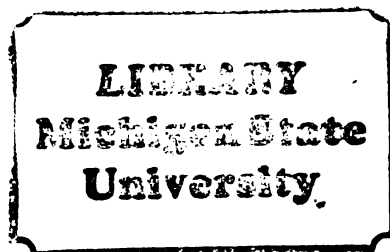


THESIS



This is to certify that the

dissertation entitled

EXAMINATION OF RESTRAINED AND BINGE EATING
IN RELATIONSHIP TO PERSONALITY VARIABLES
IN COLLEGE WOMEN

presented by

Christina A. Rideout

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Counseling, Educational
Psychology, and Special
Education

A handwritten signature in cursive script, appearing to read "W. H. H. 93", written over a horizontal line.

Major professor

Date August 5, 1983



RETURNING MATERIALS:

RETURNING MATERIALS
Place in book drop to
remove this checkout from
your record. FINES will
be charged if book is
returned after the date
stamped below.

~~CONFIDENTIAL~~
 FEB 21 1980
 1L 9537770

DEC 05 2006
11 20 07

100-9256

178888
178888
178888

12

EXAMINATION OF RESTRAINED AND BINGE EATING
IN RELATIONSHIP TO PERSONALITY VARIABLES
IN COLLEGE WOMEN

By

Christina A. Rideout

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Counseling, Educational Psychology,
and Special Education

1983

ABSTRACT

EXAMINATION OF RESTRAINED AND BINGE EATING IN RELATIONSHIP TO PERSONALITY VARIABLES IN COLLEGE WOMEN

By

Christina A. Rideout

The major purpose of this study was to systematically explore the relationship between dieting concern and eating behaviors (treated as independent variables) and personality variables (treated as dependent measures). The instruments used were: (a) Restraint Scale, (b) Binge Scale, (c) Attitudes toward Women Scale (AWS), (d) Rotter's Internal-External Locus of Control (I-E), and (e) Personal Orientation Inventory (POI).

The sample consisted of 140 women living in Michigan State University residence halls. Of interest was the fact that 80% of the sample said they binge eat; of that percentage, 17% said they vomited to varying degrees after a binge.

A median split was used to divide subjects into high and low restraint and high and low binge groups based on their scores on the Restraint and Binge Scales. A two-way multivariate analysis of variance was performed to test 24 null hypotheses based on no differences between high/low restraint and high/low binge groups on 12 personality variables (10 of the POI scales, AWS, and I-E). If the multivariate test was significant at the .05 level, univariates were examined at

the .004 level. Although there were no statistically significant differences, some of the univariates were reported because of their probability levels.

The multivariate test for Restraint was not significant ($p = .211$); however, the low restraint group scored higher on the POI Capacity for intimate contact scale than the high group ($p = .003$). Also, the low restraint group scored higher on the POI Inner Directed ($p = .02$) and POI Existentiality ($p = .03$) scales.

The multivariate test for Binge was not significant ($p = .092$). The low binge group scored higher on the POI Time Competent Scale than the high group ($p = .003$). Also, the low binge group scored higher on the POI Inner Directed ($p = .02$), Feeling reactivity ($p = .05$), Self-regard ($p = .04$), Self-acceptance ($p = .04$), and Capacity for intimate contact ($p = .02$) scales.

Two stepwise multiple regressions were performed for both Restraint and Binge. The multiple R was not significant for Restraint, but was for Binge ($p = .026$), accounting for only 16% of the variance. It was concluded the relevance of personality variables cannot be rejected even though the present study provided inconclusive findings.

To my parents.

ACKNOWLEDGMENTS

Upon completion of this mammoth project, I wish to acknowledge the people who have both directly and indirectly helped and supported me throughout this process.

Dr. William Hinds, committee chair: for your calm presence and patience in response to my many divergent ideas and anxiety attacks, during my entire stay in the doctoral program.

Dr. Douglas Miller, committee member: for the many different ways I have learned from you--clinically, theoretically, and statistically; for the many hours you spent with me on the statistical aspects of this dissertation; and for your support and friendship.

Dr. Linda Forrest, committee member: for your stimulating ideas and collegueship; your openness to sharing with me; your helpful feedback, challenge for quality, and support.

Dr. Imogen Bowers, committee member: for your conceptual ideas, your kindness and support, and your consistent expectations of quality from me.

The Residence Hall Program Office Staff including Jim Wall, Mary Haas, Kate Murphy, Resident Directors, and Resident Assistants: for your help in acquiring participants for my study.

The women who gave their time and thought to completing the questionnaires in my study.

Carolyn Stieber: for your wisdom, clear perspective, flexibility, kindness, and unfaltering belief in me.

Jacque Moss Miller: for your special friendship, support, and incredible generosity.

Ron Cadieux: for your friendship, nurturance, and infinite patience; for your thoughts; your willingness to perform so many little tasks; for your love and a hopeful future.

I am grateful to other people in my life who have been influential and supportive including: my family, my grandmother, Mary Lou Shull, Mary Ann Stehr, Ron May, Melissa Andrea, Dan Robinson, Dee Wright, Margaret Parsons, and Max Raines.

TABLE OF CONTENTS

	Page
LIST OF TABLES	viii
LIST OF FIGURES	x
LIST OF APPENDICES	xi
 Chapter	
I. THE PROBLEM	1
Introduction	1
Bulimia/Binge Eating	3
Compulsive Eating	4
Restrained/Unrestrained Eating	6
Need for the Study	8
Purpose	10
Research Hypotheses	11
Theory	11
Psychoanalytic	12
Behavioral	13
Cognitive	15
Feminist	16
Overview	19
II. REVIEW OF THE LITERATURE	20
Restrained/Unrestrained Eating	20
Restrained Eating and Cognitions	26
Restrained Eating and Affect	31
Binge Eating	34
Bulimia and Compulsive Eating Specifically Focused on Women	40
Stereotyping and Obesity	44
Studies Exploring the Relationship Between Compulsive Eating and Bulimia to Personality Variables in College Women	46
Trend Toward Thinner Ideals	53
Other Personality and Psychological Variables Relating to Obese/Normal Weight Differences	54
Summary	59

	Page
III. DESIGN OF THE STUDY	63
Description of Sample	63
Age, Race, Religion	64
Majors, Class Level, Grade Point Average, Highest Degree Completed	65
Marriage/Relationships	65
Employment	67
Height, Weight, Dieting	67
Social Class, Type of Town	68
Parents, Family Income	68
Measures	72
The Attitudes toward Women Scale	72
The Attitudes toward Women Scale (Short Form)	76
Rotter's Internal-External Locus of Control Scale	78
The Personal Orientation Inventory	87
The Revised Restraint Scale	96
The Binge Scale	99
Procedures for Data Collection	102
Selection of Sample	102
Data Collection	104
Design	105
Statistical Hypotheses	109
Restraint Scale and Attitudes Toward Women	110
Restraint Scale and Internal-External Locus of Control	110
Restraint Scale and Personal Orientation Inventory	110
Binge Scale and Attitudes Toward Women	111
Binge Scale and Internal-External Locus of Control	111
Binge Scale and Personal Orientation Inventory	111
Analysis	112
Summary	114
IV. ANALYSIS OF THE DATA	116
Reliability	116
Restraint Scale and Binge Scale	117
Restraint Scale	117
Binge Scale	117
Descriptive Statistics	119
Correlations	119
Hypothesis Testing	122
Restraint Scale and Attitudes Toward Women	124
Restraint Scale and Internal-External Locus of Control	128
Restraint Scale and Personal Orientation Inventory	128
Binge Scale and Attitudes Toward Women	132
Binge Scale and Internal-External Locus of Control	132
Binge Scale and Personal Orientation Inventory	132

	Page
Stepwise Multiple Regression	135
Restraint Scale	136
Binge Scale	137
Analysis Performed Not Related to Initial Hypothesis.	140
Summary	140
V. SUMMARY AND CONCLUSIONS	144
Summary	144
Sample	146
Analysis	147
Results	147
Conclusions	150
Discussion	164
Limitations	165
Sample	166
Generalizability	167
Design/Methodology	169
Instruments	172
Implications for Treatment	178
Suggestions for Future Research	180
APPENDICES	184
REFERENCES	225

LIST OF TABLES

Table	Page
3.1 Age of Sample	64
3.2 Race of Sample	64
3.3 Religion of Sample	65
3.4 College Classification Level	66
3.5 Highest Degree Anticipated	66
3.6 Social-Class Standing	69
3.7 Mother's Employment	69
3.8 Mother's Level of Education	70
3.9 Father's Employment	70
3.10 Father's Level of Education	71
3.11 Parents' Income	72
4.1 Pearson Product-Moment Correlations	120
4.2 Cell Means and Standard Deviations in MANOVA	125
4.3 Multivariate Analysis of Variance	126
4.4 Univariate Results for Restraint and Dependent Measures .	127
4.5 Univariate Results for Binge and Dependent Measures . . .	131
4.6 Summary of Stepwise Regression for Restraint Scale and 12 Variables Entered	138
4.7 Summary of Stepwise Regression for Binge Scale and 12 Variables Entered	141
M.1 Expanded Pearson Product-Moment Correlations	218

Table		Page
N.1	Means, Medians, Modes, Standard Deviations, and Ranges of Variables Examined	220
O.1	Class Level Data for Residence Hall Female Population Winter Term 1983	222
P.1	Chi-Square Analysis on Class Level Comparing Sample to Women in Total Residence Hall System	224
P.2	Chi-Square Analysis on Class Level Comparing Sample to Women Who Lived in Participating Residence Hall Buildings	224

LIST OF FIGURES

Figure	Page
1.1 Continuum for Conceptualizing Eating Disorders	2
3.1 Graphic Representation of Design I	106
3.2 Graphic Representation of Design II	108
4.1 Cell Size	126
4.2 Stepwise Regression Formula to Predict Restraint Scale Value	139
4.3 Stepwise Regression Formula to Predict Binge Scale Value	142

LIST OF APPENDICES

Appendix	Page
A. DEMOGRAPHIC DATA SHEET	185
B. COLLEGE MAJORS OF PARTICIPANTS	189
C. TYPES OF EMPLOYMENT OF PARTICIPANTS	192
D. LISTED MEDICAL REASONS FOR WATCHING DIET	194
E. REVISED RESTRAINT SCALE	196
F. BINGE SCALE	199
G. LETTER TO RESIDENTS REQUESTING PARTICIPATION	203
H. PARTICIPANT INFORMATION AND CONSENT	205
I. SUMMARY SENT TO PARTICIPANTS	207
J. LETTER ANNOUNCING WORKSHOP	209
K. COMMENTS ON SPECIFIC QUESTIONS ON THE BINGE SCALE	211
L. OVERALL COMMENTS ON THE STUDY	215
M. EXPANDED PEARSON PRODUCT-MOMENT CORRELATIONS	217
N. MEANS, MEDIANS, MODES, STANDARD DEVIATIONS, AND RANGES OF VARIABLES EXAMINED	219
O. CLASS LEVEL DATA	221
P. CHI-SQUARE ANALYSES FOR CLASS LEVEL	223

CHAPTER I

THE PROBLEM

Introduction

Eating disorders have become a serious concern among college-age women. Such disorders include anorexia nervosa, bulimarexia, bulimia, binge eating, compulsive eating (this term is often used interchangeably with bulimia and binge eating), and obesity. Figure 1.1 indicates a continuum for conceptualizing these disorders. Several authors have suggested binge or compulsive eating is a source of concern and discomfort and can become a painful and engrossing problem (Hawkins & Clement, 1980; Orbach, 1982). Estimating the actual number of bulimarexic individuals is difficult due to the varying degrees of the severity of the disorder, the subjective nature of the definition of binging, and the secret nature of the syndrome (Kubistant, 1982). Common estimates suggest from 5% to 25% of the female population between the ages of 18 and 35 consistently gorge and purge in some form (Wermuth, Davis, & Hollister, 1977). Boskind-Lodahl (1976) and Stangler and Printz (1980) indicated bulimia is primarily a problem for women. The present study is concerned with bulimia, binge eating, and compulsive eating patterns of behavior among college women and their relationship to personality variables.

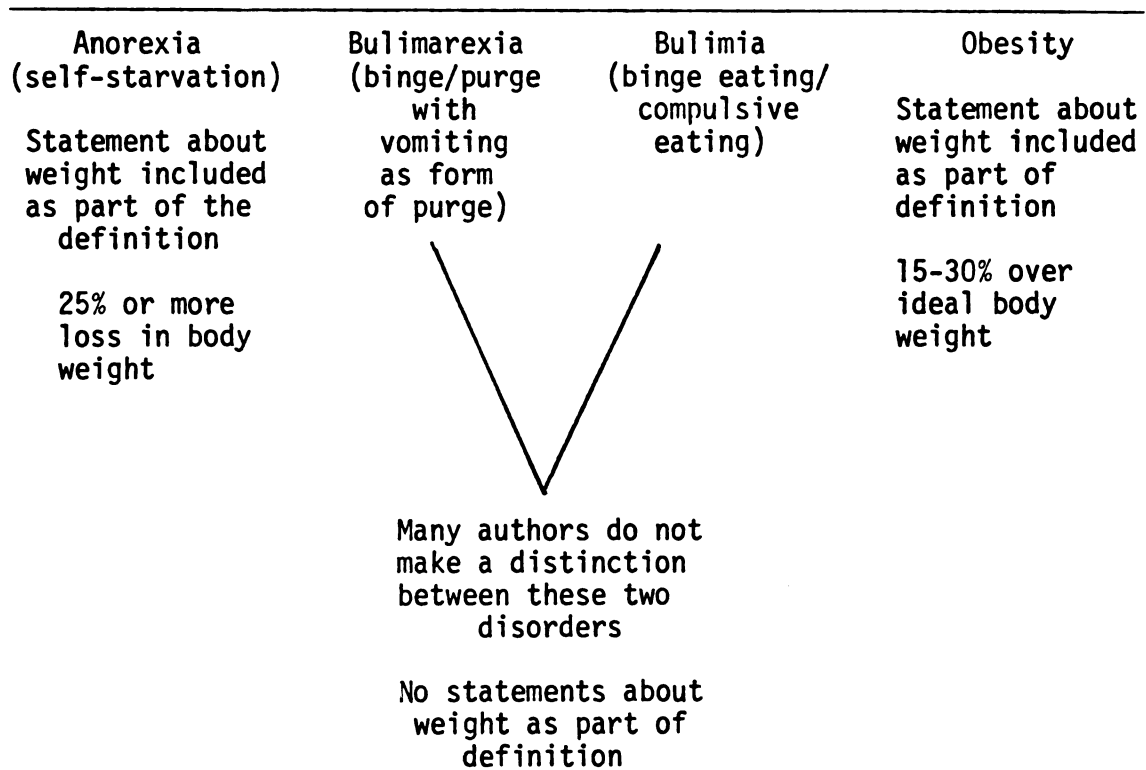


Figure 1.1: Continuum for conceptualizing eating disorders.

Bulimia/Binge Eating

Bulimia or binge eating is defined by the DSM III (1980) as ingesting large amounts of food in short periods of time with fears of inability to stop eating, depressive moods, and self-deprecating feelings following a binge. There are several criteria, three of which must be present to diagnose an individual as bulimic. These include:

1. Eating high caloric, easily ingested food during a binge.
2. Inconspicuous or secret eating when bingeing.
3. Cessation of the binge by abdominal pain, sleep, social interruption, or self-induced vomiting.
4. Alternating binges and fasts with weight fluctuation greater than 10 pounds.
5. Repeated efforts to lose weight by restrictive diets, self-induced vomiting, or use of cathartics (laxatives and diuretics) for weight control.

There is some inconsistency in the literature in the usage of the terms bulimia and bulimarexia. Boskind-Lodahl and White (1978) made a distinction between these terms, using bulimarexia to signify bingeing and purging (as does bulimia), but with the specific component of vomiting as the form of purge. Other investigators (Allerdissen, Florin, & Rost, 1981; Wardle & Beinart, 1981) did not make this distinction between bulimia and bulimarexia. Such a distinction is not critical in this study.

The bulimic, bulimarexic, or binge pattern of eating, found predominantly in women, has been investigated by Boskind-Lodahl (1976)

and her associates (Boskind-Lodahl & Sirlin, 1977; Boskind-Lodahl & White, 1978), who have emphasized psychological aspects associated with such patterns of eating. Psychological characteristics include a distorted body image, low self-esteem, and feelings of helplessness, shame, guilt, and inadequacy. Boskind-Lodahl hypothesized these women try to fit themselves into a stereotyped feminine role by their "relentless pursuit of thinness" and their passive, accommodating, helpless approach to life. She also pointed out that by controlling their physical appearance, these women attempt to please and win the approval of others and to validate their own self-worth.

Allerdissen, Florin, and Rost (1981) systematically examined psychological characteristics associated with bulimarexia in women. (These authors defined bulimarexia in the same manner in which bulimia is defined.) They discovered bulimic women felt more controlled by others they regarded as powerful and superior, were less assertive, and tended not to blame others if frustrated. They were less able to enjoy sexual relationships, believed they would enjoy such relationships if they were thinner, and finally, were more depressed than the control group.

Compulsive Eating

Compulsive eating has been examined by several authors (Dunn & Ondercin, 1981; Ondercin, 1979; Orbach, 1978a, 1978b). The compulsive pattern of eating has been defined by periodic episodes of uncontrolled eating of large amounts of food, often to the point of illness, accompanied by feelings of loss of self-control, self-degradation, and

guilt (Dunn & Ondercin, 1981). The uncontrolled eating is often followed by strict dieting, forming a cyclic pattern of bingeing and purging.

Orbach (1978a, 1978b) viewed compulsive eating as both a serious problem in itself, and a symptom of social and feminist issues. She regarded this eating pattern as a reaction to and rejection of the feminine sex-role stereotype of women in this society. Her focus was to explore the social dimensions that have led women to choose compulsive eating as an adaptation to sexist pressure in contemporary society. She was also concerned with the expression of individual and unconscious dynamic issues through compulsive eating. Such dynamic issues involve conflicts around anger, separation-individuation, intimacy, control, helplessness, and competition.

As indicated, several investigators have described features of a particular eating pattern. This pattern consists of cyclic episodes, ingestion of large amounts of food with subsequent feelings of self-deprecation, often followed by dieting or purging. The above investigators have labelled the eating pattern bulimia or bulimarexia (Boskind-Lodahl et al., 1976, 1977, 1978) and compulsive eating (Orbach, 1978a, 1978b). Dunn and Ondercin (1981) used the terms bulimia and bulimarexia, and compulsive eating to describe the same pattern of eating and subsumed these terms under the label of compulsive eating. Rau and Green (1975) made a distinction between compulsive eating, which they regarded as ego-dystonic, and binge eating, which was considered to be ego-syntonic. Ego-dystonic refers to something that is unacceptable (uncontrolled) to the self or ego. Ego-syntonic refers to that which is acceptable to the self or

ego. However, for the purpose of this paper, the terms binge eating, bulimia, and compulsive eating are considered to mean the same thing, and future references to the terms are considered to be interchangeable.

Binge eating, bulimia, and compulsive eating are used interchangeably in this paper because of the similarity of parameters and definitions. It is not necessary for an individual to exhibit vomiting behavior to be considered bulimic (as seen by examining DSM III criteria), nor are there any stipulations about weight. Bulimia or compulsive eating has been observed in obese individuals (Bruch, 1973; Stunkard, 1959), in anorexics (Bruch, 1978; Casper, Eckert, Halmi et al., 1980), and in women who are slightly overweight or normal weight (Dunn & Ondercin, 1981; Pyle, Mitchell, & Eckert, 1981).

In a study on compulsive eating, Ondercin (1979) found occasional binge eating to be a normal phenomenon for 78% of her sample of college women. She found significant differences between high compulsive eating and low compulsive eating groups, the high compulsive group (uncontrolled with regard to eating) binged significantly more frequently than the low group. Also, for the high group, eating was typically a response to negative emotions such as anxiety, depression, boredom, loneliness, and anger, and served to reduce tension. Wardle (1980) also found that normal subjects craved food and had eating binges.

Restrained/Unrestrained Eating

Before discussing the concept of restrained eating, it is necessary to summarize two key factors relating to bulimia. These

factors include (a) acceptance of feminine sex roles and stereotyping and (b) psychological factors. Examples of psychological aspects are low self-esteem, feelings of helplessness, shame, guilt, inadequacy, loss of control, and emotional responses such as anger, depression, boredom, and loneliness.

A third key area relevant to eating disorders is the concept of restrained/unrestrained eating. This dimension has been discovered to be a better predictor of eating behavior and bingeing than obese/normal weight differences. The concept was introduced by Herman and Mack (1975) and refers to the degree individuals concern themselves with keeping their weight down or the extent to which they subject themselves to deprivation. In other words, the term refers to dieting concern, efforts of weight suppression, and rigid control of food intake, but does not indicate whether one has been successful or not. Chronic dieters are more weight conscious and considered to be highly restrained eaters. There have been several experimental studies on restraint in which the amount of food in a preload is manipulated (Herman & Mack, 1975; Herman & Polivy, 1975; Hibscher, 1977). Preload refers to food administered and eaten under experimental control before the experiment. Typically, these studies have been under the guise of taste tests, and the amount subjects eat after a preload is used as the dependent measure. There is an interaction between extent of restraint (treated as an independent variable) and size of preload. High restrained subjects (more weight conscious and concerned with dieting) eat significantly more when they have eaten a larger preload, a counterintuitive phenomenon referred to as

counter-regulation. This counter-regulation is a laboratory version of an eating binge (Wardle & Beinart, 1981). The concept of restraint is expanded in Chapter II.

Hawkins, Turrell, and Jackson (1982) have shown restrictive dieting tendencies are positively correlated with the socially desirable feminine trait measure on Spence and Helmreich's Personal Attribute Questionnaire (PAQ). The PAQ measures sex-role stereotyping of other individuals as well as rates an individual's own masculinity and femininity (Spence & Helmreich, 1978).

Need for the Study

Eating disorders are widespread and of increasing incidence (Allerdissen, Florin, & Rost, 1981; Duddle, 1973). They exist with a broad range of severity and chronicity, with many negative psychological and physical consequences. Long-term treatment results for eating disorders are disappointing, particularly for bulimia/binge eating and obesity. Behavioral treatments seem to have some effectiveness in the short run, but relapse rates are high (Brightwell & Sloan, 1977; Wilson, 1976). Compulsive eaters often have long histories of unsuccessful dieting (Ondercin, 1979).

There has been little systematic investigation on personality and psychological variables related to compulsive eating (Allerdissen, Florin, & Rost, 1981; Dunn & Ondercin, 1981). Dunn and Ondercin (1981) did explore sex-role identity and personality variables related to compulsive eating using the Bem Sex Role Inventory, Sixteen Personality Factor Scale, the Internal-External Locus of Control Scale,

and the Social Desirability Scale. The results of this study are discussed in Chapter II.

A systematic examination of personality variables and attitudes toward the rights and roles of women would contribute further knowledge to understanding eating disorders. An increased understanding would have implications for devising better methods of treatment. This is especially important since treatments focusing primarily on eating behavior and reduction of intake, leaving out other important personality and psychological variables, are typically unsuccessful (Jeffrey, Wing, & Stunkard, 1978).

There is a further need to examine psychological variables in the context of normal college women (as opposed to a clinical population). There is a great deal of pressure on women to be thin. College women are especially vulnerable to this pressure as they are in the stages of establishing a sense of identity. A large percentage (78%) of college women have reported binge eating (Ondercin, 1979), which suggests the problem is related to female socialization.

As discussed, problematic eating behaviors for women have been suggested to be related to lack of identity and self-worth, acceptance of feminine sex roles (in terms of women's roles and acceptable behaviors), feelings of helplessness, loss of control, and discomfort with anger and separation. The rationale for this particular study and the instruments chosen is to clarify some of these psychological variables. The Attitudes toward Women Scale (Spence & Helmreich, 1972) is used to measure respondents' attitudes toward the rights and roles of women. Rotter's Internal-External Locus of Control

Scale (Rotter, 1966) is used to assess respondents' beliefs that events in life are under their own control (such as affected by their behavior, attributes, or personal control) or under the control of outside forces (such as luck, chance, fate, or powerful others).

The Personal Orientation Inventory (Shostrom, 1966) is used to measure self-actualizing personality characteristics such as Time Competence, Inner Directedness, Self-actualizing value, Existentiality, Feeling reactivity, Spontaneity, Self-regard, Self-acceptance, Acceptance of aggression, and Capacity for intimate contact. According to Hightower (1981), self-actualizing personality characteristics or self-actualization is synonymous with positive mental health, self-love, personal effectiveness, self-esteem, and maturity. These characteristics are important in understanding problematic eating behavior. The personality measures chosen are expected to tap into important variables described in the literature.

Purpose

There is a need to better understand factors relating to bulimia/binge eating or compulsive eating. The purpose of the study is to examine the relationship between dieting concern and eating behaviors (treated as independent variables) and personality variables, which include attitudes toward women, locus of control, and personal orientation (treated as dependent variables). This study examines the relationship between dieting concern, as measured by the Revised Restraint Scale (Herman, 1978), and (a) attitudes toward the rights and roles of women, as measured by the Attitudes toward

Women Scale (Spence & Helmreich, 1972); (b) locus of control, as measured by the Internal-External Locus of Control Scale (Rotter, 1966); and (c) personality variables and orientation, as measured by the Personal Orientation Inventory. The study also examines the relationship between eating attitudes and behaviors, as measured by the Binge Scale (Hawkins & Clement, 1980), and (a) attitudes toward the rights and roles of women, (b) locus of control, and (c) personality variables and orientation, as measured by the above instruments. College-age women are sampled from a normal population, which includes both restrained and unrestrained eaters.

Research Hypotheses

The primary hypotheses tested in the present study are:

- H1: There is a relationship between dieting concern and (a) attitudes toward the rights and roles of women, (b) locus of control, and (c) personal orientation.
- H2: There is a relationship between eating attitudes and behaviors and (a) attitudes toward the rights and roles of women, (b) locus of control, and (c) personal orientation.

Even though theory provides educated guesses about direction of outcomes, due to the exploratory nature of the study, the sample of normal college women, and the dearth of systematic empirical investigation, the hypotheses tested are nondirectional.

Theory

This section provides a brief discussion of theory relevant to eating disorders, particularly binge eating and obesity. The focus is on four main theoretical areas: psychoanalytic, behavioral, cognitive, and feminist.

Psychoanalytic

A specifically articulated psychoanalytic theory of obesity or compulsive eating does not exist. However, psychoanalytic theory tends to regard such eating as symptomatic of other issues and problems, and to have developmental antecedents. Hilde Bruch (1973), a leader in the treatment of eating disorders, found her patients could not correctly identify hunger or distinguish it from other bodily sensations or emotional arousal (Orbach, 1978, also referred to this in her clients). Bruch believed this was due to faulty early learning experiences around hunger and bodily sensations. The mother's response to the young child's cries helps the child learn to distinguish his/her needs. If she responds to most cries with food without discriminating if the child is hungry, the child will become confused in responding to his/her own needs. According to Bruch, appropriately responding to the infant's cues and helping the child accurately label a variety of feelings are important in the development of self-awareness, self-trust, and self-effectiveness. In view of this, two traits have been emphasized by Bruch as fundamental in the development of eating disorders: (a) inability to recognize hunger and other bodily states, and (b) lack of awareness of living one's own life.

Critical dynamic issues such as separation, independence, and autonomy are typically involved in eating disorders. For women, such issues are often related to socialization and the tendency to identify their own worth through the eyes of others. They lack a sense of identity and try to validate self-worth through control of physical

appearance. These theoretical premises, plus failures in self-awareness and the belief that one is helpless, have implications for treatment in this theoretical model. Treatment includes stimulating the individual's awareness of impulses, needs, thoughts, feelings, and the development of autonomy.

Behavioral

A strict behavioral approach to problematic eating patterns involves modification of eating behaviors. The behaviors are regarded as the actual problem and not a symptom of other underlying difficulties. Stuart and Davis (1972) pointed out several behaviors of overeaters. These include eating more when food is readily available and in plain view, tending to eat more when they don't know what they've actually eaten, and tending to eat foods with special appeal. The authors suggested these behaviors are central to the problem and when they are modified, problematic eating patterns and weight would be controlled. Several techniques have been used in an attempt to modify eating behavior, which in turn supposedly leads to weight reduction. These techniques include the monitoring of food intake and feelings, interrupting meals, finding alternate responses, employing situational control, and reinforcing acceptable behaviors. For a strict behaviorist, the focus is on changing the environmental and external responses.

More recently, authors have examined the assumptions of behavior therapy in the treatment of obesity and binge eating (Loro & Orleans, 1981; Mahoney, 1975; Wilson, 1976). There are several assumptions

about overweight individuals that have been unsupported. Some of these assumptions are as follows: (a) overweight individuals take fewer bites in less time; (b) obese and nonobese individuals exhibit distinct eating styles; and (c) the obese can lose weight by adopting the eating style of the nonobese. In fact, Wilson (1976) has stressed some of the contraindications of using strict operant techniques in the treatment of binge eating. He observed that eating patterns of binge eaters between episodes were somewhat normal, not like the patterns on which behavioral treatment is focused. Stunkard (1959) found the eating binge pattern seemed to occur during periods of life stress and tended to have personalized and unconscious symbolic meanings. These factors make the applicability of operant techniques questionable as the appropriate treatment. According to Wilson (1976), conditions that trigger eating binges have not been given much attention in the behavior-therapy literature on obesity. Situations that trigger binges are interpersonal conflicts, inability to deal effectively with stressful events, especially due to lack of assertiveness, and passive attitudes about affecting life meaningfully (Wilson, 1976). Other situations include negative feelings, low self-esteem, and a deficiency in basic coping and problem-solving skills (Loro & Orleans, 1981). As Wilson pointed out, when treatment intervention changed from focusing on eating behavior to examining interpersonal and cognitive factors leading to emotional difficulties, clients improved. He stated,

Treatment emphasizing self-acceptance and more effective coping skills, in which clients are encouraged to abandon the self-defeating concept of self-worth defined by body

weight, seems necessary. . . . Weight loss appears to be the consequence of better adjustment, not a precondition. (p. 701)

Cognitive

There has been increasing evidence that cognitive beliefs exert a stronger influence on eating behaviors than other factors (Mahoney, 1975; Polivy, 1976). For instance, an individual's belief about caloric intake exerts a stronger influence than actual calories. Mahoney and Mahoney (1976) described a phenomenon they labeled "cognitive claustrophobia." The label refers to the individual who feels restricted and controlled by his/her own severe criteria for positive self-evaluation. Such severe criteria are often characterized by rigid and dichotomized behavior. The behavior and self-worth of an individual are divided into categories of all or none, always or never, and good or bad. Binges provide a release from severe standards, and deprivation is temporarily relieved. However, after the binge, the individual is depressed, self-critical, and rigid in attitude toward self. A cognitive restructuring modality attempts to modify rigid dichotomous standards, revealing the all-or-none approach to be impractical and inhumane. In this approach, the focus is on seeing mistakes as simply mistakes and not an indication of low value and worth, or being a bad person. The emphasis is away from global statements about inadequacies and personality traits. Cognitive theory makes use of examining one's beliefs, modifying these beliefs, practicing self-statements, and subsequently altering behavior.

The cognitive-restructuring approach was described in a case (Presby, 1979) in which a "must lose weight" philosophy was changed

to a more rational approach to eating and weight control. The method was based on rational-emotive theory in which perfectionistic, self-pitying, and self-berating thoughts were related to problems in dieting and weight loss. A significant problem was that the client did not identify and incorrectly identified beliefs about eating, weight, and dieting. An approach was needed that eliminated the "must" part of weight loss. This is particularly important since there is evidence that excessive control triggers bingeing behavior (Hawkins & Clement, 1980). Changes in attitudes about eating and weight control were associated with greater self-acceptance, lessened anxiety, guilt, and depression. Fairburn (1981) used a cognitive behavioral approach in the treatment of bulimia and focused on increased control over eating, elimination of food avoidance, and changed maladaptive attitudes.

Feminist

Several authors have regarded eating disorders from a feminist perspective. Boskind-Lodahl (1976) regarded the root of these disorders in low self-esteem. She stated that women with anorexia and bulimia do not reject the feminine stereotype as some individuals have suggested. They assume marriage, children, and intimacy with men are the basic aspects of femininity.

Their attempt to control their physical appearance demonstrates a disproportionate concern with pleasing others, particularly men--a reliance on others to validate their own sense of worth. They have devoted their lives to fulfilling the feminine role rather than the individual person. None has developed a basic sense of personal power or of self-worth. (pp. 346-347)

Orbach (1978a, 1978b) regarded compulsive eating as an adaptation to sexist pressure in our society. Fat and compulsive eating is a rebellion against having to look a certain way and against the inacceptability of female anger, assertion, and competence. Women are taught that body shape and size are very important in womanhood. There are important unconscious symbolic issues behind compulsive eating, which include protection, sex, nurturance, boundaries, strength, mothering, sustenance, assertion, and rage. Orbach endorsed an anti-diet and anti-deprivation model in which the meanings of fat and thin are examined for each woman in a feminist and social context.

There is considerable societal and cultural pressure on women to be thin. The pressure is exaggerated by a trend toward thinner cultural standards of attractiveness. Garner, Garfinkel, Schwartz, and Thompson (1980) found as the ideal cultural standard was moving toward even thinner shapes, average population weights were increasing. This situation results in a greater discrepancy between what is considered ideal and what is average or the norm. Bridging the gap between the two is realistically quite difficult, if not impossible, creating greater conflict and pressure for women if they strive to close the gap.

An additional conflict exists for women. They traditionally perform tasks related to food in the homemaking role. The tasks include shopping, planning menus, cooking, and so on, which puts them around food for greater periods of time. Such tasks are also a way of focusing on others and their needs and giving nurturance, which again is a traditional feminine role expectation. There is seemingly

an interaction between factors related to obesity, traditional female role expectations, and psychological implications. The expectations that women should be passive, nurturant, socially sensitive, and nonassertive, translated into the food area, lead to over-concern, excessive involvement with food, and responding to the needs of others first. There is considerable pressure and fear of what women will lose, i.e., love, self-worth, acceptance, if they do not respond to expectations. These are subtle factors increasing the risk of compulsive eating and obesity (Hall & Havassy, 1981).

