AN EXPLORATORY STUDY OF ATTITUDES AND PERCEPTIONS OF FOOD PORTIONS IN INDIVIDUALS WITH EATING DISORDERS

by

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in

Human Nutrition and Foods

Approved: 

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Committee Chairperson: Dr. Pat Hodges
Department of Food and Nutrition and
Institutional Management

(ABSTRACT)

The purpose of this exploratory research was to analyze, through a qualitative in-depth approach, the attitudes and perceptions of food and portion sizes of a group of clients diagnosed with anorexia nervosa, bulimia nervosa or an eating disorder with bulimic features. To accomplish this, a set of two questionnaires and a food portion test were administered; one at the beginning of treatment and a second at a given interval after treatment began. These responses, along with observations made by the author during patient interviews, will be reported. All patients received either inpatient and/or outpatient treatment from a mental health professional, a dietitian and a medical physician.

The exploratory nature of the study and small sample size (12) prohibit positing of causative connections.
Observations were made however, that a distortion of nutrition attitudes exists in the sample studied that were responsive to improvements while receiving treatment from a multidisciplinary team. A tendency to over estimate portions was evident, and no improvement in the second administration supports the need for additional food portion training. These findings were discussed in terms of the study limitations, along with suggestions for future research.
ACKNOWLEDGEMENTS

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A special thanks should be directed to the eating disorder treatment team and specifically Dr. Frank Roberto who persistently supported the inclusion of the dietitian in the multidisciplinary treatment team. I want to thank Linda Minkle, LCSW and Francine Peterson, Psy.D. for the opportunity to work with their clients while providing me with the guidance necessary to develop my expertise in the area of eating disorders.

I owe my ability to conceptualize and approach this type of research to Dr. Robert Frary. I would also like to thank Janet Sampson for sharing her skills in preparing this manuscript.
Finally, I would like to thank my family. My husband, Tim, by completing his degree, inspired me to complete mine as well. Without his love and support, the task of completing this degree would not have occurred. In closing, I want to thank my parents who have fostered the desire to learn and the discipline to accomplish what I set out to do throughout my personal and professional development.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>viii</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Definition of terms</td>
<td>6</td>
</tr>
<tr>
<td>Purpose of the study</td>
<td>7</td>
</tr>
<tr>
<td>2. REVIEW OF THE LITERATURE</td>
<td>9</td>
</tr>
<tr>
<td>Psychological features</td>
<td>9</td>
</tr>
<tr>
<td>Epidemiologic factors</td>
<td>14</td>
</tr>
<tr>
<td>Attitudes related to body image</td>
<td>17</td>
</tr>
<tr>
<td>Nutrition education and outcome</td>
<td>21</td>
</tr>
<tr>
<td>Dietary habits, eating patterns, and nutritional attitudes of eating disordered patients</td>
<td>27</td>
</tr>
<tr>
<td>Perceptions of food portions</td>
<td>34</td>
</tr>
<tr>
<td>3. METHODOLOGY</td>
<td>41</td>
</tr>
<tr>
<td>Introduction</td>
<td>41</td>
</tr>
<tr>
<td>Pilot study</td>
<td>41</td>
</tr>
<tr>
<td>Population</td>
<td>42</td>
</tr>
<tr>
<td>Approval</td>
<td>43</td>
</tr>
<tr>
<td>Instruments</td>
<td>44</td>
</tr>
<tr>
<td>Eating Attitudes Test</td>
<td>44</td>
</tr>
<tr>
<td>The Bulimia Test</td>
<td>48</td>
</tr>
<tr>
<td>Nutrition Attitudes</td>
<td>50</td>
</tr>
<tr>
<td>Food Portion Quiz</td>
<td>53</td>
</tr>
<tr>
<td>Procedure</td>
<td>56</td>
</tr>
<tr>
<td>Statistical methods</td>
<td>60</td>
</tr>
<tr>
<td>4. RESULTS AND DISCUSSION</td>
<td>62</td>
</tr>
<tr>
<td>Characteristics of the sample</td>
<td>62</td>
</tr>
<tr>
<td>Test Scores for the EAT, BULIT, and FPQ</td>
<td>69</td>
</tr>
<tr>
<td>EAT: Anorexic participants</td>
<td>69</td>
</tr>
<tr>
<td>BULIT: Bulimic group of participants</td>
<td>72</td>
</tr>
<tr>
<td>FPQ: All participants</td>
<td>73</td>
</tr>
<tr>
<td>Nutrition attitudes (NA); All participants</td>
<td>74</td>
</tr>
<tr>
<td>Topic</td>
<td>Page</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Composite scores of the FPQ</td>
<td>78</td>
</tr>
<tr>
<td>Body image perceptions</td>
<td>83</td>
</tr>
<tr>
<td>Feared foods</td>
<td>89</td>
</tr>
<tr>
<td>Final interviews - Subjective observations</td>
<td>91</td>
</tr>
<tr>
<td>5. LIMITATIONS AND RECOMMENDATIONS</td>
<td>94</td>
</tr>
<tr>
<td>6. CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH</td>
<td>98</td>
</tr>
<tr>
<td>Nutrition attitudes</td>
<td>99</td>
</tr>
<tr>
<td>Body image</td>
<td>100</td>
</tr>
<tr>
<td>Perception of portion size</td>
<td>101</td>
</tr>
<tr>
<td>Hospitalization vs. outpatient treatment</td>
<td>102</td>
</tr>
<tr>
<td>Summary</td>
<td>103</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>105</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>113</td>
</tr>
<tr>
<td>A - Consent form</td>
<td>114</td>
</tr>
<tr>
<td>B - EAT</td>
<td>115</td>
</tr>
<tr>
<td>C - BULIT</td>
<td>117</td>
</tr>
<tr>
<td>D - NA</td>
<td>128</td>
</tr>
<tr>
<td>E - FPQ 1</td>
<td>129</td>
</tr>
<tr>
<td>F - FPQ 2</td>
<td>130</td>
</tr>
<tr>
<td>G - Study design</td>
<td>131</td>
</tr>
<tr>
<td>H - Nutrition counseling protocol</td>
<td>132</td>
</tr>
<tr>
<td>I - EAT scores</td>
<td>133</td>
</tr>
<tr>
<td>J - BULIT scores</td>
<td>134</td>
</tr>
<tr>
<td>K - Food fears/FPQ</td>
<td>135</td>
</tr>
<tr>
<td>VITA</td>
<td>136</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. DSM-III-R Criteria for eating disorders</td>
<td>11</td>
</tr>
<tr>
<td>2. Comparison of bulimia and anorexia nervosa</td>
<td>16</td>
</tr>
<tr>
<td>3. Indications for hospitalization</td>
<td>23</td>
</tr>
<tr>
<td>4. EAT-40 factor structure</td>
<td>46-47</td>
</tr>
<tr>
<td>5. Revised BULIT criteria</td>
<td>51</td>
</tr>
<tr>
<td>6. Items on FPQ one and FPQ two</td>
<td>55</td>
</tr>
<tr>
<td>7. Description of the sample at the time of admission</td>
<td>63</td>
</tr>
<tr>
<td>8. Accompanying psychiatric disorders</td>
<td>66</td>
</tr>
<tr>
<td>9. Frequency of bingeing, purging, and food restriction</td>
<td>68</td>
</tr>
<tr>
<td>10. Composite scores of EAT, BULIT, and FPQ</td>
<td>70-71</td>
</tr>
<tr>
<td>11. Nutrition attitudes</td>
<td>75</td>
</tr>
<tr>
<td>12. Summary of comments from NA</td>
<td>77</td>
</tr>
<tr>
<td>13. Composite scores of FPQ</td>
<td>79-80</td>
</tr>
<tr>
<td>14. Correct FPQ estimations</td>
<td>82</td>
</tr>
<tr>
<td>15. Fear of fatness subscales for EAT and BULIT</td>
<td>84-85</td>
</tr>
<tr>
<td>16. Feeling of fatness subscale compared to weight</td>
<td>87</td>
</tr>
<tr>
<td>17. FPQ and fear of fatness subscale</td>
<td>88</td>
</tr>
<tr>
<td>18. Foods feared</td>
<td>90</td>
</tr>
<tr>
<td>19. Subjective comments about treatment</td>
<td>92</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Anorexia nervosa and bulimia nervosa are psychiatric illnesses with strong nutritional implications. The diagnosis of these eating disorders are, in fact, based upon several nutrition-related criteria that include weight loss, distorted body image, and deregulated eating routines [American Psychiatric Association (APA), 1987]. The goal of re-establishing normal eating patterns and weight are then important considerations for those involved in the treatment of these individuals.

