with people.
__62. I am often sorry because I am so irritable and grouchy.
__63. I feel like giving up quickly when things go wrong.
__64. I strongly defend my own opinions as a rule.
__65. The future seems hopeless to me.
__66. Several times a week I feel as if something dreadful is about to happen.
__67. I feel tired a good deal of the time.
__68. I am apt to pass up something I want to do when others feel that it isn't worth doing.

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REFERENCE LIST


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VITA

ROSEANN M. WOODKA
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Education

ANDREWS UNIVERSITY
Doctoral Candidate, Counseling Psychology

INDIANA UNIVERSITY SOUTH BEND, AUGUST 1992
Masters of Science in Education, Counseling and Human Services

ELMHURST COLLEGE, MAY, 1970
Bachelor of Arts, Secondary Education

Experience

PSYCHOLOGICAL AND FAMILY CONSULTANTS
Counselor, March 1990 to present

ST. ANTHONY/MEMORIAL HEALTH CENTERS
Consultant, February 1998 to present

NORTHERN ARIZONA UNIVERSITY
Pre-doctoral Internship, Counseling and Testing Center, August 1996-August 1997

ANDREWS UNIVERSITY
Practicum, Counseling and Psychological Services Center,
January 1994-December 1994

ANDREWS UNIVERSITY
Supervisor, September 1995-May 1996

INDIANA UNIVERSITY OF SOUTH BEND
Practicum, Counseling Center, August 1991-May 1992

CHARTER HOSPITAL AND COUNSELING CENTER
Consultant, May 1990-January 1991

MEMORIAL HOSPITAL, SOUTH BEND, INDIANA
Group facilitator, May 1990-September 1990 (Temporary position)
Certification

National Academy for Certified Family Therapists

Licensure

State of Indiana Health Professions Bureau

Honors

The Honor Society of Phi Kappa Phi
Phi Delta Kappa Academic Honor Society
Psy Chi National Honor Society in Psychology

Professional Memberships

American Counseling Association
American Psychological Association
Indiana Counseling Association
International Association of Eating Disorders Professionals