There is a great deal of pressure on women to be thin. The feminist perspective assumes that compulsive eating behavior serves women in some way, and it is important these women become aware of how they use food. Then the focus can be moved away from food toward feelings, beliefs, and patterns that trigger binges. At this point, women can then make more conscious choices about how to cope with their feelings and problems and to take responsibility for their choices, eliminating guilt (which only adds to the binge-deprivation cycle).

A critical emphasis of the feminist perspective is the exploration and development of one's own strength and identity as a human being. It is important that women develop an internal source of self-esteem.

As can be seen, there is some theoretical overlap. Psychoanalytic and feminist perspectives share the notion that compulsive eating is a symptom (although there is some divergence with respect to what conflicts are covered by symptoms). They also share a concern with

development, and issues of autonomy and identity. Cognitive and feminist perspectives have in common the notion of belief systems and definitions of self-worth. They both emphasize the all-or-none phenomenon and rigid thinking that makes up self-worth. The strict behavioral perspective seems to stand alone. It does not appear to deal well with the complexities of binge eating without the use of other approaches along with it.

The various theoretical perspectives are relevant in investigating the relationships between dietary restraint, bingeing, and personality variables. They provide useful directions for systematic exploration of psychological characteristics in women with eating concerns. Self-awareness and acceptance, issues of control, autonomy, inner directedness, beliefs, cognitions, and attitudes toward women's roles are important considerations in examining eating disorders.

Overview

There is a need for further understanding of eating disorders. One way in which the need can be met is through more systematic study of psychological/personality variables, attitudes toward the rights and roles of women, and their relationship to compulsive or binge eating. The rest of the research is divided into the following segments: Chapter II is a review of pertinent literature; Chapter III explains the methodology, including a description of the sample, measures, procedures, design, hypotheses, and analysis; Chapter IV summarizes the results; and Chapter V includes the summary and conclusions.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this chapter is to discuss research relevant to eating disorders, especially bulimia and compulsive eating (although some research on obesity is presented). Primary attention is given to research in the following areas: (a) restrained/unrestrained eating, (b) binge eating, (c) bulimia and compulsive eating specifically focused on women, and (d) other personality and psychological variables relating to obese/normal weight differences. The area of eating concerns is complex; therefore, an extensive review of the literature has been conducted. At the conclusion of the chapter, a summary of the important points culled from the literature can be found.

Restrained/Unrestrained Eating

The following section outlines the concept of restrained/unrestrained eating, development of the concept from Nisbett's set-point theory, and the results of many laboratory studies using restraint as an independent variable. An attempt was made to include studies representative of a variety of samples, including both sexes and a variety of weight groups. Several studies that have examined the interaction of restraint and cognitions, and restraint and affect, are also discussed. At the end of the section is a summary of the

importance of restrained/unrestrained eating and its relevance to the study.

In efforts to better understand individual differences in eating behavior, Herman and Mack (1975) introduced the concept of restrained eating. Restrained/unrestrained eating refers to the extent individuals subject themselves to deprivation. In other words, restrained eaters are very concerned about dieting, efforts to suppress weight, and rigid control of their food intake. Unrestrained eaters do not have similar concerns. It is important to realize the label of restrained eating does not indicate whether or not one has been successful in keeping weight down (it merely describes dieting behavior). Chronic dieters are more weight conscious and more restrained in their eating behavior than nondieters. However, there is no direct relationship between restrained/unrestrained eating and weight. Restrained eaters are found among overweight, normal-weight, and underweight individuals.

Herman and Mack developed the restrained-eating concept by expanding on Schachter's externality theory and Nisbett's set-point theory, as explained below. Schachter (1971) believed eating behavior differed between obese and normal-weight individuals. He hypothesized normal-weight individuals responded to internal cues of hunger, such as gastric and hypothalamic processes, and obese individuals responded to external cues, such as appearance of food or time of day (thus external in eating behavior).

Nisbett (1968) found not all obese eaters were primarily externally controlled in their eating behavior and tended to eat in

extremes, either very large or quite small amounts of food. He developed the set-point theory (Nisbett, 1972) to explain the inconsistencies in the eating behavior of obese individuals and eating behavior in general. The theory was based on the idea that both normal-weight and obese individuals eat in order to maintain weight at a biologically determined set-point (which depends on the number of fat cells in the body, differing widely from person to person). Dieting reduces the size of fat cells, but not the number. Reduction of size of fat cells results in their depletion (deprivation), and this state is transmitted to the hypothalamus. The transmittal may motivate an individual to eat because he is in a state of deprivation with respect to biological set-point. However, the individual may choose not to eat as a function of cultural pressures to keep weight within a certain range, thereby keeping the person below his biological set-point. Thus, individual differences in set-point would account for individual differences in body weight and eating behavior. Nisbett reasoned individuals at or near their set-point are not food deprived, are less vulnerable to external food cues, and would exhibit less external control in eating behavior. Conversely, individuals who are not up to set-point are deprived and may behave in an externally controlled way. Such individuals may be overweight by societal standards, but weigh less than their biological ideal body weight. It is possible individuals within normal weight ranges may weigh less than their ideal biological weight, too.

Expanding on Nisbett's theory, Herman and Mack (1975) believed set-point discrepancies did exist for normal-weight individuals.

They developed the concept of restrained eating and saw it as a continuum ranging from highly restrained to unrestrained eating. They devised a scale to measure this type of eating (Restraint Scale). Individuals who scored as more restrained were more concerned about keeping their weight down, dieting, controlling consumption, and deprivation (in Nisbett's terms, they would be below set-point). Unrestrained eaters, at the other end of the continuum, were not terribly concerned about calories or dieting and were not depriving themselves (at or near biological set-point). The Restraint Scale focused on behavioral and attitudinal concern about dieting, not actual success. The scale and its properties are discussed further in Chapter III.

A number of studies have been done using restrained/unrestrained eating as an independent variable to learn more about the significance of the dimension. Herman and Mack (1975) hypothesized normal-weight college-age females (a population expected to have a large proportion of restrained eaters since they experience more pressures to maintain ideal weights), with varying degrees of concern about weight and restraint in eating habits, would differ in their response to the experimental removal of restraint. Specifically, the more restrained (below set-point) subjects would eat more when attractive food cues existed (external control) if chronic restraint was eliminated. Removal of restraint would have little effect on low restrained subjects (at or near set-point), who would exhibit internal regulation. Another important hypothesis was that restraint was a better predictor of eating behavior than weight. The experiment was

presented to 45 female subjects as a taste test in which subjects consumed milkshake preloads (preload means eating before the experimental condition). The purpose was to experimentally remove restraint (by the preload) with the idea that restrained eaters would temporarily give up restraint if they believed they had overeaten. Subjects then consumed ice cream as part of the final taste test after restraint had been experimentally manipulated (the dependent variable was amount of ice cream eaten). Subjects filled out the Restraint Scale and were categorized as restrained or unrestrained based on a median split. The authors found the eating behavior of low restrained individuals was similar to the internal-regulation pattern previously thought to characterize all normal-weight individuals, with a larger preload resulting in decreased consumption. High restrained subjects, even though of normal weight, behaved in a more external manner. When restraint was given up, food cues triggered additional eating. Twelve additional subjects, who were obese, also participated in the study. Results showed they were not significantly more restrained than those of normal weight.

In summary, high restrained subjects ate more (or counter-regulated) when the preload was higher; low restrained subjects ate in inverse proportion to preload size. The authors concluded that relative deprivation rather than weight was the critical determinant of individual differences in eating behavior. This finding was important in light of the fact that consistent differences between overweight and normal-weight individuals have not been found in eating behavior or personality variables (Mitchell, 1980; Weiss, 1977).

Further study on the restrained/unrestrained variable was conducted by Hibscher and Herman (1977). Their sample consisted of 86 male undergraduates who were underweight, normal weight, and obese (in contrast to the preceding study, which focused on females of normal weight). Their study was also disguised as a taste test, with the tasting of ice cream following a preload (pre-eating) condition of either two milkshakes or no milkshakes. Subjects were divided into subgroups of dieters (high restraint) and nondieters (low restraint), in each of the three weight groups, using the Restraint Scale. The purpose of the experiment was to sort out the predictive-ness of eating behavior based on characteristics of restraint and weight, which are usually confounded variables. The authors were also concerned with similarities between dieters and overweight individuals at a physiological level and used blood levels of free fatty acids to examine the similarities. The authors found consumption did fluctuate as a function of restraint rather than weight after a preload. Dieters (restrained eaters) exhibited the "typical obese" response, not compensating for calories, regardless of weight classification. In addition, elevated levels of free fatty acids (a physiological index of food deprivation obtained by blood analysis) were associated with dieting rather than obesity, although previously they were thought to be correlates of obesity. Neither degree of overweight nor free fatty acid levels were reliable predictors of eating behavior in response to a preload; however, they were correlates of dieting, restraint, or attempted weight suppression. The obese often attempt to suppress weight as do normal-weight individuals, and

probably due to restraint, elevated free fatty acid levels exist for obese individuals.

In conclusion, some of the characteristics previously associated with obesity, i.e., increased eating (in an external manner) after a preload and elevated free fatty acid levels, were actually better correlated with restraint. However, restrained eating is characteristic of some obese as well as normal-weight individuals.

Thus far, it can be seen that restrained eating is a better predictor of eating behavior than actual weight, regardless of sex. Furthermore, restrained eaters are found across weight groups.

Restrained Eating and Cognitions

In efforts to account for the counter-intuitive phenomenon whereby highly restrained individuals eat more after a preload of food, a number of authors have looked toward cognitive components in experimental paradigms to better understand counter-regulation. Herman and Mack (1975) had reasoned subjects who consumed two milkshakes as a preload exceeded their "allowed" calorie limits for restrained daily intake. They expected restrained subjects to give up restraint if they saw themselves as having overeaten, thereby "triggering" further consumption.

Polivy (1976) designed a study to further explore restraint as a better predictor of eating behavior than obesity, especially in responsiveness to cognitive cues presented by an experimenter. She examined ability to perceive calories and regulate intake using 91 normal-weight male subjects, who were assigned to one of four preload

conditions. The preload conditions included high or low calorie and true or false information about caloric value. Subjects were classified as either high or low restraint and deprived of food for three hours. Polivy found restrained subjects who perceived the preload as high calorie ate more than those who believed the preload was low calorie. Unrestrained subjects ate less if they perceived the preload as high than those unrestrained subjects who believed the preload was low calorie. Also, restrained subjects who perceived preload as high calorie underestimated their final consumption. Unrestrained eaters did not respond to either cognitions or true calories, but they did remember how much they ate.

The primary hypothesis of the study was that restrained subjects would behave more cognitively (out of their belief about calories) than unrestrained subjects in their eating behavior. The interaction was between restraint and perceived calories, not actual calories consumed. Restrained subjects increased their intake when they believed they ate too much. Polivy concluded there was evidence that counter-regulation was based more on cognitions than actual calories. She interpreted her data in light of the "cognitive claustrophobia" phenomenon described by Mahoney and Mahoney (1976). The term refers to perfectionistic dieters and their overeating behavior once they go off a diet or make a mistake. They would binge eat if they didn't meet their expectations of perfection on a diet. Polivy suggested this characteristic may exist for dieters in general in that belief one has overeaten is enough to trigger an eating binge. Interpreting her results for treatment implications, Polivy suggested cognitive restructuring for restrained-eating clients.

This would include continued dieting efforts, rather than saying, "I've blown it already, I might as well eat." Other authors have suggested continued dieting efforts are contra-indicated, which is discussed later (Orbach, 1978a). In summary, "Altogether, the data seem to provide strong evidence for cognitive mediation of regulation and its breakdown, especially in restrained eaters" (Polivy, 1976, p. 242).

Spencer and Fremouw (1979) expanded on Polivy's study by testing the relationship between restraint and perception of calories with overweight and underweight subjects (female) as well as normal-weight subjects. They hypothesized restrained subjects would change their eating behavior more than unrestrained subjects, varying with their belief of calories consumed. The authors used 60 female subjects, 20 underweight, 20 normal weight, and 20 overweight. Subjects were also divided into restrained and unrestrained groups. As typical of the restraint lab studies, it was presented as a taste test, with the same actual preload given to each subject. Half of the subjects in each weight category had been told they drank a very-high-calorie drink, the other half very-low-calorie, even though actual calorie content was the same. Results indicated high restrained individuals tended to counter-regulate or binge after they consumed a preload they believed to be high calorie. Unrestrained subjects did not significantly differ in eating after cognitive manipulation, indicating caloric intake did not seem to be a primary concern. These findings reinforced the findings of others (Herman & Mack, 1975; Hibscher & Herman, 1977; Polivy, 1976) that restraint level rather than body

weight was predictive of counter-regulation or binge eating after consumption of a high-calorie preload or belief that the preload was high calorie. The authors concluded that a powerful cognitive factor controls eating behavior since it was demonstrated that a person's belief she had overeaten was sufficient to trigger eating binges.

Ruderman and Wilson (1979) designed an experiment to examine three main assumptions of restraint theory. Using the data from Hibscher and Herman (1977) and Spencer and Fremouw (1979) along with their own, the authors examined the following assumptions:

- (a) restraint is a more fundamental predictor variable than weight;
- (b) counter-regulatory behavior is characteristic of the obese; and
- (c) cognitive factors play a role in counter-regulation. (Counter-regulation refers to the pattern of eating more food after a preload than without a preload.)

The authors extended the studies of Hibscher and Herman (1977) and Polivy (1976), hypothesizing that calories perceived in a preload would influence subsequent consumption in the following manner. Restrained eaters would counter-regulate and unrestrained eaters would regulate consumption in line with their beliefs about caloric content. The design of this study differed from previous studies in that a repeated-measures design was used. Subjects (55 college-age females) classified as either obese or normal, restrained or unrestrained, made taste ratings of ice cream on two different days.

Incorporating their own study with the studies of Hibscher and Herman (1977) and Spencer and Fremouw (1979), Ruderman and Wilson concluded that restraint is in fact a better predictor of consumption

or regulatory and counter-regulatory behavior than weight. The second assumption that restraint was as good a predictor among obese individuals as it was among normal-weight individuals was not conclusive--the restrained obese ate considerably less than restrained normals. The authors concluded restraint may not be as good a predictor among the obese. The restraint dimension could predict the presence or absence of regulation (but not counter-regulation) among restrained/unrestrained obese. This is not the same as predicting regulation or counter-regulation, which can be predicted for normal-weight individuals. In light of this, the authors emphasized caution in generalizing from studies using restrained and unrestrained normals as analogues for obese and normals. The third assumption--that cognitive factors influence counter-regulatory and regulatory behaviors--was also accepted.

Lowe (1982) explored another cognitive component relating to the explanation of overeating, which was anticipated deprivation. She designed two experiments to test whether anticipated deprivation associated with dieting led to overeating, once restraint was broken. In each experiment 60 female subjects were preloaded and assigned to either a deprivation-no deprivation condition and divided into high and low restraint groups based on the Restraint Scale. Deprivation subjects ate significantly more than the no-deprivation subjects in Experiment 1, and in Experiment 2 high restrained women ate significantly more than low restrained women. Lowe's theory to account for the pattern of overeating characteristic of high restrained subjects was that chronic dieters (or high restrained individuals) overeat as a logical response to anticipated deprivation of return to a diet and

rigid control. Low restrained individuals perceived food to be continually available; high restrained people felt they must constantly deprive themselves of food. When their restraint was broken, the response was to eat, as they knew "tomorrow" would hold further deprivation for them. Lowe concluded the two experiments supported that cyclical overeating was a response to anticipated deprivation associated with dieting.

In summary, the studies on restrained eating and cognitions showed that restraint was a better predictor of eating behavior than obesity, especially when cognitive beliefs about calorie consumption were involved. The same was true of anticipated deprivation. Actual calorie consumption in a preload was not as critical as belief about caloric consumption for restrained individuals. This was the case regardless of sex and weight. Restrained individuals counter-regulated (or binged) when they believed they had overeaten after a preload.

Restrained Eating and Affect

In studies to further understand the restrained/unrestrained dimension and obese/normal differences, several authors have explored the effect of affective components such as anxiety (Herman & Polivy, 1975) and depression (Polivy & Herman, 1976) on restrained and unrestrained eaters.

Herman and Polivy (1975), using the restrained/unrestrained eating dimension, examined the psychosomatic hypothesis of obesity. The hypothesis refers to the belief that obese individuals confuse hunger

with negative affect and overeat in response to negative affective states. Anxiety was experimentally manipulated in 42 normal-weight female subjects to examine the effects of anxiety on food consumption. The authors found the eating behavior of restrained subjects resembled that of the obese, eating somewhat more when anxious (although not significantly more). Unrestrained eaters resembled normal-weight subjects, eating significantly less. They concluded some individuals may eat more when anxious, but little empirical support exists that eating actually reduces anxiety. An explanation for the behavior was that anxiety disrupted behavior and loosened the deprivation or restraint motivation of eating behavior, which was maintained at other times. They argued anxiety functioned to disrupt cognitive self-control processes such as restraint.

Polivy and Herman (1976) looked at depression and its effect on restrained and unrestrained individuals. Weight loss has often been a diagnostic symptom of depression; however, depression was found to affect individuals differently. The authors discovered unrestrained eaters lost weight when depressed, as opposed to restrained eaters who gained weight. Once again, the fundamental variable was the restraint dimension. The authors believed emotional stress upset or loosened restraint in normally restrained eaters.

In summary, the literature on restrained/unrestrained eating showed the restraint dimension was a better predictor of individual differences in eating behavior than the dimension of weight (underweight, normal weight, and overweight). A consistent finding was the counterintuitive phenomenon whereby restrained individuals ate

more after a preload (pre-eating). Rather than compensating for calories after a preload by reducing intake (as unrestrained eaters generally do), restrained eaters increased intake. Further research on the effect of cognitive manipulation (belief about calories consumed) and affect (anxiety and depression) showed the restrained/unrestrained groups differed significantly in their eating behavior.

What was in its early stages an outgrowth of Nisbett's set-point theory has since become a recognized concept. It is both psychologically and physiologically stressful to try and maintain weight below set-point. Herman (1978) pointed to how hyperemotionality is often found in dieters. According to him, dieting is often a source of frustration and drains resources to cope with life demands. The resultant stress can interfere with dieting, making the person feel a need for more stringent controls, which is even harder to live with and achieve. It can be a set-up to fail and indeed often produces failure. In sum, a cyclical, conflicting situation exists with dieting leading to further stress and vulnerability to the breaking of restraint.

Restraint studies have been primarily experimental in nature. The Restraint Scale was used to divide subjects into groups of restrained and unrestrained eaters by a median split (female restraint scores were higher than male restraint scores). While such a methodology provides promising results, there were some weaknesses. The dimension of restrained/unrestrained eating is a continuous one; therefore, looking at the variable in additional ways is important. It would be useful to examine restraint in natural settings and in relation to

other attitudinal and behavioral measures of eating concern, as well as personality variables.

A number of studies have been done outside the lab setting on binge eating, providing further evidence for interpretation of the data on restrained/unrestrained eating.

Binge Eating

Thus far, in the study of restraint, it has been found that chronic dieters tended to counter-regulate or binge eat when they had actually overeaten or believed that they had overeaten (Polivy, 1976; Spencer & Fremouw, 1979). The pattern of counter-regulation was likened to an eating binge (Wardle, 1980). Other authors, in studying bulimia, have also found connections between eating binges and dietary restrictions. Typically, dietary restriction is the first change in eating behavior, with binges occurring later (Boskind-Lodahl & Sirlin, 1977; Russell, 1979). Because of the appearance of dieting first, it was suggested dietary restraint could produce or encourage eating binges (Wardle, 1980). The preceding studies on restrained and unrestrained eating were conducted in a laboratory setting, under the guise of taste tests. A number of authors have studied binge eating in more natural settings.

The following section focuses on research in the area of binge eating. Studies are outlined in which binge eating was studied in normal men and women to acquire descriptive data on the phenomenon. A study quantifying behavioral and attitudinal parameters of binge eating (in which the Binge Scale was developed) is discussed.

In addition, studies examining binge eating in the obese and overweight are mentioned. Furthermore, a study in which binge eating was examined in relation to self-reinforcement by pleasurable activities is discussed, and finally, treatment issues are addressed.

In a natural setting, Wardle (1980) examined the relationship between weight, dietary restraint, and a number of variables associated with eating behavior. The eating variables examined included daily calorie intake, the frequency of binges and associated features, such as cravings for food, and inability to stop eating at the end of a meal. She studied a population of 68 "normal" men and women to collect normative data on bingeing. She tested the following predictions: (a) overweight subjects would have higher restraint scores than normal or underweight subjects; (b) women would have higher restraint scores than men; (c) women would have higher frequencies of bingeing and craving than men; and (d) subjects with high restraint scores would have higher frequencies of bingeing and craving than those with low restraint scores. Wardle found highly restrained subjects in normal life reported more eating binges, which seemed to reinforce the idea of experimental counter-regulation in the lab as a version of a binge. In line with the predictions, restraint did differentiate overweight and normal-weight subjects. Women had higher restraint scores than men (although women were not more overweight), and women reported more craving and binges. Restrained eaters of all weight classifications reported more binges, more cravings, and more problems with stopping eating. Wardle interpreted her findings as consistent with the findings that restraint is an

important determinant of eating behavior and is applicable to normal-weight individuals.

Hawkins and Clement (1980) developed the Binge Scale to quantify behavioral and attitudinal parameters of bulimia or binge eating. They investigated binge eating and personality correlates in a sample of approximately 390 normal-weight and overweight male and female college undergraduates who were not exhibiting mental-health problems. They found for both males and females the severity of reported binge eating was significantly correlated in the positive direction with degree of dieting concern (as measured by the Restraint Scale). In females, severity of binge eating was significantly correlated with negativity of self-image acceptance. Restrained eating, binge eating, and negative self-image were significantly correlated with body-weight percentages. There was no evidence for either sex of a social-desirability response set correlated with scores on the other scales. For males, restraint and body weight were positively associated with external locus of control, negative self-image, and number of life changes in the past month. Dieting concern was inversely associated with assertiveness on the College Self-Expression Scale, and low assertiveness was associated with external locus of control. For females, concern of binge eating and restraint was positively correlated with number of recent life events, low assertiveness associated with higher binge concern and more negative self-image.

From their data, Hawkins and Clement concluded there is a widespread prevalence of binge eating among college undergraduates and is particularly a concern for women. They concluded their study

was consistent with the contentions of Boskind-Lodahl and Sirlin (1977), who believed strong sociocultural pressures for women to achieve and maintain a thin ideal body weight exist. The authors also concluded that excessive control of eating can trigger binges, the paradox pointed out by other authors.

Several authors have examined binge eating in obese individuals without the Restraint Scale. Loro and Orleans (1981) examined the role of binge eating in 280 obese and overweight adults. They suggested binge eaters had more complicated behavioral and psychological problems other than weight. Underassertion, low self-esteem, negative feelings, and a lack of basic coping skills were cited as issues of concern. They described binge eaters fluctuating between extremes of self-denial and rigid dieting to binging.

Gormally, Black, Daston, and Rardin (1982), in developing an instrument to assess binge eating among obese persons, found individuals participating in obesity treatment varied in the extent they reported behavior and feelings characteristic of binge eating. Serious binging was not associated with greater obesity. Severe bingers, as opposed to moderate bingers, felt a complete lack of control, continuously struggling to avoid binges and having feelings of extreme guilt and self-hate. The authors also found cognitive factors such as setting unrealistic standards for a diet and low-efficacy expectations for sticking to a diet were correlated with binge eating. Specifically, high dieting standards and low personal-efficacy expectations increased the likelihood of loosening control, especially in "high risk" vulnerable situations. Individuals regarded such slip-ups

as a lack of willpower (contributing to lowered self-esteem), at which point control was further loosened and more bingeing occurred. Bingeing then increased the belief of individuals that stricter controls were necessary. In actuality, the excessive control or restraint made the individual more susceptible to binges, as seen by the studies on restraint.

Doell and Hawkins (1982) hypothesized normal-weight "restrained" and overweight college students, especially those who have binge episodes and stress-related overeating, have a restricted range of pleasurable activities to use as positive reinforcers. There were two samples of students of varying body weights who received a packet of questionnaires, including a Height-Weight Survey (Hawkins, unpublished), "Pleasure Questionnaire," Restraint Scale, Binge Scale, and the Negative Self-Image Scale. One sample consisted of clients in a weight-control program. The other sample was an abnormal-psychology class who responded to additional questionnaires, including the Mood Eating Scale, Life Events Scale, and the Pleasant Events Schedule. They found overweight subjects in the behavioral weight-control program reported less enjoyment of pleasant activities than normal-weight classroom control subjects.

As discussed above, there have been a number of studies attempting to answer questions about binge eating and its behavioral and attitudinal manifestations, as well as to ascertain personality correlates. Other authors have questioned behavioral treatments and their appropriateness for binge eating, especially in view of poor long-term-success results (Wilson, 1976).

Gormally, Rardin, and Black (1980), in a study to identify types of people who responded successfully to a behavioral weight-control program, found initial weight-loss success was positively correlated with two of three severity variables: individuals who reported frequent binge eating and histories of prior dieting weight loss. Binge eaters reported more perfectionistic and difficult-to-maintain dieting attitudes. Chronic dieters tended to have the most relapse at follow-up.

In treating binge eaters, Wilson (1976) stressed the importance of treatment focusing on self-acceptance and coping skills, rather than definition of self-worth defined by weight. He pointed out that binge eaters do not respond well to standard behavioral treatment. Mahoney and Mahoney (1976) stressed the importance of cognitive factors in treatment. Rigid attitudes toward dieting set up "cognitive claustrophobia," which triggers binge eating. Loro and Orleans (1981) pointed out the importance of individualized-treatment programs, with multiple components. They suggested binge eating is amenable to functional analysis and a multi-faceted behavioral-treatment approach.

In summary, the literature on binge eating indicated there is a large population of binge eaters, especially among college females. Binge eating is found across weight groups and is more prevalent among restrained eaters. Binge eating among dieters in a natural setting appears to be analogous to counter-regulation among restrained eaters in the lab. Personality correlates of binge eating include low self-esteem, little self-acceptance, lack of assertiveness, fewer coping skills, and guilt. A pattern of behavior occurs in which there

is a vacillation between extremes of rigid self-control, denial, and dieting to bingeing and feeling out of control. The pattern seems related to cognitions, unrealistic expectations and standards of one's self, perfectionism, and low-efficacy expectations.

In light of the above findings, treatment implications are important. More rigid control is contraindicated, as are behavioral techniques that do not focus on cognitive processes and areas other than eating per se. Treatment focus should emphasize self-acceptance and coping skills.

Bulimia and Compulsive Eating Specifically Focused on Women

Even though binge eating may be a concern for men, women are under greater sociocultural pressure to maintain an ideal body weight. Such pressure contributes to the deprivation-binge cycle previously discussed. Bruch (1978) described the increase in eating disorders as a "sociocultural epidemic." She argued that society's definition of ideal weight affects impressionable young women who believe control of weight is the same as self-control and will ensure beauty and success.

The next section describes studies particularly relevant to women and bulimia/compulsive eating. The following issues are addressed: standards of attractiveness and the ideal, self-satisfaction of body measurements, discussion of a feminist perspective on eating disorders, a treatment study with bulimarexics, traditional stereotypes and their interaction with obesity, a consciousness-raising group for obese women, three studies examining

compulsive eating and bulimia in relation to personality variables, and finally, a study documenting the trend toward a thinner ideal standard.

In discussing compulsive eating, many individuals point to our culture, which provides a rich framework for eating disorders (Chernin, 1981). Orbach (1982) pointed out how the variety of shapes and sizes of women is ignored in our culture and in media. Clothing is advertised on extremely thin models who do not represent a large proportion of the population. There are a great many articles, books, columns, and advertisements on diets, beauty, and the ideal. In this context, it is difficult to accept one's self unless one matches unrealistic standards. Reaching the standards is almost impossible, contributing to a cycle of deprivation and compulsive eating or bingeing. Meeting the ideal is thought to lead to happiness and to be the answer to personal and social problems. Such messages create considerable conflict for women. The conflict is in disliking the body they have, yet being unable to achieve unrealistic ideals, while continually trying to do so.

Even in 1955, Jourard and Secord, in studying the satisfaction of 60 women with their body measurements, found nonacceptance of self in not achieving the ideal. They reported:

The size specifications of the ideal female figure in our culture seem to be rather restrictive, i.e., they are difficult to attain. . . . None of the women in our sample had physical dimensions that were identical with all of their ideal self-ratings, and none of the women rated positively all their body parts. . . . A woman's status and security are in some cases highly conditioned by perceived and demonstrated attractiveness to males--irrespective of her skills, interests, values, etc.; hence, if she does not feel or appear "beautiful," she

feels a loss of self-esteem, i.e., insecure. . . . Since "ideal" proportions appear to be difficult for many women fully to attain in our culture, it seems warranted to assert that the ideal, insofar as it is internalized by women, is indirectly responsible for much anxiety and insecurity among members of that sex. In some cases, perhaps, the ideal resembles one of Horney's "tyrannical shoulds"--one should be 5 feet 5 inches, 122 lbs., . . . etc.--which produces self-hate, guilt, and insecurity when it is not fulfilled. A "tyrannical should" of this nature, if true, would help account for the apparently widespread efforts among women in American society to mold and sculpture their bodies toward the ideal, by corsetry, dieting, exercise, and camouflage. (p. 246)

A number of authors have described the problem of various eating disorders from a feminist perspective. Boskind-Lodahl and her colleagues have focused on bulimia and bulimarexia in clinical populations, where treatment goals are increased self-esteem and ego development, not weight loss. Others discussed treatment (Orbach, 1978a), and Flack and Grayer (1975) focused on overweight populations. Boskind-Lodahl (1976) described women who are bulimarexic as accepting the stereotype of femininity. They are accommodating, passive, and dependent and believe that marriage, children, and intimacy with men are the basic components of femininity. She pointed out the obsessive pursuit of thinness by these women is an "exaggerated striving" to reach the ideal. Their lives have been devoted to fulfilling a feminine role, and not fulfillment of their own individual selves. They have not developed a sense of self-worth or personal power. Bulimic women rely on others, especially men, to validate their sense of worth. Boskind-Lodahl described these women as lacking confidence in their ability to control their behavior. They are perfectionistic in their attempts to control their physical appearance

and to achieve. They strive to look good and achieve to please others, not for the inherent rewards they might gain for their competency. If they are not rewarded or rejected, they look toward their physical appearance and bodies to explain the problem and do not consider how their dependency and lack of sense of identity or self-worth might be contributing. In response, they diet further, and if again not rewarded, interpret this as a sign of their unattractiveness and unworthiness, which contributes to their overall sense of inadequacy. Binging is a release from such perfectionistic, unrealistic goals. From Boskind-Lodahl's description, it is apparent these women lack their own sense of identity and self-worth and let others, especially men, define their worth. Doing this puts them in vulnerable, powerless situations. When there is a real or perceived rejection, these women may become depressed or angry, which often triggers a binge. Or they may further attempt to control themselves, making their situation more precarious.

In a treatment study of bulimarexia, Boskind-Lodahl and White (1978) adapted an experiential-behavioral approach to a feminist perspective. Their population included 26 women who met the following criteria: (a) they were locked into cyclic eating behavior; (b) they had a distorted body image (they thought they were too fat, even though others did not perceive them as too fat); and (c) they complained of low self-esteem, feelings of inadequacy, helplessness, despair, fear of men, distrust of women, and shame regarding their eating pattern. The authors used a group approach, which stressed the assumption that subjects' eating behavior served them in some way,

and they were to explore in what way. Other assumptions such as their fantasy of a successful life if they were thin and pretty were also explored. The groups worked on assertiveness, increased awareness, encouragement of intimacy, and trust with other women. The authors believed as power and self-worth developed, fear and anger toward men would decrease. They found improvement on Body Cathexis scores and several personality dimensions on Cattell's Sixteen Personality Factor Questionnaire in the treatment group. Binging was revised or decreased in 10 of 12 situations, but follow-up showed a tendency to revert to pretest attitude scores. The authors concluded sociocultural factors were very important in female role definition. Bulimarexia is related to the struggle to achieve the "perfect" female image, and the power of self-definition is given to others.

Stereotyping and Obesity

Hall and Havassy (1981) emphasized several issues relevant to traditional female role stereotypes and the interaction with obesity. Women traditionally are the food handlers and preparers in our culture. They are continuously around food and are easily vulnerable to external cues for eating. Physical activity and exercise have been less valued for women as they grow up. Lack of exercise contributes to overweight and to women not learning to feel comfortable with their bodies. Other factors increasing vulnerability of women to obesity are expectations that women should be passive, nurturing, socially skilled, nonassertive, and nonangry. In other words, they are expected and expect themselves to put others first.

In addition to role expectations, our culture emphasizes physical appearance. Women tend to have more negative concepts about their bodies than men and try to change their shape. Hall and Havassy (1981) pointed out well-designed studies investigating the influence of pressure to be thin on female personality development do not exist. However, these pressures are observed by the anxiety, shame, guilt, self-blame, and hate documented in the literature and clinical reports.

Several authors (Boskind-Lodahl & Sirlin, 1977; Hall & Havassy, 1981) have documented the pressure on women to be thin, the negative connotation of being overweight, and resultant low self-esteem in women. Flack and Grayer (1975) organized a consciousness-raising group for obese women to change the obesity cycle at the self-esteem level. Being fat leads to social rejection, which leads to low self-esteem and feelings of worthlessness. The next stage is deprivation or punishment, which leads to depression and back to overeating and getting fat (beginning the cycle again). The emphasis of the authors can be summarized by the following statement they made to group members:

You are a worthwhile, deserving person whether you decide to remain fat or not. In most cases, being fat is a choice. This choice carries with it certain social and physical consequences, which we will explore. Your choice to remain fat or to become thin is your own business and does not affect our regard for you. (pp. 484-485)

A variety of themes emerged in the groups, which paralleled the observations of other clinicians. Themes included (a) anger over not having unconditional acceptance, (b) discovering being thin was not the answer to their problems, (c) fear of relationships with men

and rejection by them, (d) stereotyped views of thin (having no problems, no hurts) and fat (being bad and unacceptable), and (e) describing their behavior and foods as dichotomously good or bad. They postponed pleasurable activities, planning to wait until they were thin to pursue them. They could not allow themselves to be angry, assertive, or to tell people no and set limits.