Anorexia nervosa is characterized by a weight loss below 15% of desirable weight for height, an intense fear of fatness, disturbance in body image, and amenorrhea (APA, 1987). There have been variable incidences reported regarding the prevalence of anorexia nervosa in representative populations and range from .5% to 2.1% (Crisp, Palmer, & Kalucy, 1976; Pope, Hudson, Yorglun-Todd, & Judson, 1984; Lucas, Beard, & O'Fallon, 1988).

Bulimia nervosa is characterized by repeated episodes of binge eating. Individuals with this disorder are aware that their eating is abnormal and have a fear of being out of control. The binge eating episodes are followed by purging, fasting, or exercise to prevent weight gain (APA,
1987). Estimates of the incidence of bulimia nervosa have characteristically varied widely and have been reported by Katsman, Wolchik, & Braver (1984) to be 3.9% in college women and by Pope et al. (1984) to be 18.6% in adolescent girls and young women. A differentiation between bulimic or binge eating behavior versus the use of psychiatric criteria has affected the more recent prevalence estimations among college women at 1.0-3.8% (Thelen, McLaughlin, Pruitt, & Smith, 1987; Drewnowski, Hopkins, & Kessler, 1988; Fairburn & Beglin, 1990).

Regardless of estimates of prevalence, a major concern is that the incidence of these eating disorders is increasing. According to retrospective studies, the incidence of anorexia has doubled since the 1960's (Crisp et al., 1976) and reached "near epidemic levels" (Kriepe, Churchill, & Strauss, 1989). Due to the fairly recent diagnostic distinction of bulimia as a separate eating disorder from anorexia nervosa (APA, 1980), studies examining the incidence of bulimia are more of a reflection of the sophistication of the criteria used rather than a reflection of a decline in incidence (Fairburn & Beglin, 1990). However, the upsurge of interest in the media reflects the public's growing awareness of bulimia as a significant phenomenon (Striegel-Moore, Silberstein, & Roden, 1986).
It has been speculated that the widespread preoccupation of our society with slimness and weight control contributes to the rising frequency of these disorders (Long, 1987). Striegel et al. (1986) hypothesized that the shift toward an increasingly thin standard, coupled with diets that describe how to attain that standard, contribute to the problem. Diets that preach restrictive and unrealistic eating behavior merely reinforce unattainable disregulating eating behaviors. That is not to imply that psychopathology is merely learned behavior, but that the public's heightened awareness of these practices may be a significant factor in the increased emergence of eating disorders.