Studies Exploring the Relationship
Between Compulsive Eating and
Bulimia to Personality Variables
in College Women

In an exploratory study, Ondercin (1979) examined compulsive eating in women college students. In her sample of 279 women, ranging in age from 17 to 45 (average age 19), recruited from psychology classes, she looked at the predominance of compulsive eating and its associated attitudes, behaviors, and feelings. Subjects completed self-report questionnaires and on the basis of their responses to the question "Would you label yourself a compulsive eater (i.e., overeating at times without regard to actual physical hunger)?" were divided into high (18% of sample), medium (51%), and low (30%) groups of compulsive eaters.

Analyzing the data by chi-square analysis, a linear relationship between compulsive eating and most other variables was found. A significant difference between groups occurred for 24 variables. A stepwise multiple-regression analysis indicated that four items-- "Eating seems to calm me down or make me feel better," "I eat when I'm tense or anxious," "I think about food," and "I eat when I'm sad or depressed"--were the most predictive, yielding a correlation of .66

with compulsive eating. The first item was the most predictive, with a correlation of .60 with compulsive eating.

The high compulsive eating group differed significantly from the medium and low groups on several dimensions. They reported eating more frequently as a response to unpleasant emotional states such as loneliness, sadness, anxiety, boredom, and anger; eating more frequently when not hungry; and experiencing guilt as a response to overeating. They also rated items such as thinking about food and "eating seems to calm me down or make me feel better" more positively than the medium and low compulsive eating groups.

Seventy-eight percent of Ondercin's sample reported episodes of binge eating. The breakdown by group was 92% of the high compulsive eating group, 83% of the medium, and 61% of the low group reported eating binges. The high compulsive eating group binged approximately once a week or more; the low group binged a few times a year. There were very few other significant differences in actual binging behavior between groups. High compulsive eaters had a history of more dieting and treatment for overweight, as well as an indicated dissatisfaction with their weight (they rated themselves as 10 to 20 pounds overweight). (High compulsive eaters tended to vary 5 to 10 pounds per month.) Medium compulsive eaters tended to rate themselves as 10 pounds overweight; low compulsive eaters tended to rate themselves at the correct weight.

In Ondercin's study, compulsive eating in college women was related to unpleasant affect such as anxiety, depression, boredom, anger, and loneliness. It appeared compulsive eating had

tension-reduction and pleasurable qualities. Ondercin concluded compulsive eaters may frequently use eating as a method of coping with anxiety and depression. She pointed out the dilemma college students face with important life changes, identity exploration, and adjustment to new stresses. At the same time, they have not yet developed extensive means of coping with such issues. Her treatment suggestions included increasing awareness of internal feelings that trigger eating, developing coping behaviors, and examining underlying conflicts related to emotional states and their expression.

Ondercin concluded if eating binges are as prevalent among college women as this study indicated, compulsive eating is better defined as associated with unpleasant affect, rather than eating binges per se. Even though compulsive eating behavior is used as a means of coping with stress, it creates concern and distress.

In another study, Dunn and Ondercin (1981) studied the relationship of personality variables and sex-role identity to compulsive eating in college women. Forty-seven female psychology students were selected (out of 252) on the basis of their scores on the Compulsive Eating Scale (CES). Their scores were in the upper (high compulsive) and lower (low compulsive) quartiles on the scale. The CES contained items regarding height, weight, weight control, eating binges, and relationship of emotional states to food and eating. In addition, participants completed the Marlowe-Crown Social Desirability Scale (measured needs for approval from others), the Sixteen Personality Factor Questionnaire (16PF--measured several personality traits), the Rotter Internal-External Locus of Control Scale (measured

individuals' beliefs about power to control contingencies of reinforcement), and the Bem Sex Role Inventory (measured the tendency of the individual to describe him/herself with sex-typed standards considered to be masculine or feminine by our culture). On the Bem, scores were obtained for self-concept (as you see yourself) and self-ideal (as you would like to be seen) on a Masculinity and a Femininity scale.

Significant differences were found between high and low compulsive eating groups on the Marlowe-Crown, with the high groups showing a high need for approval. On the 16PF, t-test analysis showed significant differences on 6 of the 16 factors. The high compulsive group scored higher than the low group on guilt-proneness, suspiciousness, and inner tension. They scored more negatively than the low group on emotional stability and control. The low group scored higher on shrewdness. On the Internal-External Locus of Control Scale, the high compulsive group scored significantly more externally. There were no differences on the self-concept scales for Femininity or Masculinity nor on the self-ideal scale for Femininity on the Bem. The high compulsive group scored significantly in the direction of a higher self-ideal on the Masculine scale.

A regression analysis showed 48% of the variance was accounted for by suspiciousness (16PF), internal-external locus of control (LOC), shrewdness (negative 16PF), guilt-proneness (16PF), and Masculine self-ideal (Bem). The authors performed a simple correlational analysis that revealed suspiciousness (16PF), inner tension (16PF),

internal-external locus of control (LOC), and guilt-proneness (16PF) were most related to compulsive eating.

In summary, from the results of the described analysis, Ondercin and Dunn concluded there are meaningful personality differences between high and low compulsive eaters identified by the Compulsive Eating Scale. High compulsive eaters were characterized by a higher need for approval, greater inner tension, suspiciousness, guilt-proneness, and less emotional stability and self-control. They also believed they had little control over their lives, attributing events to luck, chance, or powerful others. They endorsed masculine values such as dominance, independence, and ambition as more desirable.

In light of the results on the Bem Sex Role Inventory, the authors concluded Orbach's hypothesis that compulsive eating represents the rejection of the stereotyped role of femininity was unsupported. They also concluded Boskind-Lodahl's hypothesis that the feminine sex-role stereotype is overemphasized and overidealized was also unsupported. Ondercin and Dunn asserted that high compulsive eaters idealize assertive, masculine goals.

In conclusion, the authors hypothesized that conflict between striving for independence and other masculine ideals, and feelings of fear, helplessness, inadequacy, anxiety, and lack of control create conflict. Integrating masculine ideals with stereotypes of femininity is difficult and may trigger fears of failure and disapproval by others. At the same time, not living up to ideals of achieving, independence, and effectance create self-blame and feelings of worthlessness.

Unavoidable stresses of life emphasize these conflicts and possibly trigger bingeing, alleviating unpleasant affect as observed by Ondercin (1979). Bingers also may be regarded as letting go of any effort or hope to control themselves, alternating with rigid dieting and perfectionistic strivings as pointed out by Boskind-Lodahl (1976). Dunn and Ondercin (1981) suggested, "Bingeing also might be seen as a hopeless abandonment of any attempt to control behavior or impulses, which alternates with strict over-control (perfectionism) of the starving or dieting phase" (p. 48).

The authors suggested future research should include a compulsive eating group with a middle range of scores to see if a linear relationship exists with personality variables. In addition, they suggested dividing high compulsive eaters or bingers into individuals who binge only and those who binge vomit or use laxatives or amphetamines. There may be personality differences between these groups.

Continuing along the lines of investigating personality characteristics, Allerdissen, Florin, and Rost (1981) saw a need to systematically explore psychological characteristics in order to develop better treatment concepts. They recruited 28 women between the ages of 18 and 39 ($\bar{X}$ = 25.5) to participate in the study. They specified subjects must meet the criteria of "suffering severely from craving for food and eating binges followed by revision measures such as vomiting, purging, or rigorous dieting" to be included. Subjects reported varied frequencies of bulimia ranging from a few times per month to many times a day. The mean length of time for the problem was 9.4 years, mean age of onset 15.5 years, and mean overweight

6.7 kg. There was also a control group of 28 women matched for age, education, and vocation who did not have eating disorders.

Subjects took the Picture Frustration Test, the Beck Depression Inventory, and a locus of control scale (Krampen, 1979). They completed a rating scale regarding their ability to enjoy sexual relations, to communicate sexual desires, and their fear of not meeting sexual partner's expectations. They also answered a question regarding their belief that sexual life would be improved if they were thinner and more attractive.

Several subjective observations that have been made by practitioners were confirmed. The authors found:

1. Women who were bulimic blamed others for frustration to a lesser degree than women in the control group; however, bulimic women did not score lower in extrapunitivity than the control group. This was contrary to the authors' expectations.
2. Bulimic women experienced more external control in the form of dependence on others seen as powerful and superior, but were not different from controls in the perception of external fatalistic control or internal control.
3. Bulimic women expressed less pleasure in sexual relationships than the control group.
4. More often than the control group, bulimic women felt that if they were thinner and more attractive they would experience more sexual pleasure.
5. The depression score was significantly higher in the bulimic group than the control group (7 out of 28). Bulimic women exhibited mild to severe depression.

Interpreting the results and their implications for treatment, Allerdissen, Florin, and Rost suggested problem areas such as assertiveness, sexuality, body image, depression, and the sense of being controlled by others should be clarified for each individual in a

functional behavioral analysis. For some women it is more appropriate to work on body image as opposed to eating habits and patterns. In addition, self-control techniques around eating are probably not extremely helpful in light of the finding that bulimic women were not less internally controlled than the control group. In fact, rigid control often triggers bingeing, and teaching more control is contraindicated in these instances (Wardle, 1980).

Trend Toward Thinner Ideals

Garner, Garfinkel, Schwartz, and Thompson (1980) attempted to empirically document the trend toward thinner ideals for women in our culture over the past 20 years. They compiled height, weight, and measurement data from Playboy centerfolds over the past 20 years. Regression analysis indicated average weights decreased significantly, as did hip and bust measurements. Similar data were compiled for Miss America Pageant Contestants. The average weight of the contestants has declined, and since 1970 the winners have weighed significantly less than the other contestants. The authors compared 1959 and 1979 average weight statistics as they based the preceding statistics on 1959 actuarial data. This comparison yielded an increase in average weight for women under 30 years old. The final compilation in the study was a tabulation of articles about dieting for each year from 1959 to 1979 in six women's magazines (Harpers' Bazaar, Vogue, McCalls, Good Housekeeping, Ladies Home Journal, and Women's Day). There were 467 such articles, with a regression analysis showing an increase in number over 20 years. The most significant increase occurred over the past 10 years (before 1979).

The data indeed indicated a shift toward a thinner size as ideal, especially within the last 10 to 14 years. Concurrently, the average woman under 30 has become heavier in the past 20 years. The widening discrepancy between the ideal and average can exert strong pressure on women to diet, regardless of potentially negative emotional and physical consequences.

From the review of the literature in the preceding section, it can be seen there is considerable need for further study and more conclusive results in the area of eating disorders. Extensive systematic investigation has been limited. A great deal has been written about theory and women's issues, but the need for empirical investigation remains.

The next section briefly describes research relating to obese/normal weight differences. As pointed out in the first section of Chapter II, the restraint dimension seems to be a better predictor of differences in eating behavior than weight. Nevertheless, for the reader's interest, the following section was included.

Other Personality and Psychological Variables Relating to Obese/Normal Weight Differences

This section briefly describes research in the area of personality differences between obese and normal-weight individuals.

Weiss (1977) reviewed several studies on prediction of successful outcome in weight-control programs. He grouped his discussion of research into four categories of independent variables. They were: (a) demographic characteristics, (b) personality measures, (c) weight history, and (d) self-reinforcement style.

Of the variables, Weiss concluded the best predictive validity was due to three major variables. Age of onset seemed to have considerable predictive validity. Juvenile onset of obesity was more difficult to treat. Locus of control also seemed to have predictive validity (although not consistently). Subjects with an internal locus of control did better in a self-control program, and external individuals did better in a program with therapist control and financial contingencies. The third variable, which appeared more promising, was self-reinforcement style. One's ability to reinforce one's self was important whether reinforcement was material, positive self-statements about behavior change, weight loss, or feelings of worthwhileness. Weiss concluded general measures of adjustment are not good predictors of successful weight control.

Weiss (1977) pointed out locus of control has appeared to have predictive validity; however, locus-of-control studies have led to conflicting results. In a study exploring the relationship between locus of control and completion and success in a self-control weight-loss program, there were significant differences in locus of control for those who completed and were successful in the program (Balch & Ross, 1975). Subjects (34 females) were 5-14% overweight. The authors used a behavioral treatment program and hypothesized the internally oriented person who believed in ability to control life would be more successful in the program than the externally oriented person who believed luck or fate determines one's life. Because specific individuals might benefit from a behavioral treatment program,

the authors suggested locus of control be considered in the selection of applicants for self-control weight-loss programs.

In another study examining locus of control, Cohen and Alpert (1978) found internal I-E scores correlated ($r = .60$, $p < .025$) with weight loss in a treatment program using hypnosis. Obese individuals with external I-E scores appeared to be higher treatment risks. The authors suggested treatments for this group would require greater control over situational cues or exploration of underlying issues affecting inability to get in control. It has been noted in several studies of psychotherapy that movement in locus of control toward internality is correlated with clinical improvement (Frank, 1976).

Leon and Chamberlain (1973) failed to find any significant differences on the I-E Locus of Control Scale between subjects who maintained weight loss or regained weight or between the maintainers/regainers and the control group. Another study by Gormanous and Lowe (1975) found no significant differences between obese and normal undergraduate populations of both sexes in I-E scores.

Use of internal-external locus of control has led to inconclusive results in research examining differences between normal and overweight individuals. The present study investigated I-E differences between women who are restrained versus unrestrained eaters, irrespective of weight. Locus of control was also examined in the context of high and low bingers. The last study presented in this chapter explored psychodynamic and personality issues around overweight.

The Research Committee of the American Academy of Psychoanalysis surveyed 84 obese and 63 nonobese control patients in the practice of 72 psychoanalysts (Glucksman, Rand, & Stunkard, 1978). Subjects had not entered psychoanalysis with the goal of losing weight. Demographic characteristics of both groups, except for marital status, were comparable (more obese individuals were single). Patients, the majority of whom were women, were between the ages of 18 and 50. Eighty percent were of middle socioeconomic status, and over 60% were college graduates.

There was considerable evidence that excessive eating had an emotional base, as 94% of the obese reported eating in association with feelings of depression, anxiety, boredom, guilt, high spirits, anger, and feelings of accomplishment and satisfaction. In addition, during periods of life stress, obese patients reported a weight gain of 10 pounds or more, which was significantly different from non-obese controls.

The authors divided a variety of reported themes into five categories:

1. Affect: Included statements connected with experience or expression of emotions such as anger, depression, guilt, humiliation, frustration, boredom, anxiety, happiness, and contentment.

2. Self-Image: Included statements related to ego strength, ego boundaries, self-esteem, self-contempt, self-control, loss of impulse control, and body image.

3. Deprivation-Gratification: Included statements related to perceptions or feelings associated with object losses, disappointments,

separations, feelings of being unloved or unwanted, as well as feelings of being loved, accepted, and gratified.

4. Aggression-Competition: Included statements related to fears of criticism, control or exploitation by others, the need to control and compete with others, and the fear of one's own aggression or the aggression of others.

5. Sexuality: Included statements related to sexual fantasies, conflicts, feelings of sexual attractiveness or sexual undesirability, and symptoms of sexual dysfunction.

Specific themes were related to weight gain and weight loss for obese patients. It was concluded that more obese than nonobese patients had emotional factors, which were often unconscious, related to eating and food. However, emotionally motivated eating did not necessarily result in obesity, as 14 nonobese patients had psychodynamic themes associated with weight fluctuation. The theme of deprivation-gratification was most frequently associated with weight fluctuations for both obese and nonobese individuals.

Weight changes were associated with specific psychodynamic changes for most obese patients, but not for the majority of normal-weight individuals. Positive characteristics were feelings of strength, greater security, increased autonomy, and improved ego functioning. Negative characteristics were feelings of depression, insecurity, anxiety, frustration, and poor ego functioning. Weight gain was associated with negative characteristics for the obese. Also, for the obese, weight loss was associated with positive

characteristics. For normals, weight loss was associated with negative characteristics.

Both groups of patients entered psychoanalytic treatment with presenting concerns of anxiety and depression, but obese patients were more likely to cope with such concerns by eating. Eating was more likely to have emotional significance for the obese. According to Bruch (1973), eating may be a better coping strategy than other strategies for some individuals.

In summarizing the literature on personality variables relating to obese/normal weight differences, a few major points can be made. Results on predicting successful outcomes of weight-control programs have been inconclusive. The most promising variable appeared to be self-reinforcement style. In addition, it appeared many obese individuals overeat in response to a variety of affects. For them, eating served as a coping strategy.

Summary

Research in the area of eating disorders (including obesity and weight loss) has taken many divergent paths. Early research attempted to discern differences between obese and normal-weight individuals in order to design better treatment methods. Results were inconclusive and inconsistent (although comparison of research was difficult due to differing samples, methodology, and design). Most researchers agreed that obese individuals were not more pathological than normal-weight individuals. Research was conducted along the lines of restrained eating, which appeared to be a better predictor of

individual differences in eating behavior than weight differences. Binge eating has been explored in both clinical and normal populations, with some interesting results. Many researchers have looked toward sex-role stereotypes and conflicts along with sociocultural pressures to account for the widespread problem of eating concerns among women. From divergent directions of research, and inconsistencies, it is apparent much more work needs to be done in the area. Some lines of research are more promising than others (i.e., differences in restraint and binge groups), even though compulsive eating, bulimia, bulimarexia, and obesity appear to be multidetermined phenomena. However, out of the different areas of research, several conclusions can be drawn. They are as follows:

1. There is no one solution to the multidetermined problem of eating disorders.
2. Individuals differ in the extent to which they deprive themselves of food, and this difference does not appear to be directly related to weight differences.
3. The dimension of restrained/unrestrained eating is a better predictor of eating behavior than actual weight.
4. Restrained individuals counter-regulate after a preload.
5. Cognitions affect eating behavior, with increased consumption for restrained eaters occurring after the belief that one has broken restraint.
6. Restrained eating is influenced by affect.
7. Binge eating occurs in many individuals regardless of weight.

8. Binge eating is a behavior found with greater frequency among women.

9. Counter-regulation of restrained eaters in experimental studies appears analogous to binge eating in normal and clinical populations.

10. There is considerable pressure in our culture, especially for women, to maintain an ideal body weight.

11. Strict dieting often precedes bingeing in the initiation of the deprivation-binge-deprivation cycle. (Excessive control triggers bingeing, and dieting creates stress, in turn triggering bingeing).

12. Individuals binge eat in response to varied stimuli with considerable individual differences.

13. Many individuals compulsively eat in response to negative affect and unpleasant emotional stress.

14. There is a great deal of role conflict in our society for women: the conflict to achieve yet remain feminine and attractive, and the conflict to nurture others but not self.

15. There is a tendency for many women to attribute their self-worth to how they look and not to other aspects of themselves, such as interests, skills, values, and competencies.

16. Certain personality variables such as self-esteem and locus of control appear related to bingeing and overconcern with appearance.

17. Personality characteristics have not been found to be good predictors of favorable treatment outcomes for the obese.

18. There is no direct association between psychopathology and bingers, or psychopathology and the obese.

19. Treatments focused on rigid control are contraindicated as excessive control seems to trigger the bingeing problem in the first place.

Relevant research was summarized in Chapter II. The present study is a descriptive analysis to systematically examine relationships between important variables addressed in the literature. The next chapter presents the design of the study and a discussion of measures and procedures used.

CHAPTER III

DESIGN OF THE STUDY

The present study is a descriptive analysis, examining the degree to which certain variables relate to other variables. Specifically, the relationships between bingeing/dieting concern and other personality variables were explored. The purpose of this chapter is to outline the methodology and design of the study. Included in the chapter is a discussion of the sample, measures, procedures for data collection, design, hypotheses, analysis, and a summary.

Description of Sample

The sample in the study consisted of 138 women living in Michigan State University residence halls. One hundred forty-five women participated, but only 140 subjects correctly completed questionnaires such that the data were usable. Two individuals had missing data on the Locus of Control Scale and were not used in most of the analyses. However, the demographic data for those two subjects were reported.

Participants completed a demographic data sheet as part of their packet of instruments (Appendix A). Extensive demographic data on the sample are presented in this section for descriptive purposes. None of the demographic data were used as variables in the analysis.

Age, Race, Religion

The mean age of the sample was 19.09 years, ranging in age from 18 to 23 ($SD = 1.08$). Frequencies and percentages of age composition are summarized in Table 3.1. The majority of women in the study were white, comprising 96.4% of the sample. The distribution of the remaining 3.6% is found in Table 3.2. A large percentage of the sample (79.3%) was either Protestant (33.6%) or Catholic (45.7%). Further religious breakdowns are located in Table 3.3.

Table 3.1: Age of Sample

Age in Years	<u>n</u>	% of Sample	Cumulative %
18	49	35.0	35.0
19	49	35.0	70.0
20	27	19.3	89.3
21	11	7.9	97.2
22	3	2.1	99.3
23	1	.7	100.0
Total	140	100.0	

Table 3.2: Race of Sample

Race	<u>n</u>	% of Sample	Cumulative %
White	135	96.4	96.4
Black	3	2.1	98.6
Hispanic	0	..	..
Asian American	1	.7	99.3
Native American	1	.7	100.0
Other	0	..	..
Total	140	100.0	

Table 3.3: Religion of Sample

Religion	<u>n</u>	% of Sample	Cumulative %
Protestant	47	33.6	33.6
Catholic	64	45.7	79.3
Jewish	5	3.6	82.9
Other	15	10.7	93.6
None	9	6.4	100.0
Total	140	100.0	

Majors, Class Level, Grade Point
Average, Highest Degree Completed

A broad range of college majors was represented. A list of college majors of participants can be found in Appendix B. Classification level is listed in Table 3.4. The majority of the sample (78.6%) was comprised of either freshmen (48.6%) or sophomores (30%). Information was also collected on grade point average (self-report). On a four-point scale, grade point averaged from a low of 1.36 to a high of 4.00. The mean was 2.85; standard deviation was .49. Subjects were asked to report the highest academic degree they expected to earn. The highest individual percentage (35%) expected the Bachelor's degree to be the highest degree earned. The second largest percentage (26.4%) expected the Master's degree. The full range of answers to this question is located in Table 3.5.

Marriage/Relationships

None of the women in the present study had ever been married. Fifty percent were involved in relationships with men; 50% were not.

Table 3.4: College Classification Level

Level	<u>n</u>	% of Sample	Cumulative %
Freshman	68	48.6	48.6
Sophomore	42	30.0	78.6
Junior	20	14.3	92.9
Senior	9	6.4	99.3
Professional (Vet. Med.)	0	..	..
Graduate (Master's)	1	.7	100.0
Graduate (Doctoral)	0	..	..
Total	140	100.0	

Table 3.5: Highest Degree Anticipated

Degree	<u>n</u>	% of Sample	Cumulative %
None	5	3.6	3.6
Associate	0	..	..
Bachelor's	49	35.0	38.6
M.D., D.O. D.D.S., D.V.M.	21	15.0	53.6
Law	17	12.1	65.7
Master's	37	26.4	92.1
Doctoral	9	6.4	98.6
Other	2	1.4	100.0
Total	140	100.0	

Of the women who said they were in relationships with men, the duration of time ranged from 1 month to 48 months ($\bar{X}$ = 6.9 months, SD = 10.9).

Employment

In terms of employment, 49.3% of the sample were working, and 50.7% were not. A list of types of employment can be found in Appendix C.

Height, Weight, Dieting

Participants were asked information about height, weight, and bone structure; the data were collected in a self-report format. Even though some individuals may over- or under-estimate such information, inaccurate estimation was not of primary concern in the current study. The reason is that height and weight were not used as variables in the analyses. Height of women in the sample ranged from 4 feet 11 inches to 6 feet ($\bar{X}$ = 5 feet 5 inches, SD = 2.6 inches). The weight range was from 97 pounds to 175 pounds ($\bar{X}$ = 128.3, SD = 15.9). Participants were also asked to describe bone structure. Twenty-four percent described their bone structure as small, 61% medium, and 14% large.

No attempt was made to ascertain degree of overweight, normal weight, or underweight. Subjects were asked how much they thought they should weigh. Responses to the question ranged from 95 pounds to 160 pounds ($\bar{X}$ = 119.1, SD = 11.6). Of interest is the fact that of 140 subjects, 13 reported they weighed what they thought they should, and 5 thought they should weigh more than they did (ranging

from 2 to 20 pounds more). Therefore, 122 women (87%) thought they should weigh less.

In answer to the question on the demographic data sheet, "Are you dieting at the present time?," 47.9% of the sample said "Yes"; 52.1% said "No." Of those who were dieting, 36 (54% of dieters) said they were dieting successfully; 31 (46% of dieters) said they were not. Eleven individuals said they had to watch their diet for medical reasons. Medical reasons are found in Appendix D.

Social Class, Type of Town

Participants were asked how they ranked their social-class standing. They were given figural representations to choose from, with rankings of lower 1,2,3; middle 4,5,6; and upper 7,8, and 9. The highest individual percentage was 42.9% who ranked themselves as middle 6. The second highest individual percentage was 28.6% for middle 5. The full range of responses is in Table 3.6. With regard to type of town, 68.6% ($n = 96$) said they were from a suburban area. Thirteen and six-tenths percent ($n = 19$) were from an urban area, and 17.9% ($n = 25$) were from a rural area.

Parents, Family Income

A majority (80.7%) of the subjects said their parents were living together. Fifty-nine and three-tenths percent said their mothers were employed. Classifications of mothers' employment are found in Table 3.7. Level of education of mothers is summarized in Table 3.8. Eighty-five percent of the sample reported their fathers worked.

Table 3.6: Social-Class Standing

Social Class as Ranked	<u>n</u>	% of Sample	Cumulative %
Lower 1	0	..	..
Lower 2	0	..	..
Lower 3	2	1.4	1.4
Middle 4	15	10.7	12.1
Middle 5	40	28.6	40.7
Middle 6	60	42.9	83.6
Upper 7	16	11.4	95.0
Upper 8	6	4.3	99.3
Upper 9	1	.7	100.0
Total	140	100.0	

Table 3.7: Mother's Employment

Classification of Mother's Employment	<u>n</u>	% of Sample	Cumulative %
Unskilled	1	.7	.7
Semi-skilled	6	4.3	5.0
Skilled	15	10.7	15.7
Clerical, sales, technician, small business	34	24.3	40.0
Administrator or medium-business owner	4	2.9	42.9
Lower-level profes- sional or manager	14	10.0	52.9
Upper-level profes- sional or executive	11	7.9	60.7
Not employed	55	39.3	100.0
Total	140	100.0	

Table 3.8: Mother's Level of Education

Mother's Education	<u>n</u>	% of Sample	Cumulative %
Didn't graduate from high school	1	.7	.7
Graduated from high school	55	39.3	40.0
College or education beyond high school	41	29.3	69.3
Bachelor's degree	18	12.9	82.1
Some graduate school	4	2.9	85.0
Master's degree	19	13.6	98.6
Doctoral or professional degree	2	1.4	100.0
Total	140	100.0	

Classification of father's employment and father's level of education is described in Tables 3.9 and 3.10, respectively.

Table 3.9: Father's Employment

Classification of Father's Employment	<u>n</u>	% of Sample	Cumulative %
Unskilled	1	.7	.7
Semi-skilled	2	1.4	2.1
Skilled	23	16.4	18.6
Clerical, sales, technician, small business	13	9.3	27.9
Administrator or medium-business owner	14	10.0	37.9
Lower-level professional or manager	23	16.4	54.3
Upper-level professional or executive	52	37.1	91.4
Not employed	12	8.6	100.0
Total	140	100.0	

Table 3.10: Father's Level of Education

Father's Education	<u>n</u>	% of Sample	Cumulative %
Didn't graduate from high school	3	2.1	2.1
Graduated from high school	35	25.0	27.1
College or education beyond high school	33	23.6	50.7
Bachelor's degree	22	15.7	66.4
Some graduate school	7	5.0	71.4
Master's degree	22	15.7	87.1
Doctoral or professional degree	17	12.1	99.2
Not answered	1	.7	100.0
Total	140	100.0	

A description of family income is found in Table 3.11. The response with the highest individual percentage was 39.3% with amount of income over \$40,000. A summary of subjects' responses to the question regarding parental income is found in Table 3.11. The income figure included both parents unless otherwise specified. Three women counted only their father's income, 11 counted their mother's only, and 1 counted a guardian's income (because they lived with the respective parent or guardian the longest). Twelve subjects whose parents were not living together did not specify which parent's income they were reporting.

The preceding information outlined the data obtained on the demographic data sheet. The following section discusses the instruments used in the study.

Table 3.11: Parents' Income

Amount of Income	<u>n</u>	% of Sample	Cumulative %
Under \$4,000	0	..	..
\$4,000- 6,000	1	.7	.7
\$6,000-10,000	2	1.4	2.1
\$10,000-15,000	2	1.4	3.5
\$15,000-20,000	13	9.3	12.8
\$20,000-25,000	12	8.6	21.4
\$25,000-30,000	20	14.3	35.7
\$30,000-40,000	29	20.7	56.4
Over \$40,000	55	39.3	95.7
Blank	6	4.3	100.0
Total	140	100.0	

Measures

Five self-report, paper-and-pencil instruments were completed by participants. These were: the Attitudes toward Women Scale (short form), Rotter's Internal-External Locus of Control Scale, the Personal Orientation Inventory, the Revised Restraint Scale (Appendix E), and the Binge Scale (Appendix F). The measures are described below.

The Attitudes toward Women Scale

The Attitudes toward Women Scale (AWS) (Spence & Helmreich, 1972) is discussed in this section. After an explanation of the long form, there follows a discussion of the short version of the AWS, which was used in this study. The AWS (long form) is a 55-item, self-administered, objective instrument designed to measure attitudes toward the rights and roles of women in contemporary society. This instrument is scored as a summated rating scale and consists of four

response alternatives. It takes approximately 40 minutes to administer. Lower scores indicate more conservative attitudes; higher scores indicate more liberal attitudes. Scores range from 0 (the most traditional, conservative extreme) to 165 (the most liberal, profeminist extreme). Six major theme areas are covered, including: (a) vocational, educational, intellectual roles; (b) freedom and independence; (c) dating, courtship, etiquette; (d) drinking, swearing, dirty jokes; (e) sexual behavior; and (f) marital relations and obligations.

Reliability. The AWS has good reliability. Beere (1979) reported reliability from several sources. Test-retest reliability was .93 for 61 college women and .92 for 52 college men, with an average interval of 3.8 months between testings (Etaugh, 1975). Test-retest reliabilities were found to be .85 (for 20 college women), .89 (for 23 college women), and .88 (for 34 college women) with a 3-month interval between testings (Canty, 1975).

Corrected split-half reliability was .92 for 294 college students (Stein & Weston, 1976). Twenty-seven ninth graders were tested with corrected split-half reliability .80 and .86 for 22 ninth graders taking the test for the second time (Grant, 1977).

Validity. Data indicate women score more liberally than men on this instrument, and college students score significantly higher than their parents (Spence & Helmreich, 1972). College women ($n = 768$, $\bar{X} = 98.211$) scored significantly higher than college men ($n = 713$, $\bar{X} = 89.261$, $p < .001$), and mothers of college students ($n = 292$, $\bar{X} = 86.5$) scored significantly higher than fathers of college students ($n = 232$, $\bar{X} = 81.358$, $p < .01$) (Spence & Helmreich, 1972). It is

expected that college students would score more liberally than parents, lending support to construct validity. This type of validity refers to the extent that certain explanatory concepts or constructs account for performance on a test (Isaacs & Michaels, 1971). It provides a check on theory.

Beere (1979) reported validity from various sources. Several studies have obtained results in expected directions. Demographic characteristics such as geographic location have been found to differentiate liberal and traditional scores on the AWS (Lunneborg, 1974). Significant differences were found between samples from the North and South of the United States. Church affiliation, major, marital status, race, and grade point average have also predicted scores on the AWS (Beach & Kimmel, 1976).

The AWS has been used to measure changes in attitudes toward women's roles in studies designed for this purpose. These interventions with change measured by the AWS have been successful and further evidence of construct validity (Canty, 1977; Lunneborg, 1974).

Erickson (1977) investigated the relationship between women's attitudes toward their rights and roles in society and their personal maturity, using the AWS and the Sentence Completion Test (Loevinger & Wessler, 1970). The Sentence Completion Test measures ego development with seven basic stages and three transitional stages. A less mature ego would be at a self-protective, opportunist level, slightly more mature would be the conformist level (primarily concerned with living up to expectations and standards of others to gain approval and acceptance), to an even more mature, autonomous level. The author

administered both tests pre- and post- to 23 sophomore women taking a women's growth class. She found attitude scores of women increased toward equality and choice (more liberal) as their ego stage increased.

Criterion-related validity, which compares test scores with one or several external variables providing a direct measure of the characteristic being considered, has been cited by Beere (1979). The AWS was correlated with the Belief Pattern Scale for Measuring Attitudes toward Feminism (which was the basis of the development of the AWS). The correlation for the combined group was .87 ($p < .01$), the correlation for 37 men was .86 ($p < .01$), and the correlation for 39 women was .87 ($p < .01$) (Doyle, 1975). Scores were correlated between the AWS and Equalitarian Sex Role Preference Scale (a measure of attitudes toward male/female sex role equality) (Kirsch, Shore, & Kyle, 1976). The correlation for 30 boys and 30 girls was .90 ($p < .001$).

Advantages/disadvantages. Possible limitations for using the AWS are those of any attitude assessment. The relationship between attitudes and behaviors is often unknown, the instruments are susceptible to faking, and response sets and answers in a socially desirable direction. In addition, there may be a number of underlying dimensions or factors being measured. In terms of the first limitation, Ghaffaradli-Doty and Carlson (1979) found a relationship between attitudes and behavior. Women with more liberated attitudes tended to act more liberated, as measured by the Liberated Behavior Questionnaire. The AWS has been used more extensively than other scales to measure attitudes toward

women's issues; therefore, there is more information regarding its psychometric properties than other similar instruments.

Rationale. The AWS was used in the present study to determine if there is a relationship between liberal or traditional attitudes toward rights and roles of women, and binge and restrained eating. A number of authors (Boskind-Lodahl, 1976; Boskind-Lodahl & White, 1978; Dunn & Ondercin, 1981; Ondercin, 1979) believe women who are bulimic/binge eaters are dealing with issues related to feminist concerns, sex-role stereotyping, and the establishment of identity. Women characterized as restrained eaters tend to see dieting and eating behavior as an all-or-none, good-or-bad dichotomy. Individuals with lower levels of ego development also tend to see issues in a dichotomous manner. Women who score on the more traditional end of the AWS tend to be at lower ego-development stages, as shown by Erickson (1977). This study examined whether a relationship exists between restrained eaters and traditional scores on the AWS.

The Attitudes toward Women Scale (Short Form)

The short form of the AWS (Spence, Helmreich, & Stapp, 1973) was used in this study. The short form also measures attitudes toward the rights and roles of contemporary women but does not extensively cover the six major themes as does the longer version. The short form has 25 items and takes approximately 15 minutes to complete. Scores (from a summated rating scale) range from 0 (the most traditional, conservative extreme) to 75 (the most liberal, profeminist extreme).

Reliability. As reported by Beere (1979), internal-consistency estimates of the short form have been found to be .81 for 99 girls between ages 12 and 16 (Stanley, Boots, & Johnson, 1975). These investigations found alpha to be .82 for 72 women and .89 for 62 female and 88 male college students.

Item-total correlations ranged from .31 to .73, with the modal value in the .50s for students. These values were significant at $p < .001$. Values were somewhat lower for parents, with a range from .14 to .70, with the modal value in the .40s (Spence, Helmreich, & Stapp, 1973).

Validity. Spence, Helmreich, & Stapp (1973) found correlations between subjects' scores on the short version and full scale for two groups. For the student samples, correlations were .968 for males and .969 for females. In the parent samples, correlations were .956 for mothers and .963 for fathers.

Criterion-related validity was provided by Spence, Helmreich, and Stapp (1975). They found significant correlations between the AWS short form and scores on the Personal Attributes Questionnaire, a measure of masculinity/femininity.

Advantages/disadvantages. In general, use of a test form with more items increases its reliability. The long form of the AWS also has the advantage of providing more detailed information on the six major themes. However, the differences in reliability between the long and short forms of the AWS are not extreme. Reliability estimates of the long form range from .80 to .93, and for the short form the range is .81 to .89 (internal consistency). The authors of the

short form (1973) suggested it be used when groups of persons are to be compared on their attitudes toward women as more traditional or more liberal. In this study, a comparison of traditional and liberal attitudes was desired for restrained and unrestrained eaters. The long form is recommended when information is wanted regarding attitudes on each of the major themes, which was not the focus of this study.

Rationale. The rationale for choosing the short form was based on two major factors. First, correlations between the full scale and short version are almost perfect. Second, when considering the administration of several instruments in one sitting, and the fatigue factor for participants, it was decided to use the short form. This was expected to minimize boredom and fatigue, which could conceivably affect respondents' answers.

Rotter's Internal-External Locus of Control Scale (I-E)

The Internal-External Locus of Control Scale (I-E) (Rotter, 1966) is a 29-item, self-report, forced-choice test designed to measure beliefs about locus of control of reinforcement. The terminology refers to generalized beliefs and/or expectancies in either external or internal control. External control is when an event is interpreted as under the control of outside forces such as luck, chance, fate, or powerful others. Internal control is the belief whereby an individual regards an event as under the control of one's own behavior, attributes, or personal control. The test has 23 items scored in the external direction and 6 filler items. Scores are computed by adding

the total number of external responses. The highest possible score is 23 (most external).

Reliability. Test-retest reliability on the I-E Scale has been calculated on numerous samples. Rotter (1966) tested 60 elementary-psychology students with a 1-month interval between administrations. The reliability coefficient for the combined group was .72; for 30 males, .60; for 30 females, .83. Another sample of elementary-psychology students with a 2-month interval between testings yielded somewhat lower coefficients (Rotter, 1966). The reliability coefficient for 63 males was .49; for 54 females, .61; and for the combined group, .55. The author suggested these lower reliabilities may have been due to different conditions of administration. The first test was given in a group setting; the second test was administered individually. Rotter (1966) reported that Jessor (1964) found a reliability coefficient of .78 in a sample of 28 male prisoners with a 1-month testing interval.

A different type of reliability, internal consistency, has coefficients that are only moderate for a scale with this number of items (Rotter, 1966). Items are not ordered in a hierarchy of difficulty but sample attitudes in a variety of different situations. Hence items are not comparable, and the test is an additive one. Therefore, according to Rotter (1966), the internal-consistency reliability is underestimated by split-half or matched-half reliability. The author suggested this affects Kuder-Richardson reliabilities and that they are somewhat low. The I-E is a forced-choice test

in which alternatives are balanced without including more extreme splits on either the external or the internal end.

Several internal-consistency reliabilities were reported by Rotter (1966). Split-half reliability coefficients were calculated on 50 male elementary-psychology students, with a coefficient of .65. A Spearman-Brown coefficient of .79 was calculated for 50 female elementary-psychology students. The split-half coefficient for the combined males and females in this sample was .73. Another type of coefficient on the same sample, Kuder-Richardson coefficients were .70 for males, .76 for females, and .73 for combined males and females. In another study (Rotter, 1966), the Kuder-Richardson coefficient for a sample of 200 male elementary-psychology students was .70; for 200 female students, .70; and for the 400 combined students, .70. In still another study, Franklin (1963) reported a Kuder-Richardson reliability of .69 on a combined national stratified sample taken from the Purdue Opinion Poll (approximately equal numbers of males and females) for tenth, eleventh, and twelfth graders.

Validity. Discriminant validity indicates that an instrument adequately distinguishes between what a test purports to measure and other traits. Rotter (1966) stated that relationships of locus of control to other variables such as social desirability, need for approval, and intelligence are low for the samples studied and indicate good discriminant validity.

Use of several measurements as a method of providing construct validity for the I-E Scale has been employed. Rotter (1966) reported two studies using nonquestionnaire approaches. Adams-Webber (1963)

compared scores from a story-completion test to I-E scores. Comparisons were made based on the story completions of 103 subjects who responded to the beginning of a story. The story involved a main character who behaved in an immoral manner. Completions attributing consequences of the immoral act as more a function of external conditions were considered as external endings. There was a significant difference among groups. Punishment seen as either externally imposed or the result of immoral behavior was significantly related to I-E scores.

The second nonquestionnaire approach referred to by Rotter was conducted by Cardi (1962), who performed semi-structured interviews to develop a measure of internal-external control in studying academic failure. A significant correlation was found for a group of 25 subjects between I-E scores and subjects rated high or low on external control from interview data.

Construct validity for the I-E Scale has also been explored from the perspective of attempts of individuals to control their environments or better their life conditions. This relates to a sense of powerfulness or control over one's life. In a study reported by Rotter (1966), Seeman and Evans (1962) used a scale similar to the I-E Scale and investigated 43 matched pairs of patients in a tuberculosis hospital. They discovered, as hypothesized, that internal subjects knew more about their condition, questioned the nurses and physicians more, and expressed less satisfaction regarding the extent of information they were getting about their condition.

Phares (1965), in a study exploring the generality of internal/external-control attitudes, had two samples, one who had been determined external, the other internal. These two samples were to act as experimenters to change the attitudes of other students toward maintaining fraternities and sororities on campus. (They were matched on their attitudes toward maintaining these organizations.) As hypothesized, he found internal subjects were significantly more successful in modifying the attitudes of others than external subjects.

Other instruments have been correlated with Rotter's I-E Scale, contributing information regarding the meaning of the internal-external construct and its relationship to psychological adjustment. Artwohl (1979) hypothesized individuals who scored higher on Barron's Ego Strength Es scale on the MMPI would tend to have an internal locus of control, whereas individuals who scored lower on the Es scale would tend to have an external locus of control. According to the author, this was based on the similarity of descriptions between individuals who scored high on the Es scale (Graham, 1977) and individuals who scored in the internal direction on the I-E Scale (Phares, 1976). Individuals who scored high on the Es scale and internal on the I-E Scale were described as relatively competent and effective people, possessing more increased levels of coping and problem-solving abilities than either externals or low scorers on the Es scale. After administering both scales to 43 male college students, analyses revealed a significant correlation of $-.412$ ($p < .005$) between scores. This meant individuals who scored higher on the Es scale tended to have a more internal locus of control. The

authors suggested a potential therapeutic goal for clients would be the development of a more internal orientation.

Another study exploring the relationship between I-E locus of control and psychological adjustment was conducted by Burnes, Brown, and Keating (1971). They investigated the relationship between the I-E Scale and the MMPI in a nonclinical population of 25 males in a suburban rescue squad. Three MMPI scales, F, K, and Hy, were significantly correlated with I-E scores. There was a significant negative correlation with the K score and a significant positive correlation with the F scale. The authors suggested there was a linear correlation between internal-external locus of control and indexes of ego strength and pathology (K and F). Self-acceptance, self-reliance, and lack of significant pathology were indicated by high K values, low F and low I-E scores (internal direction). There was a significant negative correlation between the Hy and I-E scores, indicating more internal subjects tended to deny difficulties and inadequacies. The authors concluded, based on correlations between scales, that a sense of control over external events is related to self-control and competence in the handling of internal events.

Construct validity of the I-E Scale is primarily reinforced from predicted differences in behavior among individuals who score above and below the median on the scale or from correlations with behavioral criteria. Rotter (1966) reported:

A series of studies provides strong support for the hypotheses that the individual who has a strong belief that he can control his own destiny is likely to (a) be more alert to those aspects of the environment which provide useful information

for his future behavior; (b) take steps to improve his environmental condition; (c) place greater value on skill or achievement reinforcements and be generally more concerned with his ability, particularly his failures; and (d) be resistive to subtle attempts to influence him. (p. 25)

Advantages/disadvantages. There are several advantages and disadvantages in using the I-E Scale. One potential disadvantage of Rotter's I-E Locus of Control Scale is the fact that it is limited in its ability to discriminate individuals in a homogeneous sample. A sample of residence-hall students could be a rather homogeneous group. However, this study examined how locus of control varies with eating attitudes and behaviors and did not focus on dichotomous groups of internal and external individuals. The sample size of 138 students (using the Central Limit theorem LOC would approach a normal distribution) was judged to be quite adequate for the study and statistical design used.

It is possible that college students are more internal than the average population, which could conceivably limit the generalizability of this study. Such a potential disadvantage was not expected to be a major concern in the present study, particularly since the purpose of the study was to provide information regarding college students.

A third potential disadvantage in using this instrument relates to sex differences. Strickland and Haley (1980) found significant differences in responses of males and females to 8 of the 23 keyed items on individual-item analyses on the I-E Scale. The authors suggested total scores and some factors on the scale might have different meanings for males and females. This potential concern

was controlled for in the present study since all subjects were female.

A fourth possible disadvantage is the possibility of error occurring under particular testing conditions. Error based on testing circumstances is especially possible in situations in which respondents are sensitized to appropriate or socially desirable responses. For instance, Rotter (1975) pointed out that in a study by Goss and Morosko (1970), alcoholics had more internal test responses than did college students. The suggested reason for the outcome was that alcoholics are frequently given the message that getting better is up to them. They then may present an internal attitude to appear cooperative. This type of error was not expected to be a problem in the current study as the respondents were assured of anonymity and confidentiality. They were asked to be as honest as possible, and since factors such as treatment, reinforcements, and evaluation were not contingent on their performance or even a part of the study, socially desirable responses were not expected to be a problem.

There are also several advantages in using the I-E Scale. The first is that it was developed for use with college students, which is appropriate for the current study. The test does not take a long period of time (10-15 minutes) to administer. The items sample a broad and general characteristic over a variety of situations (internal-external locus of control) rather than over many specific situations.

A final advantage in using the I-E, particularly in this study, is its relationship to adjustment. The relationship was discussed in detail in the section on validity. By examining locus of control and its correlation to adjustment, more information regarding important factors in eating disorders can be obtained. Further hypotheses regarding personality factors and their relationship to eating disorders can be tested. This will have far-reaching implications in treatment.

Rationale. The Rotter I-E Locus of Control Scale was included in this study for several reasons. It was developed on college students, making it appropriate for use on subjects in this sample. The items on the instrument attempt to sample a variety of situations in which internal or external locus of control might affect behavior. It was developed as a broad instrument to examine generalized beliefs and expectations.

According to Rotter (1975) both in earlier and later samples, distribution of scores on the I-E Scale tended to be normal, suggesting that dichotomous typologies of either external or internal do not exist. The internal-external locus of control was treated as a continuous variable in this study, and its relationship to other variables was examined.

Dunn and Ondercin (1981) used the I-E Locus of Control Scale in a study investigating the relationship between compulsive eating and personality and psychological factors. They found a significant difference between high and low compulsive eaters (based on a

compulsive eating scale), with high compulsive eaters scoring higher on external control.

A variety of authors have suggested that women with concerns around eating and bingeing have difficulty coping with stress and problem solving. This relates to psychological adjustment and a sense of personal effectiveness. As previously mentioned, there are significant correlations between locus of control and psychological adjustment using the Es, F, K, and Hy scales of the MMPI. It is hoped useful information will be provided by the inclusion of this instrument in the present study.

The Personal Orientation Inventory

The Personal Orientation Inventory (POI) (Shostrom, 1966) is a 150-item, self-administered measure consisting of two-choice comparative value and behavior judgments. Subjects select the one statement in each pair that best describes them. The instrument was designed to measure values and behavior regarded as important in the development of self-actualization and was based on theoretical concepts of humanistic psychology (Shostrom, 1976). It takes approximately 30 minutes to complete. There are two major scales: Time and Support Ratio scales; and ten subscales: Self-actualizing value, Existentiality, Feeling reactivity, Spontaneity, Self-regard, Self-acceptance, Nature of man, Synergy, Acceptance of aggression, and Capacity for intimate contact. The Time Competent Scale has 23 items; the Inner Directed scale has a total of 127 items. Number of items on the subscales ranges from 9 (Synergy) to 32 (Existentiality).

The first major scale, Time Incompetence/Time Competence Ratio, measures the extent to which one is present-oriented (Time Competent) as opposed to living in the past with guilts, regrets, and resentments and/or in the future with idealized goals, plans, expectations, predictions, and fears (Time Incompetent). The Time Competent individual tends to live more in the here and now and can tie past and future into meaningful continuity with the present. Time Competence is reflective of the self-actualizing person, although there is some degree of Time Incompetence for such an individual. The ratio score can be understood as use versus misuse of time. A ratio of 1:8 indicates a self-actualizing score on this dimension. The score means 1 out of 8 hours is used in a time incompetent manner. A normal ratio is considered to be approximately 1:5.

The second major scale, the Other/Inner Support Ratio, measures the degree to which a person's mode of reaction is primarily self-oriented or other-oriented. An inner-directed person (or self-oriented) proceeds through life somewhat independently, while listening to internal "signals." Inner-directedness begins to develop early in life, through parental influences, and is later affected by other authorities. Such an individual is guided from an inner "core" by internal motivations, principles, and character traits rather than external influences. The other-directed person (or other-oriented) tends to be more concerned with pleasing others and having constant acceptance as a primary means of relating. Such a person may experience fear and anxiety in anticipation of the reactions of others and may be overly sensitive to the opinions of others. The primary goal

becomes the approval of others. The self-actualizing person is neither extremely other nor inner directed. He/she could be characterized as having an "autonomous self-supportive, or being-orientation." A self-actualizing individual establishes a balance between inner and other directedness, being sensitive to the approval, affection, and good will of others to some degree, but with action predominantly inner directed.

It is recommended that raw scores as opposed to ratio scores be used in correlational and statistical analyses with the major scales (Shostrom, 1966). Raw scores were used in the present study, with higher scores indicating more Time Competence and Inner Directedness.

The ten subscales measure values important in the development of a self-actualizing individual. They are defined as follows:

1. Self-actualizing value (SAV) measures the extent to which an individual holds and lives by the values of self-actualizing people.
2. Existentiality (Ex) measures the ability to situationally react without rigid, dogmatic adherence to principles.
3. Feeling reactivity (Fr) measures sensitivity and responsiveness to one's own needs and feelings.
4. Spontaneity (S) measures the ability to express feelings in spontaneous action or to be oneself.
5. Self-regard (Sr) measures the ability to like oneself because of his/her strength and worth as a person.

6. Self-acceptance (Sa) measures acceptance of self in spite of weaknesses and deficiencies. (This is more difficult to achieve than self-regard.)

7. Nature of man (Nc) measures the extent one regards the nature of man as constructive. It involves the resolution of the good/bad, masculine/feminine, spiritual/sensual dichotomies in the nature of man.

8. Synergy (Sy) measures the ability to see the opposites of life as meaningfully related and to transcend dichotomies.

9. Acceptance of aggression (A) measures the ability to accept anger and aggression within one's self as natural. This is opposed to using denial, defensiveness, and repression of aggression.

10. Capacity for intimate contact (C) measures the ability to develop intimate relationships with others, unencumbered by expectations and obligations.

High scores on the preceding subscales indicate more of the self-actualizing feature than low scores. For example, a high score on SAV indicates one holds values of self-actualizing people, while a low score indicates he/she does not.

Reliability. Test-retest reliability was calculated on a sample of 48 undergraduates (Klavetter & Mogar, 1967). Reliability coefficients with a 1-week interval for the two major scales were: .71 for the Time Competent Scale and .84 for the Inner Directed Scale. Reliability coefficients for each of the subscales were as follows: Self-actualizing value, .74; Existentiality, .85; Feeling reactivity, .69;

Spontaneity, .81; Self-regard, .75; Self-acceptance, .80; Nature of man, .66; Synergy, .72; Aggression, .55; and Capacity for intimate contact, .75.

The following coefficients (all significant) were reported in another study examining test-retest reliability over a 1-year period on 46 nursing students (Ilardi & May, 1968). The Time Competent Scale had a coefficient of .55; Inner Directed, .71; Self-actualizing value, .60; Existentiality, .74; Feeling reactivity, .32; Spontaneity, .51; Self-regard, .66; Self-acceptance, .71; Nature of man, .49; Synergy, .40; Acceptance of aggression, .64; and Capacity for intimate contact, .58.

While these coefficients are somewhat low, it is important to realize 1 year is a significant period of time in which a nursing education may in fact contribute to growth and psychological change. Thus it is possible these coefficients reflect change in the individual rather than low reliability of the instrument.

A third study examined test-retest reliability for the POI over a 2-week period on 172 university students (Wise & Davis, 1975). Internal-consistency estimates were also computed on the same sample. Test-retest coefficients were as follows: Time Competent, .75; Inner Directedness, .88; Self-actualizing value, .74; Existentiality, .78; Feeling reactivity, .78; Spontaneity, .82; Self-regard, .77; Self-acceptance, .78; Nature of man, .67; Synergy, .50; Acceptance of aggression, .76; and Capacity for intimate contact, .82.

The Kuder-Richardson 20 and split-half coefficients used to estimate internal consistency will not be reported here. The authors

concluded the estimates provided additional evidence for acceptable internal properties of the POI, especially for the major scales.

Validity. According to Shostrom (1966), the POI discriminates between "relatively self-actualized" (people who have attained a relatively high level of self-actualization in their lives) and "non-self-actualized adults" (those who have not behaved or developed in a self-actualized way). A self-actualized individual is one who is more fully functioning, lives an enriched life, develops and uses capabilities, free of the emotional turmoil of those who are less self-actualized (Maslow, 1954). Such a person has increased acceptance of self and others, need for privacy, autonomy, spontaneity, increased problem solving, and resists social conformity. To fit the self-actualized and non-self-actualized criteria, individuals were selected by clinical psychologists to fit both groups. There were 29 "relatively self-actualized" and 34 "non-self-actualized" individuals. The POI significantly discriminates these two groups on 11 of the 12 scales, providing evidence of criterion-related and discriminant validity.

Evidence of criterion-related validity was provided by Shostrom and Knapp (1966). They administered the POI to a group of 37 patients beginning therapy and to a group of 39 patients in advanced stages of therapy. All of the scales significantly differentiated the two groups. In addition, the MMPI was administered to these two groups, and results indicated the Depression, Psychasthenia, and Social Introversion/Extraversion Scales had especially meaningful relationships to POI measures.

McClain (1970) used the POI to differentiate levels of self-actualization among normal adults. Thirty National Defense Education Act Guidance Institute counselors participated in this validity study. They were rated on self-actualization criteria, and these scores were correlated with POI scores. Self-actualization criteria consisted of a composite rating by three Institute staff members--a supervisor, a group-process leader, and a clinical psychologist. The correlations were significant in 11 out of 14 scales (excluding Self-regard, Nature of man, and Synergy), providing evidence the POI measures self-actualization among normal adults.

Graff, Bradshaw, Danish, Austin, and Altekruze (1970) examined the relationship between POI scales and the effectiveness of dormitory assistants. Seventy-one dormitory assistants took the POI. Their effectiveness was measured by a semantic-differential questionnaire. The criterion measures (the semantic differential) were highly correlated with the POI scales. The main predictor variables were the Inner Directed, Self-actualizing value, Spontaneity, and Acceptance of aggression scales.

Shostrom (1966) reported other scales have been correlated with the POI with significant relationships. These scales include the Eysenck Personality Inventory, the Study of Values, the California F-Scale, and the Dogmatism Scale.

Further evidence of validity was provided by Martin, Blair, and Cash (1981). The Self-actualizing value subscale of the POI was correlated with three scales on the California Psychological Inventory (CPI). These scales were (a) Self-acceptance, (b) Socialization,

and (c) Self-control. The correlation between the Self-actualizing value subscale on the POI and the Self-acceptance scale on the CPI was significant. The Self-actualizing value subscale of the POI measures the extent to which individuals live by values of self-actualizing people. The Self-acceptance scale of the CPI measures a sense of personal worth, self-acceptance, and the capacity for independent thinking and action. Both of these scales on both instruments were intended to describe a person who has more self-confidence, self-acceptance, security, and self-esteem. The significant correlation between the two provides evidence they measure what they purport to measure.

Advantages/disadvantages. A potential concern in using the POI is the possibility of faking good, or responding with the intention of having a self-actualized profile. In order to explore this, 86 psychology students took the POI with instructions to answer questions as if they wanted to make a good impression of themselves. These profiles were not representative of profiles of self-actualized individuals (Shostrom, 1966).

The instrument does have the advantage of being constructed with nonthreatening items, signifying a positive approach to mental health, as opposed to determining pathology.

Rationale. The POI was chosen because it measures self-actualizing tendencies rather than pathology. Wermuth et al. (1977) reported no evidence of emotional disturbance in their sample of binge eaters.

The POI measures several dimensions that are important in understanding eating disorders among women. Orbach (1978a, 1978b) described the common fantasy found among compulsive eaters that once they have either their weight and/or their eating behavior under control, life will be much better. They believe they will be more attractive, successful, happier, and that many of their dreams will be realized. Or, if they were not overweight or did not have problems with bingeing in the past but do now, they often look back, believing they were once adequate but are no longer. The preceding description is similar to the Time Incompetent individual on the POI, who looks to the future and regrets the past.

Dunn and Ondercin (1981) studied locus of control as a personality variable related to compulsive eating. The second major scale on the POI addresses a similar issue: Other/Inner Directedness. Boskind-Lodahl (1976) described women with bulimia as focusing their energies on gaining the approval of others. This describes an Other Directed person on the POI.

In a discussion of the interrelationship between the two major scales Time and Support, Shostrom (1966) pointed out a self-actualizing person who lives in the present does, in fact, rely more on him/herself than one who lives in the future, waiting and expecting events to motivate and/or change life (which is descriptive of many women with bulimia).

In addition, other scales on the POI tap important dimensions relevant to eating disorders. Orbach (1978) suggested women who are compulsive eaters lack awareness of the extent and depth of their own

feelings, having difficulty with the awareness of and expression of anger, and have problems with establishing boundaries, as they do so much nurturing. For these reasons, Feeling reactivity, Spontaneity, Acceptance of aggression, and Capacity for intimate contact scales were of interest in this study.

The Self-regard and Self-acceptance scales were examined as they relate to bingeing and restrained eating. Women who binge or are concerned about dieting conceivably would accept themselves less and have less of a sense of personal worth. If bingeing were under control, they might feel good about themselves but still see things in a dichotomous manner. For example, they might feel they are good now, as opposed to bad.

Based on some of the lower reliability and validity findings on the Nature of man and Synergy subscales, these scales were not used in the analyses of the present study.

The Revised Restraint Scale

The Revised Restraint Scale (RS) (Herman, 1978) is a 10-item, forced-choice instrument designed to measure the degree to which individuals are currently concerned about and engaged in active dieting. The scale is found in Appendix E. Possible scores range from 0 (least restrained) to 35 (most restrained or most concerned about dieting). In studies using the Revised Restraint Scale, experimenters have designated subjects as restrained or unrestrained based on a median split of their scores (Herman, Polivy, Pliner, Threlkeld, & Munic, 1978).

The Revised Restraint Scale is a modification of the Restraint Scale (Herman & Polivy, 1975) with minor changes. One item was dropped, and responses were changed to a forced-choice format. Studies using the original Restraint Scale have also designated individuals as restrained or unrestrained on the basis of a median split (Herman & Mack, 1975; Herman & Polivy, 1975; Hibscher & Herman, 1977; Lowe, 1982; Polivy, 1976; Ruderman & Wilson, 1979; Spencer & Fremouw, 1979). This method of designation has been used with populations of men as well as women (grouped separately), with the cut-off score at the median ranging from 8.5 to 22. The median split for female subjects is generally higher than for males. Typically, the method of median split has shown significant results between groups. Two of these studies (Herman & Mack, 1975; Lowe, 1982) used only five items of the Restraint Scale. There are limited published data on the psychometric properties of the Revised Scale, although one study (Herman, Polivy, Pliner, Threlkeld, & Munic, 1978) referred to established predictive validity and substantial reliability in unpublished studies (Polivy, Herman, Younger, & Erskine, 1977; Polivy, Howard, Herman, 1976). Since there is not a great deal of difference between the original and revised forms, the reliability and validity for the original form will be discussed. The revisions of the scale have basically increased the strength of its psychometric properties.

Reliability. The Restraint Scale has good reliability. In a study monitoring consumption after a preload, Hibscher and Herman (1977) found test-retest reliability for the RS at .92 for 86 males. Kickham and Gayton (1977) also reported test-retest reliability

coefficients. They examined the relationship between RS scores and Edwards Social Desirability Scale scores. For 30 subjects over a 4-week interval, test-retest reliability was .93.

Herman and Polivy (1975) examined internal consistency on the 11-item scale; coefficient alpha equalled .75. They judged internal reliability to be adequate. They divided the scale into two subscales: diet and weight history, and concern with food and eating. Internal-consistency coefficients of the subscales were .68 and .62, and the correlation between scores on the subscales was .48 ($p < .01$).

Validity. The validity of the Restraint Scale is largely based on its predictive power (Herman & Polivy, 1975). Differences between individuals classified as restrained or unrestrained have been found on several parameters. These include response to preload of food whereby high restrained eaters counter-regulate (Herman & Mack, 1975; Hibscher & Herman, 1977), distractibility (Herman et al., 1978), the role of cognitive factors (Lowe, 1982; Polivy, 1976; Ruderman & Wilson, 1979), and anxiety (Herman & Polivy, 1975).

Evidence of construct validity has been shown in the significant correlation between restraint (a self-report measure of deprivation) and a physiological measure of deprivation (Hibscher, 1974). The physiological measure was free fatty acid levels in blood samples.

Advantages/disadvantages. There are not a significant number of limitations in the use of this instrument. A positive aspect in using the scale is that it is not contaminated by a response set of social desirability (Kickham & Gayton, 1977). It is brief and simple to

complete. Reliability or consistency of measurement is more than adequate.

A disadvantage is the lack of published psychometrics on the Revised Restraint Scale. Such data would lend further strength to its usage. Another disadvantage is there is no actual theoretical basis as to why a median split is used to divide subjects into restrained and unrestrained eaters. It makes sense to conceptualize restraint on a continuum. However, the median-split method has been used successfully in previous experimental research. The number of subjects in previous studies using this instrument with the median-split method ranged from 42 (Herman & Polivy, 1975) to 91 (Polivy, 1976). In the present study, the number of subjects was 138. From the Central Limit Theorem, approximation of a normal distribution was expected. The assumption of a normal distribution provides further rationale for dividing subjects into groups using median splits.

Rationale. The Revised Restraint Scale is included to measure the degree to which individuals are involved in or concerned about dieting. The instrument was used to categorize subjects into groups of high and low restrained eaters. The two groups were treated as independent variables in the study.

The Binge Scale

The Binge Scale (BS) (Hawkins & Clement, 1980) is a 19-item self-report measure of binge eating tendencies and psychological correlates. It was developed in an attempt to quantify behavioral and attitudinal parameters of binge eating. Nine of the 19 items

on the BS are summed to determine the total score. These items are marked (*) on the enclosed copy of the scale (Appendix F). The possible range of scores is from 0 (little or no bingeing) to 23 (high bingeing). In the development and construct-validation study, the remaining ten items were used to ascertain prevalence and characteristics of self-reported binge eating among college students.

Reliability. Two samples of college undergraduates of varying body weights drawn from a psychology class (Sample 1, $n = 182$ females, 65 males; Sample 2, $n = 73$ females, 45 males) participated in the development and validation study. In addition, data were collected for 26 overweight college females. Test-retest reliability was calculated from Sample 2, the replication sample (Hawkins & Clement, 1980). Test-retest reliability after a 1-month interval was .88. Internal consistency (Cronbach's "alpha") was reported to be .68.

Validity. The Binge Scale was given in conjunction with the Restraint Scale (Herman & Polivy, 1975), a pilot Negative Self-Image rating scale, and the Crowne-Marlow Social Desirability Scale in the first sample. The second sample was additionally administered the Rotter Locus of Control Scale, the Negative Self-Image Scale, the College Self-Expression Scale, and a life-events scale that monitored major life changes occurring in the past month. Significant sex differences were found, with women reporting more binge eating occurrences. There was no evidence of a social-desirability response set correlated with scores on the other scales for either sex. The severity of reported binge eating was significantly and positively correlated with degree of dieting concern (Restraint Scale) for both

sexes, and for females positively correlated with negativity of self-image. Subjects' body-weight percentages were also significantly correlated with bingeing, restrained eating, and negative self-image. Higher BS scores for males tended to be related to external locus of control, and for females BS and Restraint Scale were positively correlated with the number of recent life events. In addition, for females, low assertiveness was associated with higher binge concern and negative self-image. The authors concluded binge eating occurrences are frequent among undergraduates, especially women, and are a source of concern for them. The BS appears to have construct validity, particularly since the results of this study are consistent with the hypothesis of other investigators (i.e., Boskind-Lodahl's position that young women experience sociocultural pressure to be very thin).

In addition, Hawkins and Clement (1980) reported 71% of the variance in item loadings was accounted for by a factor representing guilt and concern about binge eating tendencies. Sixteen percent of the variance appeared to be another factor comprising items tapping duration and satiety feelings associated with binges.

Advantages/disadvantages. A major limitation of this instrument is its relative newness. Because of this, the BS has not been widely used, which means there is less psychometric data available. However, the reliability and construct validity appear adequate for this study. In addition, the BS was used in combination with the Revised Restraint Scale, providing additional information about the instruments.

Rationale. The purpose for including the Binge Scale in this study was to assess the behavioral and attitudinal parameters of binge eating in the subject population. The scale was treated as an independent variable in the same manner as the Restraint Scale. Results were examined with other instruments to determine relationships between eating behaviors and attitudes toward women and personality variables. It was expected binge eaters would exist in the college population, irrespective of body weight. A correlation of .60 was found between the RS and BS for women (Hawkins & Clement, 1980), indicating 36% variance is shared in common between these two instruments. They were both used to provide further reliability and validity evidence in the literature, as well as more descriptive data in the present study.

Procedures for Data Collection

Selection of Sample

Subjects were recruited from Michigan State University residence halls with the assistance of Residence Hall Programs staff. Two Area Directors (each in charge of one total complex of residence halls) enlisted the support of their staff. In the case of one complex, each Resident Director (in charge of a residence hall building) volunteered two Resident Assistants (RAs) from each building. RAs who lived on individual floors were selected by their supervisors because the Resident Directors thought they would be interested in participating. They then checked with each RA before the researcher contacted them, to make sure they were willing to participate and

recruit floor members. In the other complex, the participating RAs initially volunteered themselves. Due to this fact, not every building from the second complex was represented.

A total of 18 floors participated. There were ten floors from the first complex (80 individuals completed questionnaires from this complex) and eight floors from the second complex (with 65 individuals participating). The compositions of the two complexes were not significantly different from each other. Students were typically randomly assigned to their floors, although some requested their assignment, especially if they had lived there a previous year. Regardless of staff who volunteered to help, the floors were quite representative of residence halls. However, the greatest percentage of participants were freshmen and sophomores.

The researcher contacted each RA and explained the study. A time and place was arranged to have women from the respective floors complete questionnaires. The researcher delivered copies of a letter to residents explaining the study and requesting participation so RAs could use them in recruiting residents (see Appendix G).

Women from different floors seemed to attend the meeting to fill out questionnaires for various reasons. Some individuals attended because they were home when RAs knocked on their doors at the meeting time. Others had made prior commitments to RAs to attend, and still others were interested in the questionnaires. There were probably numerous reasons for the willingness of individuals to participate. An attempt was made to present the study so that a range of women

would participate, ranging from those having significant concerns about eating to those who weren't very concerned at all.

Data Collection

The procedures and consent form (Appendix H) for the study were approved by the University Human Subjects Review Committee. The researcher was present at the designated data-collection times so that administration of the study could be monitored, questions could be answered, or any concerns of subjects could be dealt with. The purpose of the study was explained, and an opportunity was provided for participants to ask questions. They were provided packets of material which included a consent form which they read before responding to the questionnaire.

Participants were instructed to (a) try and answer every question, (b) be as honest as possible, and (c) work independently. They were told there were no right or wrong answers to the questions and were assured of anonymity and confidentiality. Answer sheets were numbered, and subjects were not required to reveal their names at all.

The residents then completed the demographic data sheet, Attitudes toward Women Scale, Restraint Scale, Internal-External Locus of Control, Binge Scale, and Personal Orientation Inventory. A sign-up sheet for names and addresses was provided so women who were interested could be sent a summary of the study (see Appendix I). The writer stayed after the sessions to be available to answer questions, address comments and concerns, and provide any debriefing that

was necessary. Few individuals took advantage of the time, as the study was quite straightforward (no deception was involved).