The seriousness of the medical manifestations of the disorders cannot be overlooked. These disorders do not simply represent extreme dieting practices or "fads." Morbidity and mortality rates associated with anorexia are among the highest recorded for psychiatric disorders (Herzog & Copeland, 1985). Recent reports for anorexia nervosa suggest a death rate between 2% and 8% at five years post diagnosis (Herzog, Keller, & Lavori, 1988). Medical complications of anorexia are mainly those of starvation; death being associated with cardiac failure secondary to decreased heart muscle mass and electrolyte imbalance.

The medical problems of bulimia differ somewhat from those of anorexia nervosa, although there is some overlap.
While most of the medical complications of anorexia nervosa result from emaciation, most of those seen in bulimia result from binge eating and purging mechanisms that usually include vomiting, laxative abuse, and diuretic abuse. Dehydration and electrolyte imbalance, including hypokalemia, pose serious medical threats. Pancreatic malabsorption syndromes, fluid retention, constipation, enamel erosion, swelling of salivary glands, and esophageal reflux are a few of the medical complications associated with bulimia nervosa (Kirkley, 1986; Mitchel, 1985).

It would be misleading to assume that by simply providing eating disordered clients the correct information about weight control and correcting their medical symptoms the disorder would improve. The underlying psychological nature of the disorders must be treated. Treatment of anorexia and bulimia nervosa involves psychological, medical, and nutritional intervention from appropriate professionals. The dietitian's challenge is to assist the patient in re-establishing eating habits that will support a healthy weight and satisfy basic human nutritional requirements. The goal of nutritional therapy with anorexia nervosa is to restore stable healthy weight, correcting any protein-energy deficiencies and other malnutrition (Gray & Gray, 1989). Individuals with bulimia nervosa must learn new eating habits to replace prior patterns of over- and

The dietitian's effectiveness in providing nutritional care is dependent on the patient's utilization of recommended dietary changes. The specific role that nutritional attitudes have in altering food habits is an important consideration to the client (Foley, Hertzler, & Anderson, 1979). The degree to which certain attitudes about dieting, weight, and food are altered during the course of treatment for patients with eating disorders has been evaluated with differing results. These studies do, however, point to less distorted attitudes to food, eating, and weight following recovery from initial physical and behavioral features of the disorder (Clinton & McKinlay, 1986; Garner & Garfinkle, 1979). However, it should be noted that the dietitian's role (if even present) was not delineated in these studies. If the dietitian is to be an integral member of the treatment team, the affect of the dietitian's intervention is critical when observing outcome results. The impact of the dietitian's interaction with the patient needs to be further explored if her role is to be utilized and valued.

Another important treatment issue for the dietitian involves the ability of the patient to correctly estimate the amount of food that is appropriate for energy and nutrient needs. Distorted perceptions of food portions have
been investigated for obese subjects but very little attention has been given in the literature to food size perceptions in anorexic or bulimic individuals (Lansky & Brownell, 1982; Blake, Guthrie, & Smiciklas-Wright, 1989). It has been hypothesized that the distortion of body size and fear of fatness may affect the patient's ability to correctly estimate food portions (Yellowlees, Roe, Walker, & Ben-Tovim, 1988; Heilbrun & Flodrin, 1989).

Due to the psychiatric nature of the illnesses, the vast majority of the literature has focused on multiple psychiatric treatment issues. The dietitian's role, however, has been recognized and clarified in recent years as part of a multidisciplinary treatment team (ADA, 1988). It is thus critical that dietitians be well informed as to the psychiatric nature of the disorders and how that relates to their treatment methods. Also, paramount to effective intervention is finding out how the patients' attitudes and perceptions, related to eating, are altered when nutritional counseling is provided in conjunction with psychiatric treatment.

Definition of terms

 Diagnostic and Statistical Manual  A classification system developed by the American Psychiatric Association in an attempt to provide clear descriptions of psychiatric diagnostic categories and outline diagnostic criteria. DSM-

**Enmeshment** Over-involvement among family members characterized by extreme forms of proximity and intensity in family interactions (Minuchin, 1978).

**Dichotomous thinking** Dichotomous reasoning involves thinking in extreme, absolute, or all-or-nothing terms and is typically applied to food, eating, and weight in individuals with eating disorders (Mitchell, 1985, p. 117).

**Target weight** Weight range considered to be medically safe by the treating professionals. Target weight in this study is based on 90-110% of ideal body weight standards as determined by the 1959 Metropolitan Life Insurance tables or pediatric growth charts (National Center for Health Statistics, 1977).

**Affective disorders** Mood disturbances in which feelings of sadness or elation become intense and unrealistic (Price & Lynn, 1986, p. 184).