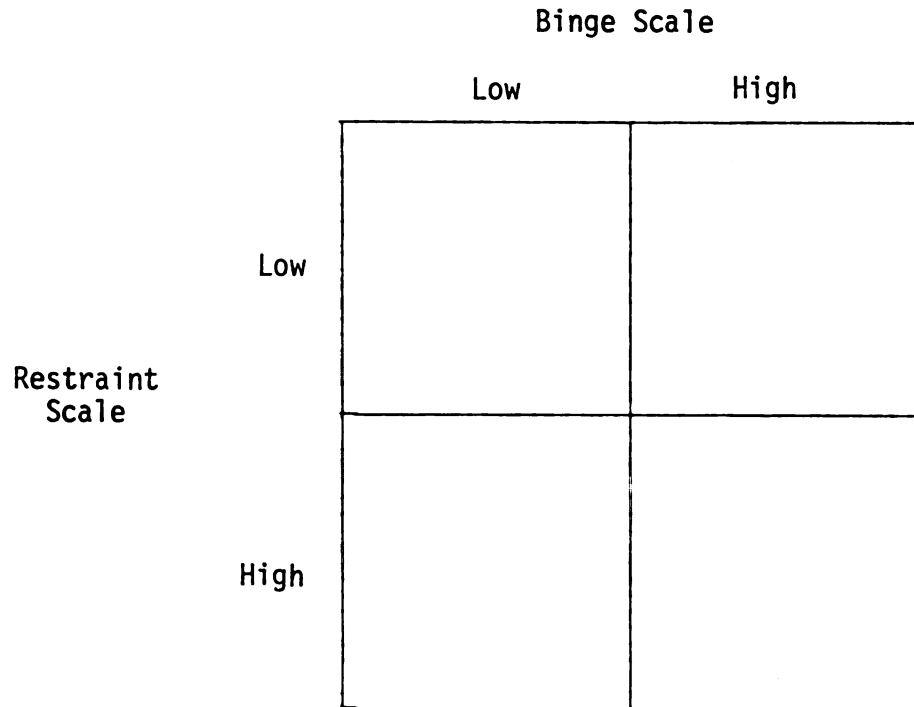
The term subsequent to data collection, a letter was sent to RAs (Appendix J) thanking them for their help. The letter also announced the presentation of a workshop for women who were interested. The workshop was not a direct follow-up of the research, but topically related.

Design

This study used a descriptive analysis to examine the degree to which certain variables relate to other variables. In particular, eating attitudes and behaviors were examined in relation to several personality dimensions and attitudes toward women. By employing such a design, there existed the potential benefit of acquiring several sources of information to further understand a complex problem. Evidence pointing to relationships between variables has valuable implications in the treatment of women with eating disorders and could lead to cause-and-effect and treatment studies.

The main design to test the hypotheses was a multivariate analysis of variance (MANOVA), which is graphically represented in Figure 3.1. The MANOVA design allows several dependent variables to be considered simultaneously, controlling for overall experimenter error. It also provides information regarding interactions between independent variables, as well as main effects. The computer program for MANOVA generates univariates that would be quite similar to simple analyses of variances. The difference is that in MANOVA, univariates

Multivariate Analysis of Variance



Dependent variables--scores from the following measures:

1. Attitudes toward Women Scale
2. Internal-External Locus of Control Scale
3. POI Time Competent Scale
4. POI Inner Directed Scale
5. POI Self-actualizing value scale
6. POI Existentiality scale
7. POI Feeling reactivity scale
8. POI Spontaneity scale
9. POI Self-regard scale
10. POI Self-acceptance scale
11. POI Acceptance of aggression scale
12. POI Capacity for intimate contact scale

Figure 3.1: Graphic representation of Design I.

cannot be examined unless the multivariate is significant (which is a more conservative test). The probability level for the multivariate in the present study was set at $p < .05$. In order for univariates to be considered significant, not only must the multivariate be significant, but using the Bonferroni inequality, alpha must be divided by the number of dependent measures. Therefore, in the present study, for null hypotheses to be rejected, the univariates must be significant at the level of $p < .004$ ($.05 \div 12$).

The Restraint Scale and the Binge Scale were statistically treated as the independent variables. Both scales were divided into high and low groups based on a median split of subjects' scores. There were 12 dependent variables, which included scores on the Attitudes toward Women Scale, the Internal-External Locus of Control Scale, and the ten scales to be used (out of 12) on the Personal Orientation Inventory, as listed in Figure 3.1.

Another design was used to acquire more descriptive information. The second design was stepwise multiple-regression analyses. It was intended to provide information as to what percentage of variance the predictor variables accounted for in Restraint and Binge scores. The two equations for the design are represented in Figure 3.2, whereby the score on the Restraint Scale can be best explained by (or is most related to) some linear combination of the other 12 variables. This was also true for the Binge Scale. In other words, the BS and RS were predicted by the 12 dependent variables. This design was intended to provide information as to what relative contribution predictor variables had, or how much variance was accounted for in

Stepwise Multiple Regressions

$$y_1 = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + \dots + b_{12}X_{12}$$

$$y_2 = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + \dots + b_{12}X_{12}$$

y_1 = Restraint Scale

y_2 = Binge Scale

X_1 = Attitudes toward Women Scale

X_2 = Internal-External Locus of Control Scale

X_3 = POI Time Competent Scale

X_4 = POI Inner Directed Scale

X_5 = POI Self-actualizing value scale

X_6 = POI Existentiality scale

X_7 = POI Feeling reactivity scale

X_8 = POI Spontaneity scale

X_9 = POI Self-regard scale

X_{10} = POI Self-acceptance scale

X_{11} = POI Acceptance of aggression scale

X_{12} = POI Capacity for intimate contact scale

Figure 3.2: Graphic representation of Design II.

the predicted variable by a certain predictor variable. Both of the regression analyses provided weighted formulas to predict Restraint or Binge scores in independent samples of subjects. A more extensive discussion of stepwise multiple regression can be found in Chapter IV.

In addition, as part of this design, a computer program generated simple Pearson product-moment correlational data. The correlational data were used to compare any two given scales at a time. This, in turn, provided further information as to how much variance was shared and provided more descriptive data.

Statistical Hypotheses

The hypotheses in the study were derived from the purpose. Even though one can make theoretical guesses as to the type of relationship between certain variables, all the hypotheses in the study were nondirectional. The decision was made for several reasons. The whole area of eating disorders, bingeing, and weight concerns is a complex one. There is a large body of literature, but consistent results are lacking. Also, much of the literature on personality variables and their relationship to bingeing and dieting concern has been derived from clinical observation. There is a need for further systematic investigation in the area.

The present study is an exploratory descriptive analysis, not an experimental design. There are a sizable number of dependent variables, measured by instruments that may or may not actually tap variables described in theoretical descriptions of persons with eating disorders. The instruments were chosen with the rationale

they would tap the appropriate constructs, but some of the measures were not used in previous literature in the area to verify this. Therefore, in order to add to the body of empirical literature and theory development, and to provide a more extensive descriptive analysis, the present study tested two-tailed hypotheses. The following statistical hypotheses were tested in this study:

Restraint Scale and
Attitudes Toward Women

- H_0 : There is no difference between high and low restrained eaters on the AWS.
- H_1 : There is a difference between high and low restrained eaters on the AWS.

Restraint Scale and Internal-
External Locus of Control

- H_0 : There is no difference between high and low restrained eaters on the I-E.
- H_2 : There is a difference between high and low restrained eaters on the I-E.

Restraint Scale and
Personal Orientation Inventory

- H_0 : There is no difference between high and low restrained eaters on the ten Personal Orientation Inventory scales examined in this study.
- H_3 : There is a difference between high and low restrained eaters on the Time Competent Scale of the POI.
- H_4 : There is a difference between high and low restrained eaters on the Inner Directed Scale of the POI.
- H_5 : There is a difference between high and low restrained eaters on the Self-actualizing value scale of the POI.
- H_6 : There is a difference between high and low restrained eaters on the Existentiality scale of the POI.

- H₇: There is a difference between high and low restrained eaters on the Feeling reactivity scale of the POI.
- H₈: There is a difference between high and low restrained eaters on the Spontaneity scale of the POI.
- H₉: There is a difference between high and low restrained eaters on the Self-regard scale of the POI.
- H₁₀: There is a difference between high and low restrained eaters on the Self-acceptance scale of the POI.
- H₁₁: There is a difference between high and low restrained eaters on the Acceptance of aggression scale of the POI.
- H₁₂: There is a difference between high and low restrained eaters on the Capacity for intimate contact scale of the POI.

Binge Scale and Attitudes Toward Women

- H₀: There is no difference between high and low binge eaters on the AWS.
- H₁₃: There is a difference between high and low binge eaters on the AWS.

Binge Scale and Internal- External Locus of Control

- H₀: There is no difference between high and low binge eaters on the I-E.
- H₁₄: There is a difference between high and low binge eaters on the I-E.

Binge Scale and Personal Orientation Inventory

- H₀: There is no difference between high and low binge eaters on the ten Personal Orientation Inventory scales examined in this study.
- H₁₅: There is a difference between high and low binge eaters on the Time Competent Scale of the POI.

- H₁₆: There is a difference between high and low binge eaters on the Inner Directed Scale of the POI.
- H₁₇: There is a difference between high and low binge eaters on the Self-actualizing value scale of the POI.
- H₁₈: There is a difference between high and low binge eaters on the Existentiality scale of the POI.
- H₁₉: There is a difference between high and low binge eaters on the Feeling reactivity scale of the POI.
- H₂₀: There is a difference between high and low binge eaters on the Spontaneity scale of the POI.
- H₂₁: There is a difference between high and low binge eaters on the Self-acceptance scale of the POI.
- H₂₂: There is a difference between high and low binge eaters on the Self-acceptance scale of the POI.
- H₂₃: There is a difference between high and low binge eaters on the Acceptance of aggression scale of the POI.
- H₂₄: There is a difference between high and low binge eaters on the Capacity for intimate contact scale of the POI.

Analysis

The multivariate significance levels were set at $p < .05$, and the univariates at $p < .004$ as previously discussed.

In Design I, the data were analyzed by a two-way MANOVA. This particular form of analysis was chosen for several reasons. More information can be obtained from this analysis than from a series of t tests. The data can be examined as a set, providing information about the interaction of variables. Use of t tests would not provide this extensive information. In addition, the possibility of error (maximizing on chance) would be increased with use of multiple t tests. Because there were 138 subjects in this study, loss of

1 degree of freedom in MANOVA for each of 12 dependent variables was not expected to be a serious problem.

Another reason for choosing MANOVA was to clarify the relationship between the Restraint Scale and the Binge Scale. Hawkins and Clement (1980) found a correlation of .60 for women between these two scales, accounting for 36% shared variance. This analysis was expected to provide information as to whether the same underlying construct or separate constructs were being measured by the two instruments. If the same construct was being measured, two cells would have disproportionate numbers in them (which was the case). For instance, the cell high binge/low restraint and the cell low binge/high restraint would have fewer numbers in them if the two instruments tap the same underlying construct. Since the cell sizes were unequal, if there was an interaction effect, it appears statistically there would be no really clear-cut test for main effects due to the overlap of the two scales.

Assumptions for appropriate use of MANOVA include normal distribution of the dependent variables, homogeneity of variance, and independence. The assumptions were met. A normal distribution was assumed by the Central Limit Theorem. This means 100 subjects in a sample should approximate a normal distribution. Variances were similar across groups, meeting the second assumption. The third assumption was that of independence. The assumption was met because what one subject did was not affected by what another subject did.

The stepwise multiple-regression design was tested with a two-tailed a priori alpha level of .05. In order to be significant at this level, the Pearson product-moment correlation coefficient had to be greater than .167 for a sample size of 137 (Glass & Stanley, 1970).

Reliability of all the instruments except the POI was calculated on the sample in the study. An internal-consistency measure, i.e., Cronbach's alpha, was used, which was available on the SPSS subroutine reliability computer program. It was calculated to determine if reliability for this sample is similar to reliability in other samples in the literature, to provide further coefficients for the instruments, and to facilitate interpretation of the results of this study. Coefficients are reported in Chapter IV. Reliability on the POI was not calculated due to the abundance of information on the inventory.

Summary

A sample of 145 women was drawn from Michigan State University residence halls. Extensive demographic information was provided on the sample. The women completed the Attitudes toward Women Scale, Restraint Scale, Rotter's Internal-External Locus of Control, Binge Scale, Personal Orientation Inventory, and a demographic data sheet. The study used a descriptive analysis to explore relationships among bingeing/dieting concern and personality variables. Women were divided into groups based on a median split of scores on the Restraint and Binge Scales (high and low restrained, high and low binge). Binge and Restraint, based on the median splits, were treated

as independent variables. There were 24 null and alternate hypotheses. A two-way multivariate analysis of variance was used to test hypotheses. In addition, stepwise multiple regressions were performed for both Binge and Restraint, to provide further descriptive information regarding bingeing/dieting concern and other personality variables. Results of data analysis are outlined in Chapter IV.

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of Chapter IV is to present the data collected in this research project. The chapter includes a discussion of reliability found in the sample studied, and observations of responses to particular questions on the Binge and Restraint Scales. The descriptive statistics, i.e., Pearson product-moment correlations, are discussed, followed by the results of hypothesis testing. Stepwise multiple regressions are presented, results of an additional analysis are reported, and finally, results are summarized.

Reliability

Cronbach's alpha was used to calculate internal consistency for the following instruments in the sample: (a) Attitudes toward Women Scale, (b) Internal-External Locus of Control, (c) Restraint Scale, and (d) Binge Scale. Alpha levels for all the measures are acceptable, especially given the few number of items in the Binge Scale and the Restraint Scale. In fact, some of the alpha levels are higher than those reported in the literature. The internal-consistency coefficient for the Attitudes toward Women Scale was .86 (based on 25 items). Previous internal-consistency estimates have ranged from .81 to .89 (Beere, 1979).

Cronbach's alpha for Internal-External Locus of Control was .74. Rotter (1966) pointed out that coefficients for internal consistency on this scale are only moderate since the test samples attitudes in a variety of situations.

An internal-consistency coefficient of .80 was calculated for the Restraint Scale (based on 10 items). Coefficient alpha was .78 for the Binge Scale (based on nine items). Hawkins and Clement (1980) reported an alpha coefficient of .68 for the Binge Scale.

Restraint Scale and Binge Scale

Prior to discussion of descriptive statistics, a few observations of note will be stated. The percentage of responses to a number of questions on the scales is of interest in describing the phenomenon of restrained and binge eating.

Restraint Scale

Responses to two questions on the Restraint Scale are selected and reported here due to their affective loading. Appendix E shows the percentage of responses to each item on the Restraint Scale. In response to the question, "Do you have feelings of guilt after overeating?" 9% reported never, 27% rarely, 34% often, and 30% said always. In response to the question, "How conscious are you of what you're eating?" 2% answered not at all, 16% slightly, 50% moderately, and 32% said extremely.

Binge Scale

This scale defined binge eating as periods of uncontrolled, excessive eating. Percentages of responses for each question are indicated

in Appendix F. In response to the item, "Do you ever binge eat?," 80% of the sample said they did. The majority of bingers (74%) said they binged either seldom (37%) or once or twice a month (37%). The largest percentages of bingers reported average length of a binge episode to be less than 15 minutes (31%) or 15 minutes to 1 hour (58%).

In response to the question, "Do you ever vomit after a binge?," 14% of the sample said they vomited sometimes, usually, or always. The percentage of vomitors among those who said they binged was 17%.

Sixty-three percent of the bingers reported eating very rapidly when binging. Thirty-one percent were bothered a little by their binging, 29% were moderately concerned, and 21% reported it was a major concern. Fifty-two percent of the sample were slightly dissatisfied with the way they look, 29% were very dissatisfied, 7% were really disgusted, and 1% reported never looking in a mirror because of being too self-conscious. Only 11% reported feeling they looked pretty good. In response to what binge eating is associated with, 13% answered pressure from school or work, 3% said going off a strict diet, 6% said problems in personal relationships, and 36% said they couldn't say. The remaining 42% said there were multiple reasons for binge eating, with various combinations of the above reasons.

Thirty-seven and one-half percent of bingers reported being mildly depressed after a binge, 27% reported moderate depression, and 12% reported being very depressed. Thus, 76.5% of the bingers in the sample were depressed to some degree. Ninety-four percent of the bingers reported onset of binge eating between the ages of 15 and 20 years. Subjects' comments regarding particular Binge Scale items

can be found in Appendix K. (Overall comments on the study by participants are in Appendix L.)

Descriptive Statistics

The emphasis in this discussion is on the Pearson product-moment correlations acquired from the sample.

Correlations

Pearson product-moment correlations were computed on the sample ($N = 138$). The data are reported in Table 4.1. (An expanded version of Pearson product-moment correlations can be found in Appendix M.) A number of correlations are of interest. A correlation of .63 ($p < .01$) was found between the Restraint Scale and Binge Scale, which accounted for 40% of the variance.

Five of the dependent measures were significantly correlated with the Restraint Scale, all in the negative direction. They were the POI Time Competent, POI Inner Directed, POI Existentiality, POI Self-acceptance, POI Acceptance of aggression, and POI Capacity for intimate contact scales. Significant correlations ranged from $-.17$ (with POI Self-acceptance) to $-.23$ (with POI Existentiality).

Nine of the dependent measures were significantly correlated with the Binge Scale, and all but Locus of Control were in the negative direction. The negative direction meant the higher the score on the Binge Scale, the lower the score on the measures of POI Time Competent, POI Inner Directed, POI Self-actualizing value, POI Feeling reactivity, POI Self-regard, POI Self-acceptance, POI Acceptance of aggression, and POI Capacity for intimate contact. Significant

Table 4.1: Pearson Product-Moment Correlations for Total Sample ($N = 138$)^a

	Restraint	Binge	Attitudes toward Women	Locus of Control
Binge				
P01 Time Competent	.63**	..	..	..
P01 Inner Directed	-.21*	-.26**	.01	-.18*
P01 Self-actualizing value	-.21*	-.26**	.28**	-.27**
P01 Existentiality	-.11	-.19*	.25**	-.26**
P01 Feeling reactivity	-.23**	-.16	.27**	-.16
P01 Spontaneity	-.13	-.24**	.22**	-.11
P01 Self-regard	-.07	-.09	.13	-.26**
P01 Self-acceptance	-.04	-.20*	.17*	-.44**
P01 Acceptance of aggression	-.17*	-.17*	.17*	-.12
P01 Capacity for intimate contact	-.13	-.19*	.23**	-.14
Attitudes toward Women	-.20*	-.20*	.29**	-.25**
Locus of Control	-.001	-.03	..	-.09
	-.001	.17*	..	..

^aExpanded Pearson product-moment correlation table found in Appendix M.* $p < .05$.** $p < .01$.

correlations ranged from .17 with Locus of Control and -.17 with POI Self-acceptance to -.26 with POI Time Competent and POI Inner Directed. The only three measures not significant with the Binge Scale were the measures of POI Existentiality, POI Spontaneity, and Attitudes toward Women.

The Attitudes toward Women Scale was significantly related to several of the POI measures (in the positive direction, with subjects who scored more liberally on the AWS having higher scores on the POI measures). Significant correlations existed for POI Inner Directed, POI Self-actualizing value, POI Existentiality, POI Feeling reactivity, POI Self-regard, POI Self-acceptance, POI Acceptance of aggression, and POI Capacity for intimate contact, ranging from .17 with POI Self-regard and POI Self-acceptance to .29 with POI Capacity for intimate contact. The AWS was not significantly related to the Restraint, Binge, Locus of Control, POI Time Competent, or POI Spontaneity Scales.

Locus of Control was significantly related to several of the POI scales and to the Binge Scale, but not the Restraint or Attitudes toward Women Scales. Significant correlations ranged from .17 with Binge to -.44 with POI Self-regard. Other significant correlations with Locus of Control included POI Time Competent, POI Inner Directed, POI Self-actualizing value, POI Spontaneity, and POI Capacity for intimate contact. The correlation of -.44 (accounting for 19% of the variance) between Locus of Control and POI Self-regard was the second highest correlation in the study (highest was between Binge and Restraint).

In general, most of the variables were significantly correlated with at least two out of four other variables (not counting the inter-relationships between POI scales). The Attitudes toward Women Scale was not significantly correlated with either the Binge Scale ($r = -.03$), Restraint Scale ($r = -.001$), or Locus of Control ($r = -.09$). The POI Inner Directed and POI Capacity for intimate contact were the only measures significantly correlated with all of the four measures: Binge Scale ($r = -.26$ and $r = -.20$), Restraint Scale ($r = -.21$ and $r = -.20$), Attitudes toward Women Scale ($r = .28$ and $r = .29$), and Locus of Control ($r = -.27$ and $r = -.25$).

Hypothesis Testing

This section outlines the results of hypotheses testing. A multivariate analysis of variance (MANOVA) was performed on the data to test Hypotheses 1 through 24. The analysis allowed the researcher to consider several dependent variables at one time, controlling for overall experiment error rate. There are three major assumptions for the analysis. They are as follows: (a) the dependent variables are assumed to be normally distributed, (b) observations across subjects are independent, and (c) the variances of the dependent variables are similar across groups. Even though the cell sizes were unequal, the robustness of the analysis did not seem to be in jeopardy. This judgment was made because the assumptions were met and especially because the variances were similar across groups. Unequal cell sizes were taken into consideration by the specific program run, which used weighted least squares.

The two-way MANOVA model was used. The analysis indicated whether there was an interaction effect between Restraint and Binge, a main effect for Restraint or Binge (although if there was an interaction effect, there would be no statistically clear-cut test for main effects in an unequal design), and 12 univariates for each multivariate (interaction, Binge, and Restraint). The 12 univariates derived from each multivariate analysis yielded information that would have been somewhat similar to 12 separately run analyses of variance. The difference is that with MANOVA, the test is more conservative, controlling for overall experiment error rate. If the multivariate is significant at $p < .05$, the univariates can then be examined for significance. The Bonferroni procedure is to divide the alpha level by the number of dependent variables to determine the significance level for univariates. In this study, level of significance for each univariate is $p < .004$. It must be remembered this is a conservative test and separate ANOVA's for each univariate could be examined for significance at the level of $p < .05$ and would probably yield more significant results. However, the overall experimenter-error rate would be greatly inflated. The univariates of the MANOVA design will be reviewed regardless of the significance of the main effect, due to the stringency of the test.

Before continuing on to hypothesis testing, there will be a brief explanation of how subjects were divided into groups. Subjects were divided into high and low groups on the Restraint Scale by a median split. Individuals scoring less than or equal to 17 were considered low restrained or unrestrained eaters. Individuals scoring above 17

were categorized as restrained or high restrained eaters. Median splits previously documented in the literature have ranged from 8.5 to 22, with splits for females generally higher than for males.

A median split was also used to classify subjects into high and low binge eaters, based on the Binge Scale. Subjects scoring less than or equal to 6 were considered low bingers, and individuals scoring more than 6 were high bingers.

Figure 4.1 and Table 4.2 show cell sizes and summarize cell means and standard deviations, respectively. Appendix N provides mean, median, mode, standard deviation, and range data on the variables examined in the sample.

The following section tests the hypotheses formulated for the Restraint Scale. The overall multivariate for this main effect was $p = .211$ (Table 4.3). This was not significant. However, each univariate will be reported, and Table 4.4 summarizes the results. Handling the analysis in such a manner will provide the reader with more detailed information about the dependent measures.

Restraint Scale and Attitudes Toward Women

Null Hypothesis 1: There is no difference between high and low restrained eaters on the Attitudes toward Women Scale.

The null hypothesis was not rejected. The univariate F for Attitudes toward Women was .18, $p = .67$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Table 4.2: Cell Means and Standard Deviations in MANOVA

	Low Binge				High Binge				Overall	
	Low		High		Low		High		M	SD
	Restraint	SD	Restraint	SD	Restraint	SD	Restraint	SD		
Attitude toward Women	60.72	9.95	61.93	7.66	63.26	5.78	60.70	10.42	61.20	9.39
Locus of Control	10.91	3.77	10.33	3.19	12.74	4.05	11.79	4.64	11.40	4.10
POI Time Competent	16.56	2.49	15.40	3.78	15.21	2.78	14.60	3.49	15.58	3.14
POI Inner Directed	88.16	9.56	83.33	9.69	86.26	7.23	82.04	11.13	85.29	10.15
POI Self-actualizing value	21.05	2.12	19.80	2.62	20.58	1.39	20.60	2.39	20.70	2.21
POI Existentiality	21.11	3.30	18.73	3.71	20.32	3.32	19.45	4.06	20.17	3.69
POI Feeling reactivity	16.95	3.23	16.60	2.06	16.37	2.54	15.57	3.60	16.36	3.20
POI Spontaneity	13.21	2.15	11.60	2.72	12.63	2.09	12.74	2.73	12.80	2.44
POI Self-regard	12.81	1.91	12.80	1.82	12.42	2.17	11.89	2.49	12.44	2.17
POI Self-acceptance	15.51	3.32	14.13	3.02	14.53	3.29	13.87	3.27	14.67	3.31
POI Acceptance of aggression	17.12	3.13	17.27	2.43	17.53	1.87	15.77	3.29	16.73	3.03
POI Capacity for intimate contact	18.95	3.22	17.00	3.61	18.58	2.17	16.72	3.38	17.93	3.33

		Binge Scale		Totals
		Low	High	
Restraint Scale	Low	<u>N</u> =57	<u>N</u> =19	76
	High	<u>N</u> =15	<u>N</u> =47	62
Totals		72	66	138 (total <u>N</u>)

Figure 4.1: Cell size.

Table 4.3: Multivariate Analysis of Variance

Sources of Variance	<u>df</u>	<u>F</u> Value	<u>p</u> ^a
Restraint	12,123	1.33	.211
Binge	12,123	1.63	.092
Restraint by Binge	12,123	1.93	.037*

^aSignificance for p value equals .05.

*Significant at p < .05.

Table 4.4: Univariate Results for Restraint and Dependent Measures

Univariate Tested	MS	MS Error	df	F Value	Significance Level ^a
Attitudes toward Women	16.12	89.25	1,134	.18	.67
Locus of Control	15.31	16.62	1,134	.92	.34
P01 Time Competent	19.24	9.28	1,134	2.07	.15
P01 Inner Directed	515.12	97.50	1,134	5.28	.02*
P01 Self-actualizing value	8.45	4.83	1,134	1.75	.19
P01 Existentiality	62.74	13.12	1,134	4.78	.03*
P01 Feeling reactivity	8.70	10.12	1,134	.86	.36
P01 Spontaneity	12.19	5.85	1,134	2.08	.15
P01 Self-regard	2.05	4.63	1,134	.44	.51
P01 Self-acceptance	24.96	10.70	1,134	2.33	.13
P01 Acceptance of aggression	19.24	8.90	1,134	2.16	.14
P01 Capacity for intimate contact	91.56	10.25	1,134	8.94	.003**

^aSignificance level for the univariate F values here is $p < .004$, given the multivariate is significant at $p < .05$.

*Significant at $p < .05$ level.

**Significant at $p < .004$ level.

Restraint Scale and Internal-External Locus of Control

Null Hypothesis 2: There is no difference between high and low restrained eaters on the Internal-External Locus of Control.

The null hypothesis was not rejected. The univariate F for Internal-External Locus of Control was .92, $p = .34$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Restraint Scale and Personal Orientation Inventory

Null Hypothesis 3: There is no difference between high and low restrained eaters on the Time Competent Scale of the POI.

The null hypothesis was not rejected. The univariate F for Time Competent was 2.07, $p = .15$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 4: There is no difference between high and low restrained eaters on the Inner Directed Scale of the POI.

The null hypothesis was not rejected. The univariate F for Inner Directed was 5.28, $p = .02$. However, the multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 5: There is no difference between high and low restrained eaters on the Self-actualizing value scale of the POI.

The null hypothesis was not rejected. The univariate F for Self-actualizing value was 1.75, $p = .19$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 6: There is no difference between high and low restrained eaters on the Existentiality scale of the POI.

The null hypothesis was not rejected. The univariate F for Existentiality was 4.78, $p = .03$. However, the multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 7: There is no difference between high and low restrained eaters on the Feeling reactivity scale of the POI.

The null hypothesis was not rejected. The univariate F for Feeling reactivity was .86, $p = .36$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 8: There is no difference between high and low restrained eaters on the Spontaneity scale of the POI.

The null hypothesis was not rejected. The univariate F for Spontaneity was 2.08, $p = .15$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 9: There is no difference between high and low restrained eaters on the Self-regard scale of the POI.

The null hypothesis was not rejected. The univariate F for Self-regard was .44, $p = .51$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 10: There is no difference between high and low restrained eaters on the Self-acceptance scale of the POI.

The null hypothesis was not rejected. The univariate F for Self-acceptance was 2.33, $p = .13$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 11: There is no difference between high and low restrained eaters on the Acceptance of aggression scale of the POI.

The null hypothesis was not rejected. The univariate F for Acceptance of aggression was 2.16, $p = .14$. The multivariate for Restraint was $F = 1.33$, $p = .211$.

Null Hypothesis 12: There is no difference between high and low restrained eaters on the Capacity for intimate contact scale of the POI.

The null hypothesis was not rejected. The univariate F for Capacity for intimate contact was 8.94, $p = .003$. However, the multivariate for Restraint was $F = 1.33$, $p = .211$.

In summary, none of the null hypotheses for Restraint and the dependent measures was rejected. The reason is that a more conservative and stringent type of analysis of variance was used, controlling for overall experiment error rate. It is quite possible that separate analyses of variance would yield significant differences between Restraint groups and the three dependent measures of POI Inner Directed, POI Existentiality, and POI Capacity for intimate contact, as the univariate levels of significance were .02, .03, and .003, respectively. POI Capacity for intimate contact would be most relevant and close to significance with the alpha divided by number of tests performed.

A report of the results of hypotheses testing on the Binge Scale follows. The overall multivariate for Binge was $p = .092$ (Table 4.3). As in the case of Restraint, even though this was not significant at the $p < .05$ level, the univariates will be reported. Table 4.5 provides a summary of the univariate results.

Table 4.5: Univariate Results for Binge and Dependent Measures

Univariate Tested	MS	MS Error	df	F Value	Significance Level ^a
Attitudes toward Women	7.52	89.25	1,134	.08	.77
Locus of Control	55.45	16.62	1,134	3.34	.07
POI Time Competent	82.38	9.28	1,134	8.87	.003**
POI Inner Directed	522.47	97.50	1,134	5.36	.02*
POI Self-actualizing value	1.39	4.83	1,134	.29	.59
POI Existentiality	28.78	13.12	1,134	2.19	.14
POI Feeling reactivity	39.57	10.12	1,134	3.90	.05*
POI Spontaneity	.91	5.85	1,134	.16	.69
POI Self-regard	19.89	4.63	1,134	4.30	.04*
POI Self-acceptance	46.46	10.70	1,134	4.34	.04*
POI Acceptance of aggression	26.67	8.90	1,134	3.00	.09
POI Capacity for intimate contact	56.78	10.25	1,134	5.54	.02*

^aSignificance level for the univariate F values here is $p < .004$, given the multivariate is significant at $p < .05$.

*Significant at $p < .05$ level.

**Significant at $p < .004$ level.

Binge Scale and Attitudes Toward Women

Null Hypothesis 13: There is no difference between high and low binge eaters on the Attitudes toward Women Scale.

The null hypothesis was not rejected. The univariate F for Attitudes toward Women was .08, $p = .77$. The multivariate for Binge was $F = 1.63$, $p = .092$.

Binge Scale and Internal- External Locus of Control

Null Hypothesis 14: There is no difference between high and low binge eaters on the Internal-External Locus of Control.

The null hypothesis was not rejected. The univariate F for Internal-External Locus of Control was 3.34, $p = .07$. The multivariate for Binge was $F = 1.63$, $p = .092$.

Binge Scale and Personal Orientation Inventory

Null Hypothesis 15: There is no difference between high and low binge eaters on the Time Competent Scale of the POI.

The null hypothesis was not rejected. The univariate F for Time Competent was 8.87, $p = .003$. However, the multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 16: There is no difference between high and low binge eaters on the Inner Directed Scale of the POI.

The null hypothesis was not rejected. The univariate F for Inner Directed was 5.36, $p = .02$. However, the multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 17: There is no difference between high and low binge eaters on the Self-actualizing value scale of the POI.

The null hypothesis was not rejected. The univariate F for Self-actualizing value was .29, $p = .59$. The multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 18: There is no difference between high and low binge eaters on the Existentiality scale of the POI.

The null hypothesis was not rejected. The univariate F for Existentiality was 2.19, $p = .14$. The multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 19: There is no difference between high and low binge eaters on the Feeling reactivity scale of the POI.

The null hypothesis was not rejected. The univariate F for Feeling reactivity was 3.90, $p = .05$. However, the multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 20: There is no difference between high and low binge eaters on the Spontaneity scale of the POI.

The null hypothesis was not rejected. The univariate F for Spontaneity was .16, $p = .69$. The multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 21: There is no difference between high and low binge eaters on the Self-regard scale of the POI.

The null hypothesis was not rejected. The univariate F for Self-regard was 4.30, $p = .04$. However, the multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 22: There is no difference between high and low binge eaters on the Self-acceptance scale of the POI.

The null hypothesis was not rejected. The univariate F for Self-acceptance was 4.34, $p = .04$. However, the multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 23: There is no difference between high and low binge eaters on the Acceptance of aggression scale of the POI.

The null hypothesis was not rejected. The univariate F for Acceptance of aggression was 3.00, $p = .09$. The multivariate for Binge was $F = 1.63$, $p = .092$.

Null Hypothesis 24: There is no difference between high and low binge eaters on the Capacity for intimate contact scale of the POI.

The null hypothesis was not rejected. The univariate F for Capacity for intimate contact was 5.54, $p = .02$. However, the multivariate for Binge was $F = 1.63$, $p = .092$.

Summarizing the hypothesis testing for the Binge Scale, it can be seen none of the null hypotheses was rejected. It is likely significance would be reached for several of the variables if a less stringent multivariate value for main effects was used. Separate analyses of variance would yield a number of significant values but would have the undesirable feature of compounding the error rate. Reviewing the results from Table 4.5, the variables POI Time Competent, POI Inner Directed, POI Feeling reactivity, POI Self-regard, POI Self-acceptance, and POI Capacity for intimate contact would be of importance to investigate further, especially POI Time Competent, even though the multivariate for Binge was not significant. In order to

test the univariates at the .05 level, a multivariate p level would have to be set at $p = .60$.

One last result of the MANOVA will be reported, even though there was not a null hypothesis with regard to the result. The interaction effect of the Binge Scale and the Restraint Scale was significant at $p = .04$. Examination of univariates under the interaction effect revealed none to be significant. This means there is an interactive effect of the Restraint and Binge Scales on the values of the set of 12 variables examined in the analysis.

Stepwise Multiple Regression

The second design of the study, stepwise multiple regression, is discussed in this section. Multiple regression allows one to measure the overall dependence of a particular (criterion, predicted, or outcome) variable on a set of other variables, while taking into account the interrelationship among the predictor variables. A regression design was chosen because it allows the researcher to study linear relationships among variables. An additional reason for choosing the design is that all of the constructs measured in this study are theoretically continuous variables. The specific stepwise multiple regression was chosen for a number of reasons. Changes in regression coefficients at each step can be investigated, facilitating greater understanding of the interrelationships among the variables. Stepwise regression means predictor variables are entered in steps if they meet pre-established statistical criteria (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). The order of predictor variable entry

is determined by the respective contribution of each predictor variable to variance in the criterion variable. The SPSS subprogram enters variables beginning with the one having the highest Pearson product-moment correlation with the criterion variable. The next variable entered is the one accounting for the greatest amount of variance in the criterion independent of the first variable entered, and so on. Therefore, the variable accounting for the greatest amount of variance not explained by variables already in the equation is entered at each step. Another reason for choosing the regression design is that the order of importance of certain variables in predicting criterion can be observed. Also, the extent to which each variable and all the variables in combination account for variance in the criterion can be seen. Furthermore, regression equations generated from the current sample can be compared to those in cross-validation studies to provide further information on generalizability.

Restraint Scale

Eleven variables were entered in the stepwise multiple regression to predict the outcome variable Restraint. The last variable (12) to be entered, LOC, did not meet the statistical criteria for computation in the regression equation. The first variable entered was the one having the highest Pearson product-moment correlation (Simple R) with Restraint, which was POI Existentiality. The second variable entered was POI Time Competent with a correlation of $-.208$, accounting for the second greatest amount of variance on the outcome variable

Restraint. Interestingly, the third variable entered was POI Spontaneity with a correlation of .07 (lower than some of the remaining variables), yet accounts for more independent variance in the outcome variable than the remaining variables, after partialling out the shared variance of the variables already in the equation. This suggests the POI Spontaneity measure is somewhat more independent than the rest of the POI measures. The remaining variables were entered in a stepwise fashion under the same criteria. The variable explaining the most variance in conjunction with the preceding variables was entered next. The order of variable entry and variance accounted for by the regression equation at each step can be found in Table 4.6. The overall equation resulted in a Multiple R of .351, accounting for 12% of the variance in Restraint, with an F of 1.61, which was not significant ($p = .105$).

For the reader's interest, a stepwise-regression formula is reported in Figure 4.2. The formula developed from the particular sample has a tighter fit than a formula which would be developed based on another sample. Therefore, in a cross-validation study, some shrinkage would be expected in the new sample.

Binge Scale

Regression for the Binge Scale was handled in the same way as in the case of the Restraint Scale. All 12 variables were entered in the stepwise multiple-regression format to predict the outcome variable Binge. The first variable entered was the POI Inner Directed Scale, with the highest Pearson product-moment correlation coefficient

Table 4.6: Summary of Stepwise Regression for Restraint Scale and 12 Variables Entered

Step	Variable Entered	Multiple R^a	R^2a	Pearson r
1	POI Existentiality	.231	.053	-.231
2	POI Time Competent	.258	.066	-.208
3	POI Spontaneity	.277	.077	-.070
4	POI Inner Directed	.297	.088	-.213
5	POI Self-regard	.327	.107	-.045
6	POI Acceptance of aggression	.334	.111	-.135
7	POI Self-acceptance	.340	.116	-.171
8	POI Feeling reactivity	.346	.120	-.127
9	Attitudes toward Women	.350	.122	-.005
10	POI Capacity for intimate contact	.350	.123	-.195
11	POI Self-actualizing value	.351	.123	-.107
12	Locus of Control ^b	..	..	..

Note: F not significant at $p < .05$ level.

^aValues show increased value of multiple R or R^2 as each variable is entered.

^b F level or tolerance level insufficient for further computation.

$$y_1 = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_{11}X_{11}$$

$$Y_1' = 29.183 - .51X_1 - .36X_2 + .59X_3 - .37X_4 + .75X_5 + .15X_6 + .22X_7 \\ + .18X_8 + .36X_9 - .58X_{10} - .67X_{11}$$

y' = predicted Restraint value in sample

a' = constant

X_1 = POI Existentiality Score

X_2 = POI Time Competent

X_3 = POI Spontaneity

X_4 = POI Inner Directed

X_5 = POI Self-regard

X_6 = POI Acceptance of aggression

X_7 = POI Self-acceptance

X_8 = POI Feeling reactivity

X_9 = Attitudes toward Women

X_{10} = POI Capacity for intimate contact

X_{11} = POI Self-actualizing value

Note: y' is figured for each subject, and then the predicted values of y in this sample would be correlated with the actual y values in a cross-validation sample to determine the generalizability of this equation.

Figure 4.2: Stepwise regression formula to predict Restraint Scale value.

of $-.262$. The second variable entered was the POI Spontaneity score, accounting for the second highest amount of variance. The order of variable entry and variance accounted for can be found in Table 4.7. The overall equation for Binge resulted in a Multiple R of $.405$, accounting for 16% of the variance in Binge. The F of 2.04 was significant at the $p = .026$ level.

As in the case of Restraint, a stepwise-regression formula for Binge was developed (Figure 4.3). Once again, shrinkage on a cross-validation study may be expected to occur due to tightness of fit on this sample.

Analysis Performed Not Related to Initial Hypothesis

To shed more light on the area of eating concerns and to better understand the data, an additional analysis was performed. Data from subjects who reported vomiting either sometimes, usually, or always were classed in one group, and those who reported never vomiting were categorized in a second group. Subjects included in this analysis were those in the top half of the median split on the Binge Scale. There were no significant differences on any of the dependent measures on a multivariate analysis of variance between groups. Vomitors were no different from nonvomitors on the measures used.

Summary

Data collected in this research project were reported in the preceding chapter. Reliability was computed on all instruments except for the POI. Observations of particular responses on the Binge and

Table 4.7: Summary of Stepwise Regression for Binge Scale and 12 Variables Entered

Step	Variable Entered	Multiple R^a	R^2a	Pearson r
1	POI Inner Directed	.262	.069	-.262
2	POI Spontaneity	.309	.096	-.088
3	POI Time Competent	.348	.121	-.257
4	Locus of Control	.365	.133	.168
5	POI Feeling reactivity	.384	.147	-.245
6	POI Self-actualizing value	.390	.152	-.187
7	Attitudes toward Women	.394	.155	-.033
8	POI Acceptance of aggression	.397	.158	-.194
9	POI Self-acceptance	.399	.159	-.167
10	POI Capacity for intimate contact	.401	.161	-.199
11	POI Self-regard	.403	.162	-.199
12	POI Existentiality	.405*	.164	-.164

^aValues show increased value of multiple R or R^2 as each variable is entered.

* $p < .026$.

$$y_2 = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_{12}X_{12}$$

$$y_2' = 18.128 - .25X_1 + .74X_2 - .35X_3 + .16X_4 - .28X_5 - .17X_6 + .25X_7 \\ + .11X_8 + .18X_9 + .99X_{10} + .19X_{11} + .89X_{12}$$

y_2' = predicted Binge value in sample

a = constant

X_1 = POI Inner Directed

X_2 = POI Spontaneity

X_3 = POI Time Competent

X_4 = Internal-External Locus of Control

X_5 = POI Feeling reactivity

X_6 = POI Self-actualizing value

X_7 = Attitudes toward Women

X_8 = POI Acceptance of aggression

X_9 = POI Self-acceptance

X_{10} = POI Capacity for intimate contact

X_{11} = POI Self-regard

X_{12} = POI Existentiality

Note: y' is figured for each subject, and then the predicted values of y in this sample would be correlated with the actual y values in a cross-validation sample to determine the generalizability of this equation.

Figure 4.3: Stepwise regression formula to predict Binge Scale value.

Restraint Scales were presented. For instance, 80% of the sample reported they binged, and of this percentage, 17% reported they vomited. Analysis revealed several significant Pearson product-moment correlations. The most significant was the correlation between the Binge and Restraint Scales, indicating approximately 40% shared variance. Hypothesis testing resulted in nonrejection of any of the null hypotheses. This was largely due to the highly stringent multivariate procedure used. The results of the study indicated no significant differences between groups on the dimensions measured. However, a less conservative statistical approach would likely result in significant differences between high and low restrained eaters on POI Capacity for intimate contact and between high and low bingers on POI Time Competent. Two separate stepwise regressions yielded different results. The linear combination of the 12 variables did not result in a significant Multiple R for Restraint. The regression formula for Binge yielded a Multiple R that was significant at the $p = .026$ level, accounting for 16% of the variance. An additional analysis was performed, which was not part of the original proposal. Data from vomitors were analyzed separately from nonvomitors, with no significant differences found.

The final chapter discusses the results and the study as a whole.

CHAPTER V

SUMMARY AND CONCLUSIONS

A summary of the study is presented in this chapter. Conclusions drawn from results of the analysis and a brief discussion are included. In addition, limitations of the study, implications for treatment, and suggestions for future research are given.

Summary

There is a need to better understand eating disturbances which are widespread and increasing in incidence. The purpose of the present investigation was to systematically explore the relationship in college women between dieting concern and eating behaviors which were treated as independent variables, and personality variables which were treated as dependent measures. Personality variables included attitudes toward the rights and roles of women measured by the Attitudes toward Women Scale; locus of control measured by Rotter's Internal-External Locus of Control Scale; and personality variables and orientation measured by ten scales on the Personal Orientation Inventory. The independent variable, dieting concern was measured by the Revised Restraint Scale and the independent variable involving eating attitudes/behaviors was measured by the Binge Scale.

Because eating disturbances are complex and multidetermined, the present exploratory study integrated related areas of theory and research. The concept of restrained/unrestrained eating, or the extent to which individuals subject themselves to deprivation was discussed. Studies using restraint as an independent variable were predominantly laboratory studies indicating that restrained eaters counter-regulated or ate more than unrestrained eaters after a caloric preload. Furthermore, cognitive beliefs about consumption affected eating behavior more than actual preload intake. The phenomenon described above was found regardless of weight categories.

It was pointed out in Chapter II that the overeating found in lab studies on restraint was similar to the bingeing phenomenon found in clinical and normal populations. A number of studies on binge eating were reviewed. The literature indicated there is a large population of binge eaters, particularly among college women. Binge eating has been found among individuals of differing weight groups and is more prevalent among restrained eaters. Previous research in the area of binge eating has attempted to describe eating behaviors, affect connected with binge eating, and personality correlates. Even though there has been some research on compulsive eating/bulimia and personality variables, there is a need for further systematic investigation in the area. Theoretical and clinical issues have been widely discussed, however empirical studies have not been extensive.

Due to the above similarities between restraint and bingeing, the lack of studies on the relationship between restraint and

personality variables, and clinical observations of psychological correlates of bingeing, the current study was designed to explore the relationships between restraint, bingeing, and psychological or personality variables.

A number of authors have written about eating disorders from a feminist theoretical perspective. They believed issues such as female identity development, and cultural stereotypes regarding the role of women were critical determinants of eating disturbances. Problem areas such as low self-esteem, difficulties in dealing with anger, striving for perfection, and basing one's worthwhileness on the approval of others have been described as characteristics of eating disordered women.

The Restraint and Binge Scales were used to categorize a sample of normal women into high restraint/low restraint and high binge/low binge groups. They were compared on psychological variables measured by ten scales on the Personal Orientation Inventory, the Attitudes toward Women Scale, and Rotter's Internal-External Locus of Control. The instruments were chosen to tap into personality variables and feminist concerns described in the literature. (Extensive information regarding the measures is located in Chapter III.)

Sample

The sample consisted of 140 women living in Michigan State University residence halls. Participation was voluntary and subjects completed several questionnaires. In addition to the five

questionnaires already mentioned the women also completed an extensive demographic data sheet. The majority of the sample were freshmen (48.6%) and sophomores (30%). Participants were predominantly white and the mean age was 19.09 years. Most of the individuals described themselves as middle to upper middle class. Extensive demographic information can be found in Chapter III.

Analysis

Because the measures were believed to be highly interrelated, a two-way multivariate analysis of variance (MANOVA) was used to test the 24 hypotheses. If the multivariate test was significant at the .05 level (determined a priori), univariates were then examined for significance at the .004 level. In addition, two stepwise multiple regressions were performed. The results showed the dependence of the predicted variables (Restraint and Binge) on a set of other variables, while taking into account the interrelationship of the predictor variables. Pearson product moment correlations were computed and an additional analysis comparing vomitors to non-vomitors was performed.

Results

An analysis of the results was presented in Chapter IV. Reliabilities were calculated for the Binge, Restraint, Internal-External Locus of Control and Attitudes toward Women Scales on the sample. Alpha levels were acceptable for all four measures.

Means, medians, modes, standard deviations and ranges of the variables examined in the sample are presented in Appendix N.

Means of the POI scales seemed comparable to means cited for college students in the POI manual (Shostrom, 1966). The means of the remaining variables are compared to those in other studies in later parts of this chapter.

Responses to selected questions on the Restraint and Binge Scales were presented. The questions cited were related to affect involved in overeating, descriptions of bingeing behavior, and age of onset of binge eating. For example, a majority of subjects said they experienced guilt either often (34%) or always (30%) after overeating (Restraint Scale). Regarding the Binge scale, 80% of the sample said they binged and 17% of the bingers reported vomiting either sometimes, usually, or always after a binge. Seventy-six and one-half percent of the bingers reported mild, moderate, or severe depression after a binge and 94% reported onset of bingeing between ages of 15 and 20.

Pearson Product moment correlations were performed, indicating a correlation of .63 ($p < .01$) between the Restraint and Binge Scales, accounting for 40% of the common variance between the two measures. There were a number of significant correlations ranging from -.17 to .63 (Table 4.1).

Twelve hypotheses were formulated based on whether or not there were differences between high and low restrained eaters on the 12 dependent measures. An additional 12 hypotheses were developed regarding potential differences between high and low bingers on the same 12 dependent measures. None of the null hypotheses regarding the Restraint Scale were rejected. The multivariate for

Restraint was not significant ($p = .211$), therefore univariates could not be considered significant, even if the probability level was below the a priori alpha level of .004. However, it should be noted the alpha level for POI Capacity for intimate contact was .003, even though the multivariate was not significant. As discussed in Chapter IV, a different type of analysis, such as computation of several ANOVA's might produce significant results. It must be remembered that even if the alpha level was divided by the number of tests, overall experiment error rate would not be controlled in a series of ANOVAs. Other dependent variables of note for the Restraint Scale were POI Inner Directedness ($p = .02$) and POI Existentiality ($p = .03$).

None of the null hypotheses formulated on the Binge Scale were rejected. As in the case of Restraint, the multivariate for Binge was not significant ($p = .092$). Therefore, the univariates could not be examined for significance. In the case of the Binge Scale it should be noted the probability level of POI Time Competent was .003. The null hypothesis for this dependent variable was not rejected because the multivariate was not significant. If such a stringent multivariate alpha level had not been imposed, this variable might have been significant. Other variables of interest, even though nonsignificant, were POI Inner Directed ($p = .02$), POI Feeling reactivity ($p = .05$), POI Self-regard ($p = .04$), POI Self-acceptance ($p = .04$), and POI Capacity for intimate contact ($p = .02$).

A second design was used in the study, not for hypothesis testing, but for further descriptive information. Stepwise multiple regressions were performed for both the Restraint and Binge Scales. The overall regression equation for Restraint was not significant. The stepwise regression equation for Binge was significant, accounting for 16% of the variance. Table 4.8 lists order of variable entry and variance accounted for in the Binge Scale.

An additional analysis was performed which was not part of the original design. Data of vomitors and nonvomitors from the top half of the median split were analyzed separately. No significant differences between the two groups were found on the measures used in the study.

Conclusions

Several conclusions can be drawn from the study. The first is that binge eating is apparently a widespread phenomenon. Data from the present study were consistent with findings of other authors regarding occurrences of binge eating. Eighty percent of the sample in the present study reported binge eating. The percentage is comparable to the findings of Hawkins and Clement (1980) who found 79% of their female undergraduate sample reported binge eating. Seventy-eight percent of Ondercin's (1979) sample reported episodes of binge eating.

Scores on the Binge Scale for the present sample were comparable with those in the construct validation study of the instrument. Hawkins and Clement (1980) reported BS scores with $\bar{X} = 6.03$, $SD =$

4.52 on a sample of 182 women. Their replication sample of 73 women showed $\bar{X} = 5.89$, $SD = 4.75$. The overall mean in the present study was 6.39, $SD = 5.07$.

In terms of frequency of binge eating, 37% of the present sample indicated they seldom binged, 37% said they binged one to two times per month, 22% said once per week and 4% reported they binged every day. Hawkins and Clement (1980) reported 33% of both male and female subjects in their initial sample binged at least once per week. (No breakdown by sex was provided.) In the same study, 40% of the overweight subjects reported they binged at least once per week. Wardle (1980) reported an average of 4.7 binge episodes per month ($SD = 6.5$) on a sample of 30 normal females. Ondercin (1979) reported women in the high compulsive eating group ($N = 51$) in her sample tended to binge once a week or more, while the low compulsive eaters ($N = 85$) reported a tendency to binge only a few times a year.

An examination of satisfaction with weight revealed 87% of the present sample thought they should weigh less than they did. Forty-seven and nine-tenths percent of the sample indicated they were currently dieting which also indicated subject evaluation of unsatisfactory weight. Ondercin (1979) also reported data on dissatisfaction with weight. She found high compulsive females rated themselves significantly more frequently between 10 to 20 pounds overweight. Medium compulsive eaters too viewed their weight as 10 pounds too high and low compulsive eaters evaluated themselves at approximately the right weight.

A finding in the present study consistent with Hawkins and Clement was the average time length of a binge episode. Ninety percent of their sample indicated binges were less than an hour long. Eight-nine percent of the current sample indicated binge episodes lasted less than one hour. Another similarity was a majority of both samples indicated age of onset of binge eating between 15 and 20 (including both males and females in the study of Hawkins and Clement).

A dissimilar finding between the present study and the construct validation study of the Binge Scale by Hawkins and Clement was in response to the question, "Do you ever vomit after a binge?" Only nine of 182 (5%) women in their study said that they had ever vomited after a binge. Nineteen out of 138 (14% of sample or 17% of those who said they binged) women in the present study reported vomiting after a binge. Of interest is the differences in the samples. The sample for the validation study was drawn from two abnormal psychology classes; the sample in the present study was drawn from residence halls. Several questions are raised by the observation. The first question is how much can one generalize from each of these samples to the larger population of women? A second question is were subjects truthful in their responses? Another question raised would regard the frequency of vomiting after bingeing; is it actually higher in residence halls than in other populations? If the answer is yes, there are a number of implications. Women in the residence halls may teach each other to use vomiting as a dieting measure, contributing to the increasing

incidence. If it is true the frequency of vomiting is higher in residence hall settings, further study on these women is warranted. However, one must entertain the possibility there is more social acceptability or even approval in admitting to vomiting behavior in residence hall samples than in samples from other populations. Such a possibility might reflect less deception in self-report than in a different sample.

Observations of other responses to selected items on the Binge Scale in the present sample indicated many women were dissatisfied with the way they look and were somewhat depressed after bingeing. Furthermore, as indicated, 47.9% of the sample reported they were dieting. Of the percentage of dieters, 46% said they were not dieting successfully, contributing to evidence of self-dissatisfaction. The present study confirmed the findings in previous literature that binge/compulsive eating is a widespread phenomenon and a source of concern.

Scores on the Restraint Scale in the present study are consistent with scores in other studies. The mean RS score in the present sample was 16.61, median was 17.04, SD = 5.67, and range was from 1 to 28. Spencer and Fremouw (1979) reported a median of 16 and range of 2-28 on a sample of 60 college-age females. They divided subjects into groups of underweight, normal-weight, and overweight individuals. Means and standard deviations for these groups were $\bar{X}$ = 9.75, SD = 3.93; $\bar{X}$ = 16.85, SD = 4.76; and $\bar{X}$ = 18, SD = 3.66 respectively. Herman and Polivy (1975) reported a median split of 17 on 42 college-age females. Wardle (1980) reported a

mean of 16.6, $\underline{SD} = 5.6$ on a sample of 30 women. Furthermore, Hawkins and Clement reported $\bar{X} = 16.63$, $\underline{SD} = 6.49$ on a replication sample of 73 women.

Other conclusions drawn from the study were based on Pearson product moment correlations. As previously indicated, there was a significant correlation of .63 between the Binge and Restraint Scales. The correlation indicated 40% of the variance in one test was accounted for by the variance in the other. Furthermore, disproportionate cell sizes existed, which made sense conceptually if there was test overlap. It appears a strong relationship between the two scales exists, however 60% of the variance is left unaccounted for. In addition to some similarity, different constructs are also being measured. It is also possible the true correlation between the two measures are actually higher, but may have been attenuated in the current sample due to imperfect reliabilities in the instruments used.

Review of Pearson product moment correlations indicated a number of statistically significant relationships. The findings supported usage of a multivariate analysis since it is an appropriate design to use when dependent measures are related to each other. Even though there were a number of statistically significant correlations, the issue of practical significance must be raised. Variance accounted for by the correlations was not large (except between Binge and Restraint). Therefore each of the variables in relationship to each other left considerable variance unaccounted for. A conclusion drawn from the findings was that general

psychological characteristics were being measured by the instruments, even though the instruments were designed to tap into specific relevant aspects of psychological characteristics. Testing of this type does leave considerable variance unaccounted for.

With the limitations of the present multivariate analysis, one could not conclude results were significant, but the size of some of the univariate F 's demanded they not be ignored. In addition, a p of .004 for the univariates is very stringent. When psychological data of the type used in this research are tested so stringently, it is almost asking too much for any results to meet the expected significance levels. Using powerful statistical methods with such soft data often causes lack of significant findings. One can nevertheless explore findings for practical or heuristic value. For instance, even though the multivariate significance level for Restraint was .211, the univariate for POI Capacity for intimate contact (POIC) had an alpha level of $p = .003$. Women who were categorized as low restrained eaters had higher scores on POIC than did high restrained eaters. As previously defined the Capacity for intimate contact subscale measures one's ability to develop meaningful relationships with others, unencumbered by expectations and obligations. Meaningful contact includes the ability to relate aggressively as well as lovingly. POI Capacity for intimate contact appears to tap into how acceptance of anger manifests itself in interpersonal relationships. Women who are more diet conscious may be more preoccupied with what others think of them. They may have a more vulnerable sense of identity, impacting on their ability to be intimate with

others. They may also have difficulty expressing their anger. Another possibility is women who are more restrained in eating behavior may be more restrained in other aspects of behavior as well, i.e., expression of anger in relating with others. They may additionally be more restrained in other aspects of intimacy such as approaching individuals they feel attracted to or risking open and honest communication.

Two other scales are worth mentioning, even though their levels of nonsignificance were not as impressive as POIC. Women in the low restraint group scored higher on the POI Inner Directed ($p = .02$), and the POI Existentiality ($p = .03$) scales. Inner Directedness or the tendency to be guided by internal sources rather than external forces and approval by others might be indicative of an individual who is not overly concerned with dieting. Overconcern with dieting may in fact represent conforming to cultural pressures or seeking the approval of others. The POI Existentiality scale measures flexibility and rigidity in application of values to life. It is also likely an individual is more rigid, especially in the food area, in order to be more restrained.

The above suggestions must be interpreted with extreme caution, especially given the lack of statistical significance. They are merely suggestions for potential directions to pursue.

It is also noted several areas were totally lacking in significance between high and low restraint groups. They included POI Feeling reactivity, POI Self-regard, Attitudes toward Women, and Locus of Control, among others. No support was provided for the

notion that restrained eaters were either more internal or external in locus of control than unrestrained eaters. Nor were the two groups different in their attitudes toward the rights and roles of women. They also did not differ in terms of how much they accepted and liked themselves or their sensitivity to their needs and feelings.

Hawkins and Clement (1980) administered Rotter's Internal-External Locus of Control Scale to their replication sample of 73 women and 45 men. The mean score for women was 11.04, SD = 4.73 comparable to a mean of 11.40, SD 4.10 in the current study. The mean for males in the previous study was 10.60, SD = 3.91. The Pearson product moment correlations between I-E and the Restraint Scale for women reported by Hawkins and Clement was .11 and non-significant. (The same correlation was nonsignificant in the current study as well.) However in the previous sample the correlation for men (r = .48) was significant.

A possible explanation for these results is that the relationship between locus of control and restraint may be more complex for women than for men. Women may experience themselves as more internally controlled when they are restrained eaters and successful at maintaining restrictive dieting tendencies. The experience of internal control at that point in time could be reflected in their I-E scores. If they are restrained eaters and unsuccessful at dieting at the point in time of the study, they may feel out of control, or that control is external, which again may be reflected in I-E scores. Unrestrained eaters may reflect a mix of internal and external locus of control individuals, unrelated to eating.

Subjects potentially could respond to I-E questions based on environmental or situational variables as well as based on longer lasting personality characteristics. The possibility of fluctuating self-control for restrained eaters may cancel out potential differences which were not observed in this study.

Since male subjects were not used in this study, it is difficult to address how they might be different from the female sample on the relationship between Restraint and Locus of Control. It does seem likely that dieting for men is not fraught with the same extensive socio-cultural pressures that exist for women.

There are a couple of possible reasons why attitudes toward women scores were not significantly different between groups. The mean score for the present sample was 61.21, SD = 9.32, comparable to a mean of 50.26, SD = 11.68 on a sample of 241 college females (Spence, Helmreich, & Stapp, 1973). This comparison could mean the current sample is more liberal than other samples. It could also reflect a general population shift to more liberal responses. If in fact women in the present sample were more homogeneous in the liberal direction on their attitudes toward the rights and roles of women, it would be more difficult to pick up differences. Another possibility exists. Women in the sample may in fact have liberal attitudes toward career issues, and freedom of choice, responsibility, and control, but may struggle with issues of femininity at a deeper level. They may not even be aware of some of the issues and struggles. In other words, restrained and unrestrained eaters may not be different in their attitudes toward the rights and roles of

women but may differ in how they personalize and behave in response to pressures to look and behave a certain way. The Attitudes toward Women Scale does not appear to measure this aspect, as discussed in the section on limitations.

There was another univariate result that was difficult to ignore. It was the difference in POI Time Competent scores between low and high bingers ($p = .003$). The notion could perhaps be entertained that low bingers were more Time Competent than high bingers. Time Competence refers to one's ability to be present-oriented or to live in the here and now. The past and future are meaningfully related to the present without rigidity, overidealization, guilt, and regrets. It seems plausible that high bingers would live more in the future, idealizing a time when they could have control over their eating. Or high bingers might think more about the past, to a time when they felt more in control of binging. Or they might think about the past and feel guilty because they had been less in control. Another possibility is they feel guilty about the past in terms of its effect on them currently, i.e., they retain old bad habits. It is likely high bingers do not think about the past and future in meaningful continuity with the present. Barrow and Moore (1983) have pointed out that time perception is affected in perfectionistic thinkers with an individual being overly concerned with the future. They call this the "hurdle effect," with a focus on what is left to be done, not on what has already been accomplished. They also point to the dichotomous, all-or-none thinking of perfectionistic thinkers. The Time Competency finding suggests indirect support for

clinical observations that individuals with eating concerns tend to be perfectionistic in their thinking, especially about food and how they look. As mentioned throughout this paper, for many women attempts to perfect themselves through dieting led to their first bingeing episodes.

Other variables of interest on the Binge Scale, although clearly not significant were POI Inner Directed ($p = .02$), POI feeling reactivity ($p = .05$), POI self-regard ($p = .04$), POI self-acceptance ($p = .04$), and POI Capacity for intimate contact ($p = .02$). One can look at these significance levels for their heuristic value. Interpreting the mentioned POI scales, women who were high bingers may have tended to be guided by external sources (i.e., approval by others) and perhaps were less sensitive to their own needs and feelings than low bingers. They may not have liked or accepted themselves as much as low bingers. Furthermore, they may have less ability to meaningfully relate to others than low bingers.

The POI Inner Directed and POI Capacity for intimate contact scales were below alpha level .02 for both Binge and Restraint. The other variables below $p < .05$ mentioned for Binge, were well above the $p < .05$ significance level on Restraint (i.e., Feeling reactivity, Self-regard, and Self-acceptance). It is possible some of the variance unaccounted for between the two scales has to do with a greater number of psychological correlates being tapped by the Binge Scale than by the Restraint Scale. For instance, there are questions about body image, enjoyment of bingeing, and feelings of depression after uncontrolled eating episodes on the Binge Scale.

Further evidence in support of the idea that the Binge Scale taps into a greater number of psychological correlates with bingeing is provided by the results of the stepwise multiple regressions. The overall variance accounted for in the Restraint regression equation was nonsignificant. The Binge regression equation was significant ($p = .026$), accounting for 16% of the variance. The linear combination of dependent measures, which were psychological variables, had slightly better ability to predict the Binge score than was the case with the Restraint score. However, even though the Multiple R was significant for Binge, neither Binge nor Restraint scores were highly predicted by the predictor variables (10 out of 12 of these were POI scales).

In both the Binge and Restraint multiple regressions, the POI scales tended to statistically account for the largest amounts of variance in the criterion variables Binge and Restraint. Three particular scales--POI Time Competent, POI Inner Directed, and POI Spontaneity--were the most consistent predictors in terms of variance, across both the criterion variables. It may be that these three factors explain the interrelatedness between Binge and Restraint. It may also be that the three variables are somewhat independent of each other in predicting Binge and Restraint. Upon examination of individual items comprising the three POI scales, it was discovered none of the items from the Spontaneity scale overlapped items constituting the Time Competent Scale, but they did overlap the Inner Directed Scale. (The two major scales are Inner Directed and Time Competent and do not overlap each other. The other subscales overlap both the

major scales and each other.) In addition, the Spontaneity scale items ($N = 18$) overlapped items on the Existentiality, Capacity for intimate contact, Self-actualizing value, Self-acceptance, Feeling reactivity, Acceptance of aggression, Self-regard, and Synergy scales, lending further evidence to the idea that it is relatively independent from other scales. Furthermore, AWS and I-E apparently do not tap into much of the variance in the criterion variables. It appears the criterion variables were predicted from the POI, whose scales have considerable overlap. Only three of the scales appeared to be useful, which has limited practical significance. Generalizability is limited, which is further discussed in the section on limitations.

As in the case of Restraint, significant differences were not found between high and low bingers on the I-E Scale or AWS. Hawkins and Clement (1980) found a nonsignificant Pearson product moment correlation of .13 between the Binge Scale and I-E Scale on a sample of 73 college women. A significant correlation of .17 was found between the two scales in the present study. The correlation indicates 3% of the variance is accounted for between the two instruments, which is a small percentage. Dunn and Ondercin (1981) found a significant difference between high ($\bar{X} = 13$, $SD = 4.4$) and low ($\bar{X} = 9$, $SD = 3.5$) compulsive eaters (measured by the Compulsive Eating Scale) on the I-E scale.

It is possible differences were not observed between high and low Binge groups for similar reasons differences were not observed between Restraint groups. Differences may have cancelled each

other out depending on situational parameters. If some women were feeling more in control of their bingeing at the time of the study (even though they may have been high bingers), their responses to the I-E questions may have reflected a more internal locus of control. Effects of high binge individuals who were out of control with regard to bingeing at the time of the study may have answered I-E items in an external direction and cancelled out potential differences between groups. Although small, the significant Pearson product moment correlation between BS and I-E in the present study, and Dunn and Ondercin's (1981) findings of differences lend evidence to the fact differences do exist. Because binge eating involves periods of uncontrolled excessive eating, intuitively it makes sense that bingeing would be related to some aspects of locus of control. There are some methodological problems addressed in terms of effects being cancelled out. A further discussion of method and limitations is found in the limitations section.

As with Restraint groups significant differences were not found on the AWS between Binge groups. A plausible explanation is similar to that for Restraint. Attitudes toward the rights and roles of women may not reflect honesty or awareness in terms of what an individual finds acceptable or appropriate regarding one's own behavior compared to one's attitudes and beliefs. An individual may not consistently translate attitudes into behaviors, based on a number of factors, i.e., fear of consequences, lack of awareness, other priorities, or dislike of a specific situation. Women may have liberal ideas about the rights and roles of women, but still

succumb to sociocultural pressure to look a certain way. It is also possible that women in the sample have internalized socially desirable responses in a liberal direction.

Summarizing the conclusions drawn, unequivocal statistical support for differences between high and low restrained eaters and between high and low bingers was not found. Some tentative but heuristic conclusions were drawn regarding differences between high and low bingers on the Time Competency measure and high and low restrained eaters on Capacity for intimate contact. There was no statistical support for differences in Attitudes toward Women or Locus of Control for either Binge or Restraint. The next section briefly compares the results of the present study to a previous study.

Discussion

The findings of the present study do not lend conclusive support to clearcut relationships between dieting concern/eating behaviors and personality variables. As mentioned elsewhere, Dunn and Ondercin (1981) found significant differences between high and low compulsive eaters on several dimensions of the Sixteen Personality Factor Test, Social Desirability Scale, Locus of Control, and Bem Sex-Role Inventory. Even though their sample size was small ($N = 47$), some features of their study capitalized on chance in obtaining significance. There were 20 dependent measures, all analyzed by independent t tests. The alpha level was not divided among dependent variables and several of the significance levels were comparable to those in the present study (i.e., $p < .02$). In addition, usage of t tests did

not provide information regarding the interaction of the set of dependent variables. Also, subjects were chosen from the top and bottom quartiles of a pool of women who took the Compulsive Eating Scale. While this increased the probability of insuring the groups were different on the independent variable, information on a middle group was lost (as the authors noted).