**Body image** A term used to describe the perceptual and attitudinal aspect of how a person views oneself. Patients with anorexia nervosa typically view themselves as larger than they really are (Powers, 1990).

**Purpose of the study**

The purpose of this exploratory research was to analyze through a qualitative in-depth approach the attitudes and
perceptions of food and portion sizes of a group of clients diagnosed with anorexia or bulimia nervosa while they are undergoing nutritional, medical, and psychiatric treatment. To accomplish this, several methods were utilized to evaluate individual patient responses at the beginning of treatment and at a given interval after treatment had begun. Alterations in their responses as well as the course of their treatment will be reported.

The extent to which distorted attitudes about food and misperceived portion sizes affect treatment and recovery is inconclusive and beyond the scope of this study. However, the findings from this study will add to the overall body of knowledge related to the treatment of the nutritional component of the disorders, specifically addressing food attitudes and perceptions of portion sizes of food.
CHAPTER II
REVIEW OF THE LITERATURE

The purpose of this exploratory research is to analyze through a qualitative multiple case study approach the attitudes and perceptions of food and portion sizes of a group of clients diagnosed with anorexia or bulimia nervosa undergoing nutritional, medical, and psychological treatment. This section will begin with a focus on psychological and epidemiological features of the disorders. Attitudes related to body image, nutritional intervention, and outcome will be discussed as they relate to anorexia nervosa and bulimia nervosa. Following, literature containing information about dietary patterns and nutritional attitudes of eating disorder clients will be reviewed. Finally, perceptions of food portions will be covered.

Psychological features

A close look at the psychological features of the disease is important, as the eating problem itself is not the syndrome, but a symptom of a deeper problem. Effective nutritional intervention can be achieved only if there is a clear understanding of the disorders.
Specific criteria have been developed by the American Psychiatric Association in the DSM-III-R and are categorized in Table 1 (APA, 1987). Precise diagnosis relies on the utilization of these criteria and has assisted in separating those displaying occasional or fad-like participation of bingeing or purging from those with psychological components.

The literature reflects an agreement that eating disordered patients have some underlying psychological dysfunction that contributes to the predisposition and maintenance of eating disorders (Bourke, Taylor, & Crisp, 1985; Connors, Johnson, Stuckey, 1984; Striegel-Moore et al., 1986). Generally, traits such as extreme compliance emotional reserve, compulsivity, and lack of independence are common among anorexic patients. In addition, introversion, obsessionality, and self-doubt initially increase as appropriate weight is achieved (Storber, 1986, p. 237). Root, Fallon, & Friedrich (1986, p. 9) also observed that the psychological symptoms are exacerbated by starvation.

Bourke et al. (1985), studied 20 patients with anorexia nervosa using a projective test with a specific scoring system (the SAT9) in combination with a subscale of the Eating Disorder Inventory (EDI). Their findings support the clinical observation that patients with anorexia nervosa are often arrested developmentally and are without the ability
TABLE 1

DSM-III-R CRITERIA FOR EATING DISORDERS

<table>
<thead>
<tr>
<th>Code</th>
<th>Disorder</th>
<th>Criteria</th>
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</table>
| 307.10 | Anorexia Nervosa       | A. Refusal to maintain body weight over a minimal normal weight for age and height, eg, weight loss leading to maintenance of body weight 15% below expected; failure to make expected weight gain during period of growth, leading to body weight 15% below expected.  
B. Intense fear of becoming obese, even when underweight.  
C. Disturbance in the way in which one's body weight, size, or shape is experienced, eg, the individual claims to "feel fat" even when emaciated, believes that one area of the body is "too fat" even when obviously underweight.  
D. In females, absence of at least three consecutive menstrual cycles when otherwise expected to occur (primary or secondary amenorrhea). (A woman is considered to have amenorrhea if her periods occur only following hormone, eg, estrogen, administration.) |
| 307.51 | Bulimia Nervosa        | A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time).  
B. During the eating binges there is a feeling of lack of control over the eating behavior.  
C. The individual regularly engages in either self-induced vomiting, use of laxatives, strict dieting, fasting, or vigorous exercise in order to prevent weight gain.  
D. A minimum average of two binge-eating episodes per week for at least three months.  
E. Persistent overconcern with body shape and weight. |

Note. Adapted from the Diagnostic and Statistical Manual of Mental Disorders (p. 6) by the American Psychiatric Association (APA), 1986, Washington, DC: APA.
to deal adequately with anxieties created by the process of maturation. This is not simply due to starvation, as scores were not improved with an increase in body weight.

Bulimics generally have poor impulse control, poor interpersonal skills, and low self-esteem. Cognitive distortions include perfectionism, dichotomous thinking, fear of alienating others, and superstitious thinking. Dykens & Gerrard (1986) compared bulimic women to repeat dieters and a control group to determine if certain psychological profiles could be discriminating variables. The study supported suggestions from clinical observation that women with eating disorders suffer from feelings of ineffectiveness and lack of control over life situations.

Depressive symptoms are common in eating disordered patients as are other affective disorders. Familial correlates are important to recognize as the family is the individual’s primary social context of the adolescent females. Minuchin (1978) lists the following characteristics of the anorexic family: enmeshment, overprotectiveness, rigidity, lack of conflict resolution, and involvement of the sick child in unresolved parental conflict.

Sargent (1986) also describes interactions of bulimic families as similar, with important distinctions. Bulimic patients maintain an independent stance that is pseudo in nature. When stressed, the bulimic patient often involves
the family, especially in relation to her bulimic behavior. The family often fluctuates between over-involvement and abandonment.

In a study conducted by Humphrey (1988), relationship patterns within anorexic, bulimic anorexic, bulimic, and normal families was conducted. A total of 74 families, including the parents and teenage daughter, participated by completing a series of ratings on their interrelationships. The results reflected that family members of eating disordered clients experience significant distress and dissatisfaction in their relationships with each other. Both the bulimic anorexic and bulimic families experienced more mutual blaming, rejection, and neglect towards one another than did normal families. They felt there was less understanding, nurturance, and support. In contrast, the anorexic families were more positive about the relationships between parent and child. Anorexic clients experienced their fathers as withdrawn and avoidant. Marital relationships were clearly distressed in this group.

Minuchen et al. (1978) proposed that the anorexic daughter diverts the focus away from parental inadequacies and instead, toward her own illness. Both Humphrey and Minuchen identify disturbed family processes as critical factors in the etiology and maintenance of anorexia and bulimia.

In another study by Dykens & Gerrard (1986), a questionnaire was administered to 424 undergraduate women
enrolled in an Introductory Psychology course at a large public university in the midwest. Forty-four of the women were identified by the researcher as bulimic and were contacted for a telephone interview. Overall, good feelings towards their family were associated with more positive feelings toward the body, with less purging and other potential "acting out" types of behavior and with lower levels of depression, alienation, and apathy.

**Epidemiologic factors**

The term anorexia nervosa means literally a "nervous appetite." Bulimia means "hunger of an ox." These terms reflect earlier attempts to understand the disorders. Bulimic symptoms were originally associated with anorexia but clear differences as reflected by the DSM-III (APA, 1986) are noted. First, anorexics do not maintain a normal body weight, whereas weight loss is not a necessary component of bulimia nervosa. In addition, anorexics, with body image distortion, deny the illness, whereas bulimics are very aware that their eating behavior is abnormal and are afraid of being unable to stop.

Eating disorders are primarily associated with women; 90-95% of reported cases are female (Garfinkle & Garner, 1982). Although most anorexics have historically been from white, middle class or upper middle class families, Pumariega, Edwards, & Mitchell (1984) have reported an
increasingly varied population across social classes and races. The onset of anorexia is usually between 12 and 35 years of age, but most frequently from 13–14 and 17–18 years of age. Bulimia usually begins between 17 and 25 years of age (Garner & Garfinkle, 1979).

It should be noted that there is considerable overlap between bulimia nervosa and anorexia nervosa. The prevalence of bulimic symptoms among individuals with anorexia nervosa has been estimated at 40–50% (Kreipe et al., 1989; Hsu, 1988). There is also a subgroup of patients with bulimia nervosa that have had a prior history of anorexia nervosa (Garfinkle, Moldofsky, Garner, 1980). Some studies have demonstrated that the coexistence of bulimia and anorexia nervosa worsen the outcome (Steiner, Mazer, & Litt, 1990).

Anorexia nervosa most commonly begins in a teenager who is overweight or perceives herself that way (Herzog & Copeland, 1985). Bulimia has been demonstrated to occur among all weight groups from the anorexic to the overweight, although it seems that symptoms are more likely to appear in individuals with a history of being overweight or of being heavy within their normal weight range (Schlesier-Stropp, 1984). A comparison of bulimia to anorexia nervosa is summarized in Table 2. Differences related to physical, nutritional, and emotional components are evident (Root et al., 1986, p. 16).
<table>
<thead>
<tr>
<th>Anorexia Nervosa</th>
<th>Bulimia</th>
</tr>
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<tbody>
<tr>
<td>1. Refusal to maintain recommended minimal weight</td>
<td>1. Normal or near-normal weight; may be above average weight</td>
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<tr>
<td>2. Younger age of onset (early adolescence)</td>
<td>2. Later age of onset (Late teens or early adulthood)</td>
</tr>
<tr>
<td>3. Loss of menstrual period</td>
<td>3. Menstrual irregularities are common. Menstrual period may be lost.</td>
</tr>
<tr>
<td>4. Distorted body-image common</td>
<td>4. More accurate perceptions of body-image</td>
</tr>
<tr>
<td>5. Denial of food-related problems</td>
<td>5. Acknowledgment of abnormal eating patterns</td>
</tr>
<tr>
<td>6. Outwardly exhibits more self-control</td>
<td>6. More impulsivity; alcohol and drug abuse common</td>
</tr>
<tr>
<td>7. Vomiting less pervasive</td>
<td>7. Greater incidence of vomiting and laxative abuse</td>
</tr>
<tr>
<td>8. Eating rituals</td>
<td>8. May appear to eat normally when not binging and when eating in public</td>
</tr>
<tr>
<td>9. Mortality rate higher--death likely to be due to physical consequences</td>
<td>9. Mortality rate undetermined--death likely to be due to suicide</td>
</tr>
<tr>
<td>10. Treatment more commonly initiated by family and friends</td>
<td>10. Individual more frequently initiates treatment</td>
</tr>
<tr>
<td>11. Less commonly observed histories of substance abuse in family members</td>
<td>11. Family histories commonly include substance abuse problems</td>
</tr>
<tr>
<td>12. History of victimization less common</td>
<td>12. Victimization experiences frequently observed (rape, molestation, physical abuse)</td>
</tr>
<tr>
<td>13. Very low tolerance for intimacy</td>
<td>13. More often in relationship or married though still has difficulty with intimacy</td>
</tr>
</tbody>
</table>

Attitudes related to body image

Probably one of the most striking features of anorexia and bulimia nervosa is the intensity and persistent concerns with their body weight and shape. DSM-III-R criteria clearly defines this in the diagnostic criteria of both disorders. These concerns have been paraphrased at least for the anorexic as "marked fear of fatness" and "weight phobia" (Fairburn, Cooper, & Cooper, 1986, p. 394).