The preceding comments about research design and methodology are not to say differences in personality variables between high bingers and low bingers do not exist, but to point out the need for more research in the area. Better measures need to be chosen or developed to discriminate dependent variables between groups. Furthermore, an important point to consider is the difficulty in measuring abstract psychological constructs, which are relatively unstandardized (Anastasi, 1976).

An integration of previous theory and research with the present findings indicates further exploration of differences in eating behavior and how those differences relate to other variables is an important area to pursue.

Limitations

The following section outlines problems and limitations of the present study which possibly contribute to the lack of statistical significance. Included are comments about the sample, generalizability, design/methodology, and instruments.

Sample

Participants in the current study were volunteers recruited from residence halls. There was no control over what Resident Assistants (RAs) said when they recruited women from their floors. Even though a letter was provided to use in solicitation, the details as to how each RA went about recruitment were not in control of the researcher. As with any voluntary sample, reasons for participation were individual and not clearly known. Volunteers may possibly be a more homogeneous group than nonvolunteers.

A comparison (chi-square in Appendix P) of class level data for women living in residence halls on the Michigan State campus with class level data in the current sample indicated no significant differences in class representation. (Appendix O provides class level data for the residence hall population.) The majority of participants in the study were freshmen and sophomores, which was representative of the population. Chi-square analyses (Appendix P) were performed on class level data for residence hall buildings that participated in the study as well. There were no significant differences between population of the buildings and the present sample.

Unfortunately, accurate demographic data on other variables such as age, race, social class, and income on the residence hall population are not available. (The majority of participants in the study were white.) The only unequivocal statement about sample representation of the population is in terms of class level data. However, due to the large size of the Michigan State University residence hall system, and the fact it is a state university, one might hypothesize a

diversity of some demographic variables in residence halls. Sample data indicated a diversity in parental employment and education (although most participants described themselves as middle class). One could tentatively generalize sample data to the population in residence halls considering the potential diversity. Other demographic variables must be interpreted with even more caution as different results may have occurred on measures used, if individuals were over- or under-represented. An example of such a variable would be race. An empirically accurate count of race was not provided for residence hall populations, therefore it is unknown if minorities were accurately represented in the sample such that results could be generalized back to the population of minorities in residence halls.

Generalizability

In addition to the issue of generalizability of the sample to the population drawn from, the issue of generalizability to other populations of women must be addressed. The results of the present study have limited application to women in general. First of all, it is quite possible that college-age women living in residence halls are different from other groups of women in terms of their eating behavior or other behaviors. Participants in the study may have been a more homogeneous group in facets other than race and class standing. The majority described themselves as middle class, therefore socioeconomic status was probably not very diverse. In addition, participants scored more toward liberalism on the AWS than women in an earlier sample (Spence, Helmreich, & Stapp, 1973).

However, the sample was probably more diverse than it would have been in a smaller school. Also, there was a range of scores on the Restraint Scales comparable to other studies (Spencer & Fremouw, 1979; Herman & Polivy, 1975), indicating both restrained and unrestrained eaters were in the sample. There was also a range of scores on the Binge Scale with means comparable to other studies (Hawkins & Clement, 1980).

The current study involved a sample of college-age women who were predominantly from middle class backgrounds, with middle class values. College-age women are possibly more concerned about their weight and dieting than other women. They are typically resolving identity issues and are probably more susceptible to cultural pressures to look and behave in a particular way. Not only may women who participated in the study be somewhat different from other college women (for instance, more freshmen and sophomores in residence halls), but they are likely to be different from other populations of women. Therefore, care must be taken in generalizing results to other populations. Caution must be used when trying to relate the present findings to clinical populations, since the current sample was presumably a normal population. Care must also be exercised in relating results to different age groups, socioeconomic classes, and race or cultural groups.

The multiple regression results in this study point to the need for new predictor variables to develop higher multiple correlations so that cross-validation studies could be practically useful. Even though the Multiple R for Binge was significant, neither Restraint

nor Binge was adequately predicted by the predictor variables. One could discuss the ranking of variables according to prediction of criterion; however, it is not practically useful to do so. Regression equations were developed in order to be used for cross-validation studies. However, it makes no sense to replicate the present study exactly. Shrinkage could be expected to occur in the Multiple R , which means less variance would be predicted in the criterion variables than is predicted in the current study. This provides further evidence that better predictor variables should be found so that a large enough Multiple R in the initial study (i.e., $R = .80$ or greater) could be found to justify using the developed equations in cross-validation studies, enhancing generalizability.

Design/Methodology

A methodological limitation was the use of a median split to divide groups into high and low restraint and high and low binge groups. Even though previous research used a median split on the Restraint Scale to divide samples into two groups, and the median split in the present study was comparable to those of other studies as previously mentioned, there were some disadvantages. In the present study high and low restrained eaters were examined for differences on psychological variables. Previous research looked at eating behavior in response to a preload. Characteristics being measured were not the same in the current study and that meant significant differences might not be observed using a different methodology, even if they existed. Also, it is not known if subjects who scored

one point above the median (high restraint) and subjects who scored one point below the median (low restraint) were significantly different from each other on the restraint dimension. They are only two points apart yet in different groups. Furthermore, the interval between each point may not be equal for each question. It may be of more interest to know how far from the central point individuals scored. Power could have been increased by increasing the true mean difference between groups. Rather than using a median split, top and bottom thirds or quartiles could have been used as groups. However, if top and bottom quartiles are used, sample size should not decrease. A larger N would be required to have the same number of subjects with top and bottom thirds or quartiles.

An additional problem with a median split is that it is sample dependent. Each time a study is conducted and a median split is used, the dividing point for high and low restraint groups changes. It would make more sense to study large samples and to create norm groups rather than use a sample dependent median split.

Another methodological limitation involved the number of dependent measures. It would have been better to use fewer dependent measures. There was considerable overlap on 10 of the dependent measures, since they were all scales on the Personal Orientation Inventory. It was more desirable to use measures that would tap relevant constructs, but that were more independent of each other. More significant results may have been found.

Power of the study could have been increased by reducing within group variance on the dependent measures. For example, a more

homogeneous group of restrained eaters compared to a different homogeneous group of unrestrained eaters would have increased the power of finding significant differences if they existed. The same would have been true for the Binge Scale.

The study had design limitations which, if controlled, could have also increased the power of the study. First of all, the number of subjects could have been increased. There was an attempt to recruit more subjects, but the term (quarter) of data collection was drawing to an end. As the end approached, fewer and fewer subjects attended meeting times. In addition, there was a concern about subject characteristics of the few who were participating when others were studying for exams. In order to avoid confounding results due to the potential hazard of timing, no further meetings for questionnaire completion were scheduled.

Another design limitation of the study was due to unequal cell sizes. The occurrence of disproportionate cell sizes made sense conceptually if the Binge and Restraint Scales were tapping the same construct. Cells with high binge/low restraint and low binge/high restraint had fewer subjects. Disproportionate cell sizes contribute to statistical confounding. It appears statistically there are no really clear-cut tests for main effects given unequal cell sizes and the interaction between Restraint and Binge (accounting for 40% of the variance). There would have been more power with equal cell sizes. There are several ways to achieve equal cell size. First, if the independent variable exists a priori, the sample can be divided based on the variable. In the present study, the independent variables

did not exist a priori; they were based on scores on the Binge and Restraint Scales. Second, equal cell sizes could have been achieved by throwing out data in the over-sized cells. It was not deemed feasible to throw out data in the present sample, since it meant disregarding data from 78 subjects. A way to correct the problem would be to administer the Restraint and Binge Scales to a large number of individuals and then based on their scores, assign them to groups. After they are in groups, they could then respond to personality measures. However, this would not be representative of the manner in which the variables naturally exist in the population.

More power would have been obtained in the present study with directional hypotheses. If the predicted direction is correct, more power to reject the null hypothesis exists. The rationale for not predicting directionality was based on limited empirical investigation. However, the review of the literature indicated results found in the current study were in the expected direction.

Instruments

All of the measures used in the present study were self-report measures, which have some inherent problems. Subjects may not have been honest in their responses, either by intent or because they weren't very self-aware or were self-deceptive. Social desirability may have been a problem with responses, especially on the Attitudes toward Women Scale. Crowne-Marlow Social Desirability Scale scores have a low correlation with the Restraint Scale, Binge Scale (Hawkins & Clement, 1980) and with the Internal-External Locus of

Control Scale (Rotter, 1966). Social desirability is probably more of a problem on a Likert-type scale (AWS) than on a comparative value judgment choice (POI). The influence of social desirability can be conscious for subjects or internalized such that they are not aware they are responding in a socially desirable way.

The instruments used also could have been influenced by the time of day participants completed the questionnaires, their emotional states at the time, or environmental variables. Women may have been influenced on their responses merely by the presence of other women on their floor, completing questionnaires in the same room. Results from self-report data could be quite different from data collected based on observation of subject behavior by a researcher.

There were no significantly different results for two measures; Locus of Control and Attitudes toward Women. It was concluded usage of the two instruments may have been problematic. They may not have tapped the psychological characteristics in precisely the way it has been suggested they exist in women with eating concerns. In fact, the multiple regression results support this statement by the low predictability of the criterion variables by the predictor variables. It must be remembered that behaviors measured by personality tests are more changeable than behaviors measured by other tests, such as ability tests. Psychological features are more difficult to measure.

No support existed for the alternate hypothesis there were differences between groups on the AWS. The AWS short form does not have questions regarding attitudes toward formation of identity, autonomy, worth, and ego development for women and how they compare

to men. It also does not contain questions related to physical appearance and what is considered appropriate for a woman in comparison to a man. The AWS may not have tapped the particular aspects of sex-role stereotyping mentioned in the literature for women with eating concerns. More specific questions related to clinical observations may have been more appropriate to use for measurement. For example, a semi-structured interview or work similar to that of Glucksman, Rand, and Stunkard (1978) would be useful. It is difficult to know if the finding of no significant differences was because the instrument didn't tap the hoped for construct in the groups, if the two groups were not different enough on the independent variable, if subjects were not honest, if they were responding in a socially desirable manner, or if in fact there were no differences.

It is conceivable the women in the present sample were more liberal (homogeneous) in their attitudes than the general population of women (higher mean in the present study as previously mentioned and clustered toward the liberal end). They attended a large mid-western college in which plenty of exposure to feminist thinking existed. They also had exposure to each other living in residence halls, which could influence the social desirability of responding in a liberal way. It is possible peer pressure exists to be pro-feminist in the residence halls, although one would need to test this out. There does appear to be a diversity of women with different family background variables regarding education and employment of both parents, which may also affect traditional versus

liberal thinking. The fact that the researcher was a woman may have contributed bias toward a liberal response set.

The Internal-External Locus of Control Scale is a broad instrument tapping general constructs. It was not designed to achieve high prediction in specific situations. A low degree of behavioral prediction over a number of situations was the rationale for its development. More specific predictions would have been desirable in the present situation. Allerdissen, Florin and Rost (1981) found differences when examining locus of control in a population of bulimic women, compared to a control group. Bulimic women were more externally controlled when they saw themselves as dependent on powerful others, but were not more external in terms of fatalistic control or their perceived internal control. In fact, a review of the literature indicates bulimic women can be quite internally controlled, especially when they are abstaining from food. Their self-control at times is remarkable. One might reason because bulimic women experience so much guilt, they must feel they have some responsibility or control in order to feel guilty. Therefore some aspects of internality would exist for them. As previously mentioned, situational variables such as success or failure at restraint or control of bingeing may also affect locus of control differentially across subjects, cancelling out potential significant differences. An instrument that could differentiate the various features of locus of control would be desirable. Potential differences might be observed with finer-tuned instrumentation.

Although homogeneity of the sample was a potential concern for finding significant differences on the I-E Scale, scores tended to approach a normal distribution. However, another feature of the I-E Scale may have operated in the present study to minimize potential differences. Rotter (1975) has discussed problems with interpretation of externality on the scale. Researchers have found that some subjects who scored in the external direction behaved in passive, unambitious, and noncompetitive ways (called "passive externals"). Other external individuals were more aggressive, ambitious, and competitive, behaving more like internal subjects (called "defensive externals"). Individuals may adopt the latter pattern for self-protection as a rationalization for failure. Attempts to differentiate the two groups of externals on item content were unsuccessful (Rotter, 1975). Mixing situational variables such as experiencing success in dieting behavior with implications of "defensive externals" makes interpretation of the present study confusing. Again, a wash out or cancelling out effect may be encountered. The complexities of the concept of locus of control, which are not adequately measured by the I-E Scale, make it difficult to make definitive statements about the results of the study.

Another potential confounding result on the I-E Scale relates to social desirability. Even though Marlow-Crowne correlations were low, subjects may have gotten the message they should be internally controlled, especially in regard to weight. The reasoning is similar to the study of alcoholics in which an internal message (i.e., getting better was up to them) was perceived (Goss & Morosko, 1970).

There is considerable emphasis on willpower in our culture, and almost half the sample said they were currently dieting. This might influence subjects' responses in the internal direction, potentially cancelling out effects in the external direction.

Ten of 12 of the dependent variables were scales on the Personal Orientation Inventory. All but two major scales have considerable overlap. Lack of significance on some of the scales could decrease the chances of finding differences on other scales. This would occur because of lack of independence, or considerable overlap on scale items. The reverse is also true. One could find several differences for the reason of considerable overlap of items among scales. As observed from the multiple-regression results, the majority of the predictor variables were POI scales and did not contribute a great deal toward explaining Binge or Restraint.

The Personal Orientation Inventory purports to measure self-actualizing tendencies. Even though the instrument has had considerable construct validation, aspects of self-actualization are difficult to measure. The same is true of sex-role stereotyping and locus of control. It may be the instruments were not specific enough to pick up differences between restrained/unrestrained eaters and high/low bingers. It is also possible differences between the groups are not pathological differences, or lack of adjustment problems (except on the more extreme end of the continuum), but more subtle differences. In fact, the percentage of women who reported they binge eat was 80%, indicating this might be "normal" behavior, at least statistically.

Implications for Treatment

Even though results of the present study are inconclusive, treatment issues can be addressed. A number of women binge and are concerned about their behavior. There is also a relationship between Restraint and Binge. The relationship between the two variables is correlational, therefore causality cannot be assumed. It is not known from the results of the present study if restraint makes individuals more susceptible to bingeing, if bingeing leads to restraint, if they both occur, or if a third variable causes both. As indicated in the review of the literature, several researchers have suggested restraint or strict dieting precedes bingeing and possibly has a causal relationship (Wardle, 1980). Nevertheless, causality cannot be inferred from the results of this study. However, the relationship between Binge and Restraint can be discussed with a client. With this knowledge they might be better able to understand the binge/deprivation cycle for themselves and discuss personal implications with the therapist. It could also be relieving for women to know that bingeing is not unusual or abnormal.

In treatment, a therapist would want to keep in mind the possibility of client difficulty with Time Competence (as measured by the POI) and Capacity for intimate contact (POI). Discussion of a client's sense of time continuity, perfectionism, and ability to relate meaningfully with others would be helpful. Further clinical information along these lines could facilitate treatment and provide directions for research. Areas touched on by other POI scales with

univariates below $p < .05$ might prove meaningful for client discussion. They would include Inner Directedness, Self-regard, Self-acceptance, and Existentiality. The above discussions could provide further evidence for the relationships between binge/restraint and other personality characteristics.

Another treatment issue involves the complexities of locus of control. A number of questions have been raised regarding situational control, the complexities of types of external individuals, and the broad construct being measured. Discussion with clients can facilitate learning for therapists as well as for clients. Clinicians can pursue the area of control with clients in attempts to better understand the complexities. This would also facilitate choice of a better instrument to measure the concept, or provide information to develop an instrument.

Another implication for treatment would involve pursuing the concept of restraint. Are individuals who are restrained in the area of eating restrained in other aspects of life? A discussion of this possibility was addressed when examining the relationship between Restraint and POI Capacity for intimate contact. Work with clients could provide information in terms of restraint and maybe information regarding predisposing factors of restraint. Again, the information would be useful in both treatment and research.

The above areas discussed as implications for treatment involve acquiring more knowledge. This knowledge, blended with intuition and further empirical research would provide better treatment plans.

Suggestions for Future Research

Future research could be fruitful if some of the limitations inherent in the present study were controlled. The power of the design would be increased, enabling differences to be found if they exist.

Further refinement of the definition of binge/compulsive eating is necessary. Severity of binge eating ranges from being of little concern to being an all encompassing part of life. Some individuals struggle with binge eating only occasionally, others experience severe bulimic episodes several times a day. In addition to frequency as an aspect of the definition, individuals' perception of their binging behavior is important. What one person defines as a binge and feels terrible about may be of no concern for another individual. Where does one draw the line in terms of pathology? Is the actual behavior of binging the problem, the form of purging (vomiting, dieting, etc.), the extent (duration, frequency) of the binging, or the affective experience in response to binging? Excessive shame and guilt over the behavior can lead to increased restraint, creating greater vulnerability to the next binge episode. With better definitions, individuals can be better divided into appropriate groups to further explore the relationship to personality variables.

Alternative measures to assess personality variables are recommended. In this study broad types of measures were used to predict psychological constructs. In the future, some combination of subjective and behavioral measures would provide clearer results.

For instance, behavioral observations such as more detailed information regarding eating patterns might be incorporated. Other variables, such as weight could be used in a regression analysis. Furthermore, instruments that tap more specific personality characteristics could be used. Examples are Burns' (1980) Perfectionism Scale or the Personal Attributes Questionnaire (which may be a better measure of sex-role stereotyping than the AWS). An instrument designed to measure identity development would provide useful information. For example, Marcia's (1967) Ego Identity Status which uses a semi-structured interview to acquire information about identity achievement, moratorium, foreclosure, and identity diffusion could be used. Better instruments to assess locus of control are recommended. One might consider investigating the locus of control instrument used by Allerdissen, Harin, and Rost (1981), which apparently taps into and distinguishes elements of fatalistic control and personal control (Krampen, 1979).

Due to some of the confusion around locus of control and its relationship to bingeing and restraint, research using a repeated measures design is recommended. Control could be studied in treatment and nontreatment groups. Assessment of locus of control could occur during specified time intervals, at times when treatment is perceived as successful and at other times when individuals feel out of control. Comparisons could be made over time to acquire more information.

Further work with the Binge and Restraint Scales is warranted. They appear to be promising instruments to differentiate individuals

with eating concerns. Methodology other than median splits is recommended to divide people into groups (i.e., top and bottom quartiles). Establishment of norm groups would also be useful. Incorporating and validating additional psychological correlates found in clinical literature could improve the Binge Scale. Studies designed to explore what predisposes individuals to restrained eating and to answer the question are they restrained in other areas of life would provide results of interest.

Samples other than college women could be used. Restraint and bingeing behavior in men could be studied further. Clinical and non-clinical populations could be compared using the Restraint and Binge Scales. A considerable portion of the research has been done on college age women and up to about age 35. It would be of interest to study bingeing behavior and its psychological correlates in women who are somewhat older. There may be considerable differences in eating behavior or their concern about it, if older women have a better established sense of identity. It would also be interesting to explore such behaviors in relationship to establishment and stability of one's career, a sense of competency, and the importance of career to the individual. Views on relationships could also be taken into account. If what the literature suggests about sex-role stereotyping and identity formation in women with bulimia is accurate, the results could be quite revealing.

More outcome and treatment studies are necessary. Orbach (1978a) has suggested when dieting and bingeing cease as a result of dealing with unconscious psychological issues around the fear of

thinness and the wish to be fat, weight stabilizes at a normal level. It is important to collect outcome and treatment data to discover if her theory is accurate. Outcome data of all types are important to help women (and men) in distress.

The research suggestions are not exhaustive. Considerable research needs to be done to sort out the complex area of eating concerns. Until that time, one cannot reject the relevance of personality variables.

APPENDICES

APPENDIX A

DEMOGRAPHIC DATA SHEET

DEMOGRAPHIC DATA SHEET

The following questions are designed to provide demographic information. Some questions have coded answers to choose from; others need to be completed by you. Please answer the questions as honestly as possible. You do not need to put your name on this questionnaire.

Answers

1. What is your age in years?
2. What is your race? (1) White (2) Black (3) Hispanic (4) Asian American (5) Native American (6) Other
3. What is your religion? (1) Protestant (2) Catholic (3) Jewish (4) Other (5) None
4. What is your college major?
5. What is your college classification level? (1) Freshman (2) Sophomore (3) Junior (4) Senior (5) Professional (Vet., Med.) (6) Graduate--Master's level (7) Graduate--Doctoral level
6. What is your overall grade point average?
7. What is the highest academic degree you anticipate earning? (1) None (2) Associate (3) Bachelor's (4) M.D., D.O., D.D.S., or D.V.M. (5) Law (6) Master's (7) Doctoral, (8) Other
8. Have you ever been married? (1) Yes (2) No
9. Are you currently involved in a relationship with a man? (1) Yes (2) No If Yes, for how long?
10. Are you employed? (1) Yes (2) No If Yes, please describe your job in the space provided.
11. How tall are you in feet and inches?
12. How would you describe your bone structure? (1) Small (2) Medium (3) Large
13. How much do you weigh in pounds?
14. How much do you think you should weigh in pounds?
15. Are you dieting at the present time? (1) Yes (2) No

Answers

16. If you answered Yes to item 15, do you consider yourself to be successfully dieting? (1) Yes (2) No
If you answered No to item 15, place an X in this answer column.

17. Are there any medical reasons for which you must watch your diet? (1) Yes (2) No If Yes, please explain below.

18. Using the scale below, how would you rank your social class standing?

/ 1 2 3 /	/ 4 5 6 /	/ 7 8 9 /
Lower	Middle	Upper

19. Would you consider the town you are from as (1) Rural (2) Urban (3) Suburban

20. Are your parents living together? (1) Yes (2) No

21. Is your mother employed? (1) Yes (2) No

22. If your mother is employed, how would you classify her employment? (1) Unskilled worker (2) Semi-skilled (3) Skilled (4) Clerical or sales, technician, small-business owner (5) Administrator, medium-sized business owner (6) Lower-level professional or manager (7) Upper-level professional or executive. If mother not employed, mark X in this answer column.

23. What is your mother's level of education? (1) Didn't graduate from high school (2) Graduated from high school (3) College or education beyond high school (4) Bachelor's degree (5) Some graduate school (6) Master's degree (7) Doctoral or professional degree

24. Is your father employed? (1) Yes (2) No

25. If your father is employed, how would you classify his employment? (1) Unskilled worker (2) Semi-skilled (3) Skilled (4) Clerical or sales, technician, small-business owner (5) Administrator, medium-sized business owner (6) Lower-level professional or manager (7) Upper level professional or executive. If father not employed, mark X in this answer column.

Answers

26. What is your father's level of education? (1) Didn't graduate from high school (2) Graduated from high school (3) College or education beyond high school (4) Bachelor's degree (5) Some graduate school (6) Master's degree (7) Doctoral or professional degree
27. What is your approximation of the combined income of your parents (if they are living together) prior to taxes? (1) Under \$4000 (2) \$4000-6000 (3) \$6000-10,000 (4) \$10,000-15,000 (5) \$15,000-20,000 (6) \$20,000-25,000 (7) \$25,000-30,000 (8) \$30,000-40,000 (9) Over \$40,000. If your parents are not together, please answer this question for the parent you have lived with the most amount of time and indicate which parent--Father or Mother or Guardian.

APPENDIX B

COLLEGE MAJORS OF PARTICIPANTS

COLLEGE MAJORS OF PARTICIPANTS

Agriculture and Natural Resources

1--Food Science
 1--Packaging
 1--Therapeutic Recreation

Arts and Letters

1--English
 1--Spanish

Business

7--Accounting
 7--Business
 1--Business Administration
 2--Finance
 1--Finance Administration
 1--General Business
 4--General Business Law
 3--Hotel, Restaurant,
 Institutional Management
 2--Marketing
 1--Travel and Tourism

Communication Arts and Sciences

3--Advertising
 2--Audiology and Speech
 3--Communications
 1--Journalism
 1--Speech Pathology
 3--Telecommunication

Education

1--Dance
 3--Elementary Education
 3--Physical Education

Engineering

1--Chemical Engineering
 2--Computer Science
 5--Engineering
 1--Metallurgy, Mechanics, and
 Materials Science

Human Ecology

2--Child Development
 5--Dietetics
 2--Merchandising Management
 2--Nutrition
 1--Retailing

James Madison

1--International Relations
 3--James Madison General

Natural Science

2--Biological Science
 2--Biology
 1--Geology
 2--Lyman Briggs
 3--Medical Technology
 1--Microbiology
 4--Physiology
 1--Pre dental
 4--Premedical
 2--Zoology

Nursing

4--Nursing
 1--Prenursing

Social Science

1--Criminal Justice
2--Employee Relations
1--Political Science
5--Psychology
1--Social Science

Veterinary Medicine

6--Preveterinary

Double Majors

1--Business and Psychology
1--Business Law and Telecommunication
1--Dance and Preveterinary
1--International Relations and Journalism
1--Medical Technology and Criminal Justice

Unspecified College

2--Prelaw

Undergraduate University Division

9--No Preference

No Major Listed

2--Blank

APPENDIX C

TYPES OF EMPLOYMENT OF PARTICIPANTS

TYPES OF EMPLOYMENT OF PARTICIPANTS

Cafeteria supervisor--2
 Cafeteria worker--14
 Cashier--1
 Cashier in copy center--1
 Chemistry library assistant--1
 Computer programmer--1
 Desk receptionist--2
 Drugstore--1
 Fisheries and Wildlife Department--1
 Grad resident advisor--1
 Hors d'oeuvres special receptionist--1
 Legislative aide for state representative (volunteer)--1
 Library desk attendant--3
 Lyman Briggs library--1
 Measuring graphs--1
 Night receptionist--2
 Office for international students--1
 Resident assistant--12
 Sales clerk--1
 Secretary--2
 Teaching assistant--1
 Employed but no description--14

Subjects With More Than One Type of Employment

Dorm snackshop/Little Caesar's--1
 Referee/Cafeteria--1
 Resident assistant/Lab assistant--1
 Resident assistant/Waterbed salesperson--1

APPENDIX D

LISTED MEDICAL REASONS FOR WATCHING DIET

LISTED MEDICAL REASONS FOR WATCHING DIET

Eleven individuals said they must watch their diet for medical reasons.
Reasons given are listed below.

Colitis, ulcers

Gastritis

Blood pressure

Birth control

Asthma and irregular periods

Ulcer

Anemia

Epileptic--can't have lots of water weight

No explanation--3 subjects

APPENDIX E

REVISED RESTRAINT SCALE

REVISED RESTRAINT SCALE

Instructions: The following questions are designed to gather information about your food- and weight-related thoughts, feelings, and behaviors. Please respond as honestly as possible, marking the appropriate circle on the answer sheet.

(Scores are to the left of the letters.)

1. How often are you dieting?

0	A. Never	9% ^a
1	B. Rarely	18
2	C. Sometimes	30
3	D. Often	34
4	E. Always	9

2. What is the maximum amount of weight that you have ever lost within 1 month?

0	A. 0 - 4 pounds	15%
1	B. 5 - 9 pounds	36
2	C. 10-14 pounds	38
3	D. 15-19 pounds	6
4	E. 20+ pounds	5

3. What is your maximum weight gain within a week?

0	A. 0 -1 pound	17%
1	B. 1.1-2 pounds	29
2	C. 2.1-3 pounds	29
3	D. 3.1-5 pounds	19
4	E. 5.1+ pounds	6

4. In a typical week, how much does your weight fluctuate?

0	A. 0 -1 pound	21%
1	B. 1.1-2 pounds	42
2	C. 2.1-3 pounds	29
3	D. 3.1-5 pounds	6
4	E. 5.1+ pounds	1

5. Would a weight fluctuation of 5 pounds affect the way you live your life?

0	A. Not at all	17%
1	B. Slightly	48
2	C. Moderately	21
3	D. Very much	14

- | | |
|--|-----|
| 6. Do you eat sensibly in front of others and splurge alone? | |
| 0 A. Never | 29% |
| 1 B. Rarely | 45 |
| 2 C. Often | 24 |
| 3 D. Always | 2 |
| 7. Do you give too much time and thought to food? | |
| 0 A. Never | 8% |
| 1 B. Rarely | 40 |
| 2 C. Often | 41 |
| 3 D. Always | 11 |
| 8. Do you have feelings of guilt after overeating? | |
| 0 A. Never | 9% |
| 1 B. Rarely | 27 |
| 2 C. Often | 34 |
| 3 D. Always | 30 |
| 9. How conscious are you of what you're eating? | |
| 0 A. Not at all | 2% |
| 1 B. Slightly | 16 |
| 2 C. Moderately | 50 |
| 3 D. Extremely | 32 |
| 10. How many pounds over your desired weight were you (or, if applicable, are you at your maximum weight)? | |
| 0 A. 0- 1 pound | 6% |
| 1 B. 1- 5 pounds | 20 |
| 2 C. 6- 10 pounds | 33 |
| 3 D. 11-20 pounds | 30 |
| 4 E. 21+ pounds | 11 |

^aNumbers indicate percentage of sample who selected each response. Calculations based on N = 140.

APPENDIX F

BINGE SCALE

BINGE SCALE

Instructions: This section is designed to gather information about binge eating. Binge eating involves periods of uncontrolled, excessive eating. If you respond No to the first item (#1) "Do you ever binge eat?" please answer only Items 10, 13, and 14. If you respond Yes to Item 1, please answer all questions. For each item, fill in only one circle on the answer sheet unless otherwise specified. If an answer other than a letter is required for Items 3, 7, and 19, please write your answers on the back of your answer sheet.

This questionnaire is confidential. You do not need to put your name on it, but please make sure the number on the answer sheet is the same as the number on the other materials.

(*Items scored. Scores are to the left of the letters.)

- | | |
|--|------------------|
| 1. Do you ever binge eat? | |
| A. Yes | 80% ^a |
| B. No | 20 |
| *2. How often do you binge eat? | |
| 0 A. Seldom | 37% |
| 1 B. Once or twice a month | 37 |
| 2 C. Once a week | 22 |
| 3 D. Almost every day | 4 |
| *3. What is the average length of a binge-eating episode? | |
| 0 A. Less than 15 minutes | 31% |
| 1 B. 15 minutes to 1 hour | 58 |
| 2 C. 1 hour to 4 hours | 8 |
| 3 D. More than 4 hours: | 3 |
| Estimate how long: <u>(write on back of answer sheet)</u> | |
| *4. Which of the following statements best applies to your binge eating? | |
| 0 A. I eat until I have had enough to satisfy me. | 43% |
| 1 B. I eat until my stomach feels full. | 31 |
| 2 C. I eat until my stomach is painfully full. | 14 |
| 3 D. I eat until I can't eat anymore. | 12 |
| *5. Do you ever vomit after a binge? | |
| 0 A. Never | 83% |
| 1 B. Sometimes | 12 |
| 2 C. Usually | 2 |
| 3 D. Always | 3 |

- *6. Which of the following best applies to your eating behavior when binging?
- | | | |
|--|------------|-----|
| 0 A. I eat more slowly than usual. | together > | 37% |
| 0 B. I eat about the same as I usually do. | | |
| 1 C. I eat very rapidly. | | 63 |
7. When you binge, which statement best describes your choice of food?
- | | |
|---|-----|
| A. I crave a particular food or type of food.(If so, what food or type of food do you usually choose?) <u>(write on back of answer sheet)</u> | 35% |
| B. I don't crave any particular food or type of food, but I eat high-calorie foods that I wouldn't otherwise eat. | 33 |
| C. I eat any type of food that's handy. | 32 |
- *8. How much are you concerned about your binge eating?
- | | |
|---------------------------|-----|
| 0 A. Not bothered at all | 19% |
| 1 B. Bothers me a little | 31 |
| 2 C. Moderately concerned | 29 |
| 3 D. A major concern | 21 |
- *9. Which best describes your feelings during a binge?
- | | |
|---|-----|
| 0 A. I feel that I could control the eating if I chose. | 54% |
| 1 B. I feel that I have at least some control. | 34 |
| 2 C. I feel completely out of control. | 12 |
10. How often are you bothered by unwanted thoughts of food or eating?
- | | |
|----------------------|-----|
| A. Never | 11% |
| B. Occasionally | 56 |
| C. Frequently | 27 |
| D. Almost constantly | 6 |
- *11. Which of the following best describes your feelings after a binge?
- | | |
|--|-----|
| 0 A. I feel fairly neutral, not too concerned. | 24% |
| 1 B. I am moderately upset. | 48 |
| 2 C. I just hate myself. | 28 |
12. Which best describes your binge-eating behavior?
- | | |
|---|-----|
| A. I will binge eat if other people are around. | 58% |
| B. I will binge eat only if I am alone | 29 |
| C. I make sure no one knows I have been binge eating. | 13 |
13. When you look at yourself without clothes in the mirror, what is your reaction?
- | | |
|---|-----|
| A. I feel that I look pretty good. | 11% |
| B. I am slightly dissatisfied with the way I look. | 52 |
| C. I am very dissatisfied with the way I look. | 29 |
| D. I am really disgusted with the way I look. | 7 |
| E. I never look at myself in the mirror because I'm too self-conscious. | 1 |

14. How often are you on a diet?
- | | |
|--------------|-----|
| A. Rarely | 25% |
| B. Sometimes | 39 |
| C. Usually | 24 |
| D. Always | 12 |
15. How often is binge eating associated with each of the following?^b
(Check all that apply.)
- | | |
|---|--|
| A. Pressure from school or work | |
| B. Going off a strict diet | |
| C. Problems in personal relationships | |
| D. Can't say--doesn't really seem to be connected to anything | |
- *16. Which most accurately describes your feelings after a binge?
- | | |
|---------------------------|-----|
| 0 A. Not depressed at all | 24% |
| 1 B. Mildly depressed | 38 |
| 2 C. Moderately depressed | 27 |
| 3 D. Very depressed | 12 |
17. At what age did you begin binge eating?
- | | |
|--------------------------|----|
| A. Younger than 10 years | 5% |
| B. 15 to 20 years | 94 |
| C. 20 or older | 1 |
18. To which of the following places would you go to binge eat?
- | | |
|-------------------------|-----|
| A. Home | 60% |
| B. In the car | 0 |
| C. A restaurant | 1 |
| D. All of these | 11 |
| E. No particular places | 27 |
19. Which best describes your frame of mind while binge eating?
- | | |
|---|-----|
| A. Really enjoy the experience | 35% |
| B. Don't really enjoy the food--don't know why I do it | 27 |
| C. No particular thoughts or attitude | 32 |
| D. Other (please describe) <u>(write on back of answer sheet)</u> | 5 |

^aNumbers indicate percentage of sample who selected each response. Calculations based on $N = 140$ for Questions 1, 10, 13, and 14. Remaining calculations based on $N = 112$ (those who said they binge eat).