Some investigators have doubted the importance of body image disturbances in anorexia nervosa (Gustavson, 1990; Pennu, 1991). Pennu (1991) used the comparison of small-framed, not average sized individuals, for the non-eating disordered control group finding both groups over-estimated body size. Although doubt may exist as to the degree to which the eating disordered patient misjudges her size, the intense fear of weight gain is the component of the feature that is most noteworthy.

Concerns about body shape and weight have been investigated in children and adolescents. Casper & Offer (1990) audited the attitudes of 497 high school seniors towards body weight and dieting. Two-thirds of the girls were preoccupied with weight and dieting compared to approximately 15% of the boys. In both boys and girls, increased weight and dieting concerns were associated with greater dissatisfaction with body and self-image and
depressed mood. They concluded that preoccupation with weight is likely to indicate psychological problems.

Newell, Hanmig, Jurich, & Johnson (1990) further investigated the factor of poor self-concept and how it affects the quality of diets in adolescent girls. It was hypothesized that the close relationship between physical appearance and self-concept may affect food intake. Because of the preoccupation with diet and weight control and the typical age of onset of eating disorders being adolescent girls, it is important to include this topic.

The subjects in the study were 15-year-old girls enrolled in a physical education class in a midwestern high school. Scores for self-concept were measured using the Tennessee Self Concept Scale (TSCS). Upper arm circumference and triceps skinfold measurements were obtained. Twenty-four-hour dietary recall interviews were conducted with a random sample of 40 girls. Mean dietary adequacy ratios (MAR) were calculated to assess dietary quality. Interpretation of the results indicated that one group of girls who were dissatisfied with their own physical appearance had lower nutrient intakes and low MAR values.

A further investigation into the relationship between distortion of body image and how it may affect food intake was conducted by Heilbrun & Flodin (1989). The purpose of the study was to demonstrate whether distorted perception of body image played a role in the aversion to and avoidance of
food. Body perception was measured by presenting two matched series of photographs of female adult models taken from popular magazines. Each subject was to rate each model for body size along a five-point scale. Before the second set of photographs was presented, food photographs depicting appealing food products (ice cream, spaghetti) were displayed and remained in plain sight of the subjects.

The Eating Disorder Inventory (EDI) was used to assess the psychological characteristics associated with eating disorders. Those women who were evaluated as having a personality profile similar to the anorexic patient viewed the bodies as heavier after the food cues were present than when they were not. It was hypothesized that if a woman values a thin body, perceptions of foods' effect on weight gain may foster the person's ability to restrain eating.

As food restriction and body image distortions characterize the anorexic's symptomology, so do the binge eating episodes of the bulimic. Clinical reports suggest that bulimic episodes are commonly precipitated by emotional stress and/or ingestion of a small amount of "forbidden food" (Charnock, 1989). Usually, episodes of overeating alternate with attempts to diet. Thus, the ingestion of the "forbidden food" represents the breaking of rigid and restrictive dieting rules (Abraham & Llewellyn-Jones, 1987, p. 18). The binge episode is characterized by feelings of
lack of control over the eating behavior as described in the DSM-III-R criteria for bulimia nervosa (APA, 1987).

This description is consistent with the "restraint" hypothesis which states that "negative moods disengage cognitive restraint over food intake which leads to binge eating" (Polivy, Herman, Olmstead, & Jazwinski, 1984, p. 78).

The effects of exposure to a frightening film to induce negative affect in 60 women classified as either restrained or unrestrained eaters was tested by Schotte, Cools, & McNally (1990). Exposure to the frightening film was associated with feelings of anxiety, sadness, or anger in both groups. High restraint subjects exposed to the film ate more of the pre-weighed buttered popcorn during the movie than did other high restraint subjects exposed to the neutral film or low restraint eaters exposed to either film. These results suggest that negative affect may prompt overeating in those who attempt to restrict caloric intake.

In addition to negative affect, Davis, Freeman, & Solyom (1985) identified recent consumption of food and being alone to precede binge episodes in bulimic individuals. Contrastingly, positive mood, food abstinence combined with hunger, and being with other people preceded normal eating.
Nutrition education and outcome

Do anorexics and bulimics recover? And if so, what makes a difference? Nutrition professionals active in the treatment of these individuals are very much interested in knowing what difference, if any, nutrition intervention can make.