^bPercentages not available due to multiple responses.

APPENDIX G

LETTER TO RESIDENTS REQUESTING PARTICIPATION

Dear Resident:

I have obtained permission to conduct a research study with women students at Michigan State University. I am a doctoral student in Counseling Psychology, and this research will be my dissertation.

The purpose of my research is to examine factors relating to eating attitudes, behaviors, and concerns. These factors involve feelings about self, feelings about others, and personal beliefs.

I am asking for your participation in this study, which would involve filling out questionnaires. I anticipate this will take approximately one hour. Your individual responses will be strictly confidential and anonymous. The only requirement for your participation is that you be 18 years of age by the date of the meeting when questionnaires will be filled out.

While there are no promised direct benefits for completing the questionnaires, I believe many women will find them interesting and thought-provoking. (There is no deception involved in the study.) I will send you a summary of results of the study if you wish (you can let me know this at the time you complete the questionnaires). There will also be designated times, both before and after all participants have completed questionnaires, to answer general questions about the research. This will occur prior to getting an overall summary of the results.

A meeting will be held on (day and date) at (time) in (place) to fill out the questionnaires. I will be present to answer questions.

Please come; your participation and contribution will be appreciated a great deal. Thank you.

Sincerely,

Chris Rideout

APPENDIX H

PARTICIPANT INFORMATION AND CONSENT

PARTICIPANT INFORMATION AND CONSENT

1. I understand this study conducted by Chris Rideout under the supervision of Dr. William C. Hinds is for the purpose of examining factors related to eating attitudes, behaviors, and concerns.
2. I freely consent to participate.
3. The study has been explained to me, I understand the explanation, and what my participation will involve.
4. I understand I am free to discontinue my participation at any time without penalty.
5. I understand the results of the study will be treated with strict confidentiality and that I will remain anonymous. Within these restrictions the results of the study will be made available to me at my request.
6. I understand my participation in the study guarantees no beneficial results to me.
7. I understand that, at my request, I can receive an additional explanation of the study.

APPENDIX I

SUMMARY SENT TO PARTICIPANTS

July 25, 1983

Dear Research Participant:

I want to thank you once again for your participation and contribution to my dissertation research. Although somewhat delayed, I would like to share with you a summary of the results of the study.

As you may recall, I was interested in examining factors related to eating attitudes, behaviors, and concerns. To be more specific, I wanted to explore relationships between binge eating, restrained eating, and other psychological variables in college women. (The term "restrained eating" refers to an individual's concern or preoccupation with dieting, but doesn't address whether or not one has been successful in suppressing weight.)

Several authors have suggested there is a relationship between binge or compulsive eating and low self-esteem, perfectionism, acceptance of traditional stereotypes of femininity, and lack of a sense of one's own internal control. Other issues mentioned have been problems in relating to others (especially dealing with anger), socio-cultural pressure on women to look a certain way (i.e., thin), and basing one's self-worth on appearance and approval of others.

Because of the statistical techniques used and possible limitations of the measures, there were no clear-cut statistical differences between high and low binge eaters and high and low restrained eaters on psychological variables. However, for practical consideration, there were some findings of interest. It appeared women who were low restrained eaters (not overly concerned with dieting) had higher scores on a scale of the Personal Orientation Inventory called Capacity for intimate contact. This scale measures one's ability to develop meaningful relationships with others, without worrying too much about expectations and obligations. It appears to tap into how acceptance of one's anger shows itself in interpersonal relationships.

Women who were low binge eaters scored higher on the Time Competent Scale of the Personal Orientation Inventory. This indicates a greater ability to live in the here and now. It measures the degree to which the past and future are meaningfully related to the present without rigidity, over-idealization, guilt, and regrets. It is interesting that perfectionistic thinkers have been noted to be overly concerned with the future.

There was another finding of interest I would like to share with you. Eighty percent of the women who participated in the study said they binge eat. Binge eating occurs across weight groups and does not appear to be an unusual phenomenon.

If you are interested in a more detailed explanation, my dissertation will be available after summer term 1983. It can be consulted in the Michigan State University Library or in Erickson Hall Instructional Resources Center. The title is: "Examination of Restrained and Binge Eating in Relationship to Personality Variables in College Women."

Once again, thank you for your help and best wishes.

Sincerely,

Chris Rideout

APPENDIX J

LETTER ANNOUNCING WORKSHOP

May 9, 1983

Dear Resident Assistant,

I want to thank you once again for your help in recruiting residents from your floor to participate in my doctoral research study winter term. As you recall, participation involved filling out questionnaires related to personal beliefs, feelings about self and others, and eating attitudes, behaviors, and concerns.

In appreciation for the contribution of women residents, I am inviting each floor who participated in my study to an informational workshop on eating disorders. This will NOT be a summary of the results of my research, but simply an introductory, informational workshop. If there are residents on your floor who did not participate in my study, but wish to come, they are welcome. The workshop will be offered WEDNESDAY, MAY 25, 1983, at 7:30 P.M. in the Special Dining Room of SHAW HALL (the Captain's Room). I expect it will last approximately one hour.

Would you please let the residents on your floor know about the workshop. (This is not a direct follow-up on my questionnaires, and there is no obligation to come.)

Once again, thank you very much. If you have any questions, I can be reached at work (353-8830) or home (337-1257).

Sincerely,

Chris Rideout

cc: Resident Director
Area Director

APPENDIX K

COMMENTS ON SPECIFIC QUESTIONS ON THE BINGE SCALE

COMMENTS ON SPECIFIC QUESTIONS ON THE BINGE SCALE

Question 1: Do you ever binge eat?

On binge eating I answered the questions because I will sometimes continuously eat. I don't regard it as uncontrollable.

Question 3: What is the average length of a binge eating episode?

When I binge it's usually the whole day, but then no more.

During the first meal of the day if I have something that is a no-no for diets I usually give up trying to control my calories for that day and binge at all meals.

Question 7: When you binge, which statement best describes your choice of food?

A. I crave a particular food or type of food (if so, what?) _____

I crave sweets, specifically chocolate.

Pizza, salty snacks, cheese/crackers.

I binge on something I really like--usually it's when I'm depressed and I feel good eating something I enjoy.

Sometimes I crave chocolate, ice cream, chocolate chip cookies. Other binges have been everything in sight.

Chocolate.

Cheese, crackers, cookies, quiche (crunchy things).

Candies--chocolate, cookies, cake, pie, ice cream (sweets).

I usually crave something chocolate.

I am not usually concerned about my weight. When I eat, I eat what I want and however much I want. I always have a good time "binge" eating and I laugh afterwards. It doesn't bother me at all. I figure I should eat whatever I want because who knows if or when I will get another chance.

Sweets.

Barbecue chips.

Usually ice cream. Often sweets--especially chocolate.

Chocolate.

Pizza, candy bars, popcorn.

Pizza, fast food, Mexican chips and dip.

Chocolate.

Binge on candy.

Usually something salty, since I'm on a salt-free diet, or grapefruits to quench my thirst when I carry too much water weight.

I crave barbecue potato chips, candy bars with peanut butter and chocolate, things with a lot of salt in them/on them.

Chips/dip, nachos, pizza.

I usually crave chips, dips, nachos, and pizza.

Depends, sometimes salty, meats, sweets, etc.

Fast food, greasy or sweet. If I can't get what I crave-- I'll eat closest thing to it that's available.

Anything fattening and vegetarian.

Peanut butter and marshmallow sandwiches or pizza.

Popcorn or chips and dip.

I always crave sweets.

Question 13: When you look at yourself without clothes in the mirror, what is your reaction?

Now, my answer is B. After 4-7 days of dieting, A.

Question 15: How often is binge eating associated with each of the following?

Menstrual stress.

Question 16: Which most accurately describes your feelings after a binge?

I feel a lot better afterwards!

Question 19: Which best describes your frame of mind while eating?

I just want to keep eating something that tastes good. I'm not usually hungry--I just know it will taste good.

I'm angry with myself for not being able to resist, but afterwards I feel happy, content, satisfied.

The food tastes good, but I don't quit when I'm full. I already feel guilty, so I just go on!

I'm enjoying the food a great deal, however the way I go about it makes the experience bad.

Most of the time it's because I want that food and enjoy it.

Food tastes great--but I feel really guilty and sort of sick and disgusted with myself.

APPENDIX L

OVERALL COMMENTS ON THE STUDY

OVERALL COMMENTS ON THE STUDY

Some of the questions on the POI seemed redundant. I also had difficulty answering some because I didn't feel that either applied. POI seemed outdated.

You put a lot of emphasis on dieting but none at all on the aspect of gaining weight. There are people who have a very difficult time gaining weight also.

It was difficult making some of the decisions given, so I went with my first instinct. I felt that parts of this survey were bias[ed] and I had a hard time with "judgement" questions.

Need a "neutral" answer on the first section [refers to AWS].

APPENDIX M

EXPANDED PEARSON PRODUCT-MOMENT CORRELATIONS

Table M.1: Expanded Pearson Product-Moment Correlations

	Binge	Restraint	POITI	POITC	POIO	POII	POISAV	POIEX	POIFR	POIS	POISR	POISA	POINC	POISY	POIA	POIC	AWS
Binge																	
Restraint	.63**																
POITI	.27 ^{a**}	.19 ^a															
POITC	-.26**	-.21*	-.98 ^{a**}														
POIO	.24 ^{a**}	.16 ^a	.53 ^{a**}	-.50 ^{a**}													
POII	-.26**	-.21*	-.53 ^{a**}	.53**	-.98 ^{a**}												
POISAV	-.19*	-.11	-.36 ^{a**}	.39**	-.58 ^{a**}	.61**											
POIEX	-.16	-.23**	-.45 ^{a**}	.46**	-.74 ^{a**}	.75**	.45**										
POIFR	-.24**	-.13	-.34 ^{a**}	.32**	-.72 ^{a**}	.73**	.33**	.45**									
POIS	-.09	-.07	-.48 ^{a**}	.46**	-.74 ^{a**}	.75**	.56**	.54**	.57**								
POISR	-.20*	-.04	-.53 ^{a**}	.52**	-.64 ^{a**}	.63**	.58**	.37**	.27**	.49**							
POISA	-.17*	-.17*	-.47 ^{a**}	.45**	-.78 ^{a**}	.79**	.28**	.57**	.56**	.56**	.36**						
POINC	-.12 ^a	-.12 ^a	-.14 ^a	.16 ^a	-.38 ^{a**}	.42 ^{a**}	.44 ^{a**}	.26 ^{a**}	.13 ^a	.33 ^{a**}	.33 ^{a**}	.18 ^{a**}					
POISY	-.08 ^a	-.15 ^a	-.19 ^a	.25 ^{a**}	-.28 ^{a**}	.32 ^{a**}	.64 ^{a**}	.38 ^{a**}	.04 ^a	.26 ^{a**}	.24 ^{a**}	.13 ^a	.45 ^{a**}				
POIA	-.19*	-.13	-.32 ^{a**}	.32**	-.68 ^{a**}	.71**	.39**	.54**	.70**	.46**	.32**	.56**	.05 ^a	.18 ^{a*}			
POIC	-.20*	-.20*	-.42 ^{a**}	.41**	-.81 ^{a**}	.80**	.38**	.69**	.59**	.53**	.49**	.59**	.12 ^a	.21 ^{a*}	.64**		
AWS	-.03	-.001	.001 ^a	.01	-.30 ^{a**}	.28**	.25**	.27**	.22**	.13	.17*	.17*	.18 ^{a*}	.14 ^a	.23**	.29**	
LOC	.17*	-.001	.19*	-.18*	.26**	-.27**	-.26**	-.16	-.11	-.26**	-.44**	-.12	-.22	-.26**	-.14	-.25**	-.09

Key: POITI = POI Time Incompetent (not used in analysis)

POITC = POI Time Competent

POIO = POI Other Directed (not used in analysis)

POII = POI Inner Directed

POISAV = POI Self-actualizing value

POIEX = POI Existentiality

POIFR = POI Feeling reactivity

POIS = POI Spontaneity

POISR = POI Self-regard

POISA = POI Self-acceptance

POINC = POI Nature of man (not used in analysis)

POISY = POI Synergy (not used in analysis)

POIA = POI Acceptance of aggression

POIC = POI Capacity for intimate contact

AWS = Attitudes toward Women

LOC = Locus of Control

^a $n = 140$ (otherwise, $n = 138$)* $p < .05$.** $p < .01$.

APPENDIX N

MEANS, MEDIANS, MODES, STANDARD DEVIATIONS,
AND RANGES OF VARIABLES EXAMINED

Table N.1: Means, Medians, Modes, Standard Deviations, and Ranges of Variables Examined

	Mean	Median	Mode	Standard Deviation	Ranges Observed	Possible Range
Restraint Scale ^a	16.61	17.04	15	5.67	1-28	0-35
Binge Scale ^a	6.39	6.17	0	5.07	0-19	0-23
Attitudes toward Women Scale ^a	61.21	63.33	66	9.32	22-75	0-75
Locus of Control ^b	11.40	11.5	9	4.10	1-22	0-23
POI Time Competent ^a	15.58	15.83	18	3.11	6-22	0-23
POI Inner Directed ^a	85.36	86.5	88	10.10	52-106	0-127
POI Self-actualizing value ^a	20.71	20.85	20	2.21	14-25	0-26
POI Existentiality ^a	20.19	20.38	20	3.67	9-29	0-32
POI Feeling reactivity ^a	16.36	16.98	18	3.18	5-22	0-23
POI Spontaneity ^a	12.79	12.94	12	2.43	6-18	0-18
POI Self-regard ^a	12.44	12.66	14	2.16	3-16	0-16
POI Self-acceptance ^a	14.69	15.11	16	3.30	6-22	0-26
POI Acceptance of aggression ^a	16.70	17.21	18	3.02	7-23	0-25
POI Capacity for intimate contact ^a	17.93	18	17	3.31	6-26	0-28

^a $\bar{N}$ = 140.^b $\bar{N}$ = 138.

APPENDIX 0

CLASS LEVEL DATA

Table 0.1: Class Level Data for Residence Hall Female Population
Winter Term 1983

	Freshman	Sophomore	Junior	Senior	Other	Total
Total Females in Residence Halls	3231	2367	1199	577	300	7674
Total Females in Participating Buildings	1329	951	384	134	18	2816

APPENDIX P

CHI-SQUARE ANALYSES FOR CLASS LEVEL

Table P.1: Chi-Square Analysis on Class Level Comparing Sample to Women in Total Residence Hall System

Proportions	Freshmen	Sophomores	Juniors	Seniors	Other
Observed (Sample)	.49	.30	.14	.06	.007
Expected	.42	.31	.16	.08	.04
χ^2	.01	.0003	.0025	.005	.03

Note: None of the χ^2 is significant at $p < .05$ ($df = 4$).

Table P.2: Chi-Square Analysis on Class Level Comparing Sample to Women Who Lived in Participating Residence Hall Buildings

Proportions	Freshmen	Sophomores	Juniors	Seniors	Other
Observed (Sample)	.49	.30	.14	.06	.007
Expected	.47	.34	.14	.05	.006
χ^2	.0009	.005	0	.002	.00017

Note: None of the χ^2 is significant at $p < .05$ ($df = 4$).

REFERENCES

REFERENCES

- Adams-Webber, J. Perceived locus of control of moral sanctions. Unpublished master's thesis, Ohio State University, 1963.
- Allerdissen, R., Florin, I., & Rost, W. Psychological characteristics of women with bulimia nervosa (bulimarexia). Behavioural Analysis Modification, 1981, 4 (4), 314-317.
- Anastasi, A. Psychological testing. 4th ed. New York: The Macmillan Company, 1976.
- Artwohl, A. Correlation between Rotter's I-E scale and Barron's ego strength scale. Psychological Reports, 1979, 45, 498.
- Balch, P., & Ross, A. W. Predicting success in weight reduction as a function of locus of control: A unidimensional and multidimensional approach. Journal of Consulting and Clinical Psychology, 1975, 43 (1), 119.
- Barrow, J. C., & Moore, C. A. Group interventions with perfectionistic thinking. The Personnel and Guidance Journal, 1983, 61 (10), 612-615.
- Beach, D., & Kimmel, E. Attitudes toward women: A comparison study of counselor trainees. Humanist Educator, 1976, 14, 209-220.
- Beere, C. A. Women and women's issues: A handbook of tests and measures. San Francisco: Jossey-Bass Publishers, 1979.
- Boskind-Lodahl, M. Cinderella's stepsisters: A feminist perspective on anorexia and bulimia. Signs: Journal of Women in Culture and Society, 1976, 2, 342-355.
- Boskind-Lodahl, M., & Sirlin, J. The gorging-purging syndrome. Psychology Today, 1977, 10, 50-55.
- Boskind-Lodahl, M., & White, W. C. The definition and treatment of bulimarexia in college women--A pilot study. Journal of the American College Health Association, 1978, 27, 84-86.
- Brightwell, D. R., & Sloan, C. L. Long-term results of behavior therapy for obesity. Behavior Therapy, 1977, 8, 898-905.

- Bruch, H. Eating disorders: Obesity, anorexia nervosa, and the person within. New York: Basic Books, 1973.
- Bruch, H. The golden cage. Cambridge: Harvard University Press, 1978. (a)
- Bruch, H. Obesity and anorexia nervosa. Psychosomatics, 1978, 19 (4), 208-212. (b)
- Burnes, K., Brown, W. A., & Keating, G. W. Dimensions of control: Correlations between MMPI and I-E scores. Journal of Consulting and Clinical Psychology, 1971, 36 (2), 301.
- Burns, D. D. The perfectionist's script for self-defeat. Psychology Today, 1980, 14 (6), 34-52.
- Canty, E. M. Effects of women's studies courses on women's attitudes and goals. Paper presented at 85th annual meeting of the American Psychological Association, San Francisco, August 1977. Cited in C. A. Beere, Women and women's issues: A handbook of tests and measures. Jossey-Bass Publishers, 1979.
- Cardi, M. An examination of internal versus external control in relation to academic failures. Unpublished master's thesis, Ohio State University, 1962.
- Casper, R. C., Eckert, E. D., Halmi, K. A., Goldberg, S. C., & Davis, J. M. Bulimia: Its incidence and clinical significance in patients with anorexia nervosa. Archives of General Psychiatry, 1980, 37, 1030-1035.
- Chernin, K. The obsession: Reflections on the tyranny of slenderness. New York: Harper & Row, 1981.
- Cohen, N. L., & Alpert, M. Locus of control as a predictor of outcome in treatment of obesity. Psychological Reports, 1978, 42, 805-806.
- Diagnostic and statistical manual of mental disorders. Washington, D. C.: American Psychiatric Association, 1980, p. 69-71.
- Doell, S. R., & Hawkins II, R. C. Pleasures and pounds: An exploratory study. Addictive Behaviors, 1982, 7, 65-69.
- Doyle, J. A. Comparison of Kirkpatrick's and Spence and Helmreich's Attitudes toward Women Scales. Psychological Reports, 1975, 37, 878.
- Duddle, M. An increase of anorexia nervosa in a university population. British Journal of Psychiatry, 1973, 123, 711-712.

- Dunn, P. K., & Ondercin, P. Personality variables related to compulsive eating in college women. Journal of Clinical Psychology, 1981, 37, 43-49.
- Erickson, V. L. Beyond Cinderella: Ego maturity and attitudes toward the rights and roles of women. The Counseling Psychologist, 1977, 7, 83-88.
- Etaugh, E. Stability of college students' attitudes toward women during one school year. Psychological Reports, 1975, 36, 125-126.
- Fairburn, C. A cognitive behavioral approach to the treatment of bulimia. Psychological Medicine, 1981, 11, 707-711.
- Flack, R., & Grayer, E. D. A consciousness-raising group for obese women. Social Work, 1975, 20 (6), 484-487.
- Frank, J. D. Psychotherapy and the sense of mastery. In R. L. Spitzer & D. F. Kleis (Eds.), Evaluation of psychological therapies. Baltimore: Johns Hopkins University Press, 1976.
- Franklin, R. D. Youth's expectancies about internal versus external control of reinforcement related to N variables. Unpublished doctoral dissertation, Purdue University, 1963.
- Garner, D., Garfinkel, P., Schwartz, D., & Thompson, M. Cultural expectations of thinness in women. Psychological Reports, 1980, 47, 483-491.
- Ghaffaradli-Doty, P., & Carlson, E. R. Consistency in attitude and behavior of women with a liberated attitude toward the rights and roles of women. Sex Roles, 1979, 5, 395-404.
- Glass, G. V., & Stanley, J. C. Statistical methods in education and psychology. Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1970.
- Glucksman, M. L., Rand, C. S. W., & Stunkard, A. J. Psychodynamics of obesity. Journal of the American Academy of Psychoanalysis, 1978, 6 (1), 103-115.
- Gormally, J., Black, S., Daston, S., & Rardin, D. The assessment of binge eating severity among obese persons. Addictive Behaviors, 1982, 7, 47-55.
- Gormally, J., Rardin, D., & Black, S. Correlates of successful response to a behavioral weight control clinic. Journal of Counseling Psychology, 1980, 27, 179-191.

- Gormanous, G. K., & Lowe, W. C. Locus of control and obesity. Psychological Reports, 1975, 37, 30.
- Goss, A., & Morosko, T. E. Relation between a dimension of internal-external control and the MMPI with an alcoholic population. Journal of Consulting and Clinical Psychology, 1970, 34, 189-192.
- Graff, R. W., Bradshaw, H. E., Danish, S. J., Austin, B. A., & Altekruze, M. The POI: A validity check. Educational and Psychological Measurement, 1970, 30, 429-432.
- Graham, J. R. The MMPI: A practical guide. New York: Oxford University Press, 1977.
- Grant, E. The effect of a two-week women's study on student attitudes toward women. Journal of Social Studies Research, 1977, 1, 36-42.
- Hall, S. M., & Havassy, B. The obese woman: Causes, correlates, and treatment. Professional Psychology, 1981, 12 (1), 163-170.
- Hawkins II, R. C., & Clement, P. F. Development and construct validation of a self-report measure of binge eating tendencies. Addictive Behaviors, 1980, 5, 219-226.
- Hawkins II, R. C., Turrell, S., & Jackson, L. Desirable and undesirable masculine and feminine traits in relation to students' dieting tendencies and body image dissatisfaction. Sex Roles, in press. Cited in Doell, S. R., & Hawkins II, R. C. Pleasures and pounds: An exploratory study. Addictive Behaviors, 1982, 7, 65-69.
- Herman, C. P. Restrained eating. Psychiatric Clinics of North America, 1978, 1 (3), 593-607.
- Herman, C. P., & Mack, D. Restrained and unrestrained eating. Journal of Personality, 1975, 43, 647-660.
- Herman, C. P., & Polivy, J. Anxiety, restraint, and eating behavior. Journal of Abnormal Psychology, 1975, 84 (6), 666-672.
- Herman, C. P., Polivy, J., Pliner, P., Threlkeld, J., & Munic, D. Distractibility in dieters and nondieters: An alternative view of "externality." Journal of Personality and Social Psychology, 1978, 36, 536-548.
- Hibscher, J. A. The effect of free fatty acid and preload level on the subsequent eating behavior of normal weight and obese subjects. Unpublished doctoral dissertation, Northwestern University, 1974.

- Hibscher, J. A., & Herman, C. P. Obesity, dieting, and the expression of obese characteristics. Journal of Comparative and Physiological Psychology, 1977, 91 (2), 374-380.
- Hightower, E. Self-actualization: Its problematic aspects. (Doctoral dissertation, The Wright Institute, 1980) Dissertation Abstracts International, 1981, 41 (9), 3558-B.
- Ilardi, R. L., & May, W. T. A reliability study of Shostrom's Personal Orientation Inventory. Journal of Humanistic Psychology, 1968, 8, 68-72.
- Isaac, S., & Michael, W. B. Handbook in research evaluation. San Diego, California: EdITS Publishers, 1971.
- Jeffrey, R. W., Wing, R. R., & Stunkard, A. J. Behavioural treatment of obesity: The state of the art 1976. Behavior Therapy, 1978, 9, 189-199.
- Jourard, S. M., & Secord, P. R. Body-cathexis and the ideal female figure. Journal of Abnormal and Social Psychology, 1955, 50, 243-246.
- Kickham, K., & Gayton, W. F. Social desirability and the restraint scale. Psychological Reports, 1977, 40, 550.
- Kirsch, P. A., Shore, M. F., & Kyle, D. G. Ideology and personality: Aspects of identity formation in adolescents with strong attitudes toward sex role equalitarianism. Journal of Youth and Adolescence, 1976, 5, 387-401.
- Klavetter, R. E., & Mogar, R. E. Stability and internal consistency of a measure of self-actualization. Psychological Reports, 1967, 21, 422-424.
- Krampen, G. Differenzierungen des Konstruktes der Kontrollüberzeugung. Deutsche Bearbeitung und Anwendung der IPC-Skalen. Zeitschrift für Experimentelle und Angewandte Psychologie, 1979, 2, 389-399. Cited in Allerdissen, R., Florin, I., & Rost, W. Psychological characteristics of women with bulimia nervosa (bulimarexia). Behavioural Analysis Modification, 1981, 4 (4), 314-317.
- Kubistant, T. Bulimarexia. Journal of College Student Personnel, 1982, 23 (4), 333-339.
- Leon, G. P., & Chamberlain, K. Emotional arousal, eating patterns and body image as differential factors associated with varying success in maintaining a weight loss. Journal of Consulting and Clinical Psychology, 1973, 40 (3), 474-480.

- Loevinger, J., & Wessler, R. Measuring ego development. San Francisco: Jossey-Bass, 1970, Vol. I, II.
- Loro, A. D., & Orleans, C. Binge eating in obesity: Preliminary findings and guidelines for behavioral analysis and treatment. Addictive Behaviors, 1981, 6, 155-166.
- Lowe, M. G. The role of anticipated deprivation in overeating. Addictive Behaviors, 1982, 7, 103-112.
- Lunneborg, P. W. Validity of attitudes toward women scale. Psychological Reports, 1974, 34, 1281-1282.
- Mahoney, M. J. Fat fiction. Behavior Therapy, 1975, 6, 416-418.
(a)
- Mahoney, M. J. The obese eating style: Bites, beliefs, and behavior modification. Addictive Behaviors, 1975, 1, 47-54. (b)
- Mahoney, K. & Mahoney, M. J. Cognitive factors in weight reduction. In J. D. Krumboltz & C. E. Thoresen (Eds.), Counseling methods. New York: Holt, Rinehart, and Winston, 1976.
- Marcia, J. E. Ego identity status: Relationship to change in self-esteem, "general maladjustment," and authoritarianism. Journal of Personality, 1967, 35, 119-133.
- Martin, J. D., Blair, G. E., & Cash, M. Correlation of the self-actualizing value subscale of the Personal Orientation Inventory with the self-acceptance, socialization, and self-control scales of the California Psychological Inventory. Educational and Psychological Measurement, 1981, 41, 589-593.
- Maslow, A. H. Motivation and personality. New York: Harper, 1954.
- McClain, E. W. Further validation of the POI: Assessment of self-actualization of school counselors. Journal of Consulting and Clinical Psychology, 1970, 35 (2), 21-22.
- Mitchell, E. M. Obesity: Psychological aspects and management. British Journal of Hospital Medicine, 1980, 24 (6), 523-530.
- Mitchell, J. E., Pyle, R. L., & Eckert, E. D. Frequency and duration of binge-eating episodes in patients with bulimia. American Journal of Psychiatry, 1981, 138 (6), 835-836.
- Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. Statistical package for the social sciences, 2nd ed. New York: McGraw-Hill Book Co., 1975.

- Nisbett, R. E. Taste, deprivation, and weight determinants of eating behavior. Journal of Personality and Social Psychology, 1968, 10, 107-116.
- Nisbett, R. E. Hunger, obesity, and the ventromedial hypothalamus. Psychological Review, 1972, 79 (6), 433-453.
- Ondercin, P. A. Compulsive eating in college women. Journal of College Student Personnel, 1979, 20, 153-157.
- Orbach, S. Fat is a feminist issue: A self-help guide for compulsive eaters. New York: Berkley Medallion Books, 1978. (a)
- Orbach, S. Social dimensions in compulsive eating in women. Psychotherapy: Theory, Research, and Practice, 1978, 15, 180-189. (b)
- Orbach, S. Fat is a feminist issue II. New York: Berkley Publishing Corp., 1982.
- Phares, E. J. Internal-external control as a determinant of amount of social influence exerted. Journal of Personality and Social Psychology, 1965, 2, 642-647.
- Phares, E. J. Locus of control in personality. Morristown, New Jersey: General Learning Press, 1976.
- Polivy, J. Perception of calories and regulation of intake in restrained and unrestrained subjects. Addictive Behaviors, 1976, 1, 237-243.
- Polivy, J., & Herman, C. P. Clinical depression and weight change: A complex relation. Journal of Abnormal Psychology, 1976, 85, 338-340.
- Polivy, J., Herman, C. P., Younger, J. C., & Erskene, B. Effects of a model on eating behavior: The induction of a restrained eating style. Unpublished manuscript, University of Toronto, 1977.
- Polivy, J., Howard, K. I., & Herman, C. P. Psychometric analysis of the restraint scale. Unpublished manuscript, University of Toronto, 1976.
- Presby, S. Taking the "must" out of dieting. Rational Living, 1979, 14 (2), 29-32.
- Pyle, R. L., Mitchell, J. E., & Eckert, E. D. Bulimia: A report of 34 cases. Journal of Clinical Psychiatry, 1981, 42 (2), 60-64.

- Rau, J. H., & Green, R. S. Compulsive eating: A neuropsychological approach to certain eating disorders. Comprehensive Psychiatry, 1975, 16, 223-231.
- Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (1) (Whole No. 609).
- Rotter, J. B. Some problems and misconceptions related to the construct of internal versus external control of reinforcement. Journal of Consulting and Clinical Psychology, 1975, 43 (1), 56-67.
- Ruderman, A. J., & Wilson, T. G. Weight, restraint, cognitions and counter-regulation. Behaviour, Research and Therapy, 1979, 17, 581-590.
- Russell, G. F. M. Bulimia nervosa: An ominous variant of anorexia nervosa. Psychological Medicine, 1979, 9, 429-448.
- Schachter, S. Emotion, obesity, and crime. New York: Academic Press, 1971.
- Seeman, M., & Evans, J. W. Alienation and learning in a hospital setting. American Sociological Review, 1962, 27, 772-783.
- Shostrom, E. L. Personal Orientation Inventory. San Diego: EdITS/Educational and Industrial Testing Service, 1962.
- Shostrom, E. L. EdITS Manual for the Personal Orientation Inventory. San Diego, California: Educational and Industrial Testing Service, 1966.
- Shostrom, E. L., & Knapp, R. R. The relationship of a measure of self-actualization to a measure of pathology (MMPI) and to therapeutic growth. American Journal of Psychotherapy, 1966, 20, 193-202.
- Shostrom, E. L., Knapp, L., & Knapp, R. R. Actualizing therapy: Foundations for a scientific ethic. San Diego: EdITS, 1976.
- Spence, J. T., & Helmreich, R. L. The Attitudes toward Women Scale: An objective instrument to measure attitudes toward the rights and roles of women in contemporary society. Journal Supplement Abstract Service Catalog of Selected Documents in Psychology, 1972, 2, 66.
- Spence, J. T., & Helmreich, R. L. Masculinity and femininity: Their psychological dimensions, correlates, and antecedents. Austin: University of Texas Press, 1978.

- Spence, J. T., Helmreich, R., & Stapp, J. A short version of the Attitudes toward Women Scale (AWS). Bulletin of Psychonomic Society, 1973, 2 (4), 219-220.
- Spence, J. T., Helmreich, R. L., & Stapp, J. Ratings of self and peers on sex role attributes and their relation to self-esteem and conceptions of masculinity and femininity. Journal of Personality and Social Psychology, 1975, 32, 29-39.
- Spencer, J. A., & Fremouw, W. J. Binge eating as a function of restraint and weight classification. Journal of Abnormal Psychology, 1979, 88 (3), 262-267.
- Stangler, R. S., & Printz, A. M. DSM III: Psychiatric diagnosis in a university population. American Journal of Psychiatry, 1980, 137 (8), 937-940.
- Stanley, G., Boots, M., & Johnson, C. Some Australian data on the short version of the Attitudes toward Women Scale (AWS). Australian Psychologist, 1975, 10, 319-323.
- Stein, S. L., & Weston, L. C. Attitudes toward women among female college students. Sex Roles, 1976, 2, 199-202.
- Strickland, B. R., & Haley, W. C. Sex differences on the Rotter I-E Scale. Journal of Personality and Social Psychology, 1980, 39 (5), 930-939.
- Stuart, R. B., & Davis, B. Slim chance in a fat world: Behavioral control of obesity. Champaign, Illinois: Research Press, 1972.
- Stunkard, A. J. Eating patterns and obesity. Psychiatric Quarterly, 1959, 33, 284-292.
- Wardle, J. Dietary restraint and binge eating. Behavioural Analysis Modification, 1980, 4 (3), 201-209.
- Wardle, J., & Beinart, H. Binge eating: A theoretical review. British Journal of Clinical Psychology, 1981, 20, 97-109.
- Weiss, A. R. Characteristics of successful weight reducers: A brief review of predictor variables. Addictive Behaviors, 1977, 2, 193-201.
- Wermuth, B. M., Davis, K. L., & Hollister, L. R. Phenytoin treatment of the binge-eating syndrome. American Journal of Psychiatry, 1977, 134, 1249-1253.

- Wilson, G. T. Obesity, binge eating, and behavior therapy: Some clinical observations. Behavior Therapy, 1976, 7, 700-701.
- Wise, G. W., & Davis, J. E. The Personal Orientation Inventory: Internal consistency, stability, and sex differences. Psychological Reports, 1975, 36, 847-855.