Approximately 40% of anorexics can be considered cured. Approximately 30% are significantly improved but lead symptomatic lives. Twenty percent develop chronic anorexia, and 9% die. These figures reflect data summarized by Garfinkle & Garner (1982) in a comprehensive review of outcome studies in anorexia. A majority of anorexics are within 15-20% of normal weight after an average follow-up time of five years. Hsu, Crisp, & Harding (1979) found that 62% of their patients were within 15% of normal weight four to eight years after admission to a hospital setting. Steiner et al. (1990) addressed the issue of compliance and its affect on outcome. Those completing treatment had lesser symptoms at the time of follow-up (at least one year since treatment). Connors et al. (1984) supported this but added that symptom reduction rather than remission was most characteristic of the group they studied.

Outcome studies for bulimia nervosa are sparse; however, Abraham & Llewellyn-Jones (1983), in a short term outcome study, suggested that the illness retains its main clinical features. Hsu & Sobkiewicz (1989) conducted a
four- to six-year follow-up study on 45 female bulimic patients previously receiving treatment from their clinic. Thirty-five were successfully followed. At least seven (16%) had diagnosable bulimia nervosa at follow-up; however, the frequency of binge/purge episodes was less.

Research is plentiful, although somewhat inconclusive regarding the most successful treatment of eating disorders. Numerous treatment modalities have been proposed. Indications for hospitalization of patients with anorexia nervosa have been suggested. Table 3 lists Long's (1987) criteria for hospitalization of adolescents. He estimated that 20-30% of youths with anorexia nervosa will require hospital treatment at some time during the course of their illness.

Powers (1990) described indications for outpatient treatment as those who are not actively bingeing and purging and those who have an intact nuclear family that are willing to cooperate in treatment. He recommended no less than 25% body weight loss as the weight criteria for inpatient or outpatient treatment.

As newer criteria was used to diagnose bulimia as a separate entity from anorexia nervosa in normal and overweight individuals, hospitalization was suggested less often (Schlesier-Strop, 1984). However, suicidal risk, severe metabolic disturbances, severe bingeing and purging, and lack of response to outpatient treatment have been
**TABLE 3**  
**INDICATIONS FOR HOSPITALIZATION**

<table>
<thead>
<tr>
<th>Indication</th>
<th>Criteria</th>
</tr>
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<tbody>
<tr>
<td>Severe weight loss</td>
<td>40 percent chronically</td>
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<tr>
<td></td>
<td>30 percent in three months</td>
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<tr>
<td>Depressed vital signs</td>
<td>Core temperature below 36° C</td>
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<tr>
<td></td>
<td>Blood pressure below 80/50</td>
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<tr>
<td></td>
<td>Heart rate below 50</td>
</tr>
<tr>
<td>Metabolic derangements</td>
<td>Hypokalemia or hypophosphatemia</td>
</tr>
<tr>
<td></td>
<td>unresponsive to oral</td>
</tr>
<tr>
<td></td>
<td>supplementation</td>
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<tr>
<td></td>
<td>Serum potassium below 2.5</td>
</tr>
<tr>
<td></td>
<td>Complaint of fatigue, or signs of</td>
</tr>
<tr>
<td></td>
<td>reduced mental functioning</td>
</tr>
<tr>
<td></td>
<td>(slurred speech, disorientation)</td>
</tr>
<tr>
<td>Cardiovascular instability</td>
<td>Signs of CHF</td>
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<tr>
<td></td>
<td>Presence of dysrhythmia</td>
</tr>
<tr>
<td></td>
<td>History of chronic emetic abuse or</td>
</tr>
<tr>
<td></td>
<td>acute overdose</td>
</tr>
<tr>
<td>Psychiatric debility</td>
<td>Suicidal ideation</td>
</tr>
<tr>
<td></td>
<td>Major depression</td>
</tr>
<tr>
<td></td>
<td>Disorientation</td>
</tr>
<tr>
<td>Failure of an outpatient program</td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Reprinted from "Anorexic Nervosa: Adolescent Medicine" by T. J. Long, 1987, Primary Care, p. 177.
recommended as consideration for hospitalized treatment of bulimia nervosa (Herzog & Copeland, 1985).

It is increasingly apparent, regardless of whether treatment occurs inside or outside the hospital setting, that a multidisciplinary team approach is most effective to treat the psychiatric, psychosocial, medical and nutritional aspects of the diseases (Story, 1986; ADA, 1988; Krey, Palmer, & Porcelli, 1989). A focus on nutritional-related intervention will follow.

A study assessing the nutritional knowledge of patients with anorexia nervosa supports the theory that more knowledge does not mean better health and weight control. In fact, anorexic patients are often obsessive in their quest to intellectualize the scientific aspects of their disease. They are preoccupied with food and dieting and often collect and read literature relating to food and body function (Beumont, Chambers, Rouse, & Abraham, 1981).

Seventeen first admission patients who fulfilled the criteria for the diagnosis of anorexia nervosa volunteered for the study on nutrition knowledge. The mean duration of their illness was eight months before treatment with the exception of two patients who had the illness for over a year. The mean score on a nutritional knowledge questionnaire was compared with data previously collected from 576 female subjects. A score for each individual patient was compared with that of a specially selected
control matched for age, education, and occupational status. Most patients scored higher on the nutritional knowledge questionnaire than the matched controls, particularly in respect to questions concerning caloric content of food, dieting and roughage. However, 25% of the patients had nutritional knowledge scores below that of controls; especially related to public health questions.

Hall & Crisp (1987) compared two groups of anorexic patients, one receiving dietary advice and one group receiving individual and family therapy. The group receiving dietary advice (15 subjects) were seen for 12 one-hour sessions at weekly or bi-monthly intervals by one of five dietitians. The family was seen with the subject when deemed appropriate by the dietitian. Goals of treatment included restoration of normal eating patterns, relating eating behavior to food, and increasing the confidence of the subject so she could remain in control while she gained weight. All subjects receiving dietary advice were seen for 15 minutes by the psychotherapist, and those in the therapy group were seen for 15 minutes by the dietitian.

One year after assessment interviews, all subjects and their families were interviewed. The dietary advice group reflected significant weight gain that was more uniform in pattern than the group without dietary advice. The psychotherapy group made significant improvements in sexual and social adjustment. These results emphasized the
attention to both eating and psychological change as being important to treating the anorexic patient.

Dalvit-McPhillips (1984) described a nutritional intervention based on the physical components of bulimia. It was hypothesized that a bulimic's binges were physically induced by malnutrition resulting from severe calorie restriction and fluctuating blood sugar or insulin. A treatment group of ten bulimic women were placed on a nutrient dense diet containing at least 1400 kilocalories for six weeks. A control group of bulimic women were placed on a diet which allowed unknowing duplications of their pre-study food patterns. After three weeks, they too switched to the nutrient dense diet. No psychiatric counseling was provided. Cessation of bingeing was associated with both groups while on the nutrient dense diet. Patients, in a telephone interview conducted two and one-half years later, reported remaining binge free. These findings indicate that a bulimic's binges are physically induced, and therefore, by correcting the malnutrition and stabilizing blood sugar or insulin levels, the syndrome can be treated and possibly prevented.

A case study report by Willard, Anding, & Winstead (1986) described the nutritionist's role in the treatment of a 19-year-old bulimic. Their treatment approach combined individual, group, and nutritional counseling. Individual therapy was utilized to allow the patient the opportunity to
work through underlying psychological issues that had predisposed her to her eating disorder. Group therapy allowed the use of behavioral techniques, contracting with group members and the therapist to improve eating habits and try new behaviors. She received advice and support from group members. Nutrition counseling was provided to evaluate eating behaviors and recommend food plans while providing nutrition education. After two months of treatment, bingeing and purging had decreased from multiple episodes daily to once a week. A weight gain of five pounds was disturbing to the patient; however, other improvements in her physical and emotional well-being made the weight gain tolerable.

**Dietary habits, eating patterns, and nutritional attitudes of eating disorder patients**

Despite the amount of research conducted on the treatment of eating disorders, little attention has been given to the abnormal eating behaviors that are exhibited by these patients. It has been reported that eating symptoms and nutrition attitudes about body weight and shape remain distorted despite achievement of appropriate weight (Crisp, Hsu, Harding, & Hartshorn, 1980; Garner & Bemis, 1982). A review of the various reported eating abnormalities will follow along with a discussion of the attitudes related to dieting and eating symptomatology.
Due to the severe weight preoccupation, dietary habits are related to dieting practices. Patients with anorexia nervosa characteristically severely restrict calorie intake. Other eating behaviors have been observed. Hedblom, Hubbard, & Anderson (1981) described abuse of condiments, excessive cutting, and mutilation of food, along with disposing or hoarding of food. Rosen (1980) also described the behavior of separating parts of the refrigerator, freezer, or cupboard for their own "special foods."

Wilson, Touyz, O'Connor, & Beumont (1985) classified abnormal behaviors into "obsessional" eating behaviors that included ritualistic eating behavior, very precise food measurement, and excessive and inappropriate drinking of water. "Table manners" was another classification that included inappropriate eating with fingers, making inappropriate sandwiches and unusual food combinations. Obsessional thoughts about food, including collection of recipes and preparing elaborate meals for family members but not eating themselves, is explained by some researchers as a psychobiology phenomena related to the effects of starvation and the "hunger drive" (Ploog & Pirke, 1987).

Red meat is often equated with high fat content and has become the object of avoidance for many patients with anorexia nervosa. O'Conner, Touyz, Dunn, & Beumont (1987) reported an incidence of vegetarianism in 54.3% of 116 consecutive patients in a retrospective study. In only four
(6.3%) of these did meat avoidance predate the onset of their anorexia nervosa, suggesting a "pseudo vegetarianism" based on caloric avoidance or fear of fat rather than religious, humanitarian, or ethnic reasons.

Earlier generalizations that restriction of carbohydrates was typical for anorexics were not supported by Huse & Lucas (1984). Beyond the generalization that there was caloric restriction, there was great variability in the diet patterns. This supports the practice of individualizing the specific concerns and practices of the patient as opposed to assuming that "anorexic patients eat fruits and vegetables."

Bulimic individuals often have rigid dietary rules that lead to avoidance of certain foods they consider to be "fattening" (Fairburn, 1981). Consumption of even small quantities of such food lead to feelings of failure, loss of control, and binge eating. Typical binge foods include easily ingested, high-calorie foods such as ice cream, cookies, and pudding. A binge may also include nutritional foods in normal or vast quantities although the binge does not necessarily involve huge quantities of food since the bulimic's definition of a binge is subjective (Root et al., 1986, p. 7). Binges lasting from 15 minutes to several hours usually occur in private and may be planned or spontaneous (Mitchell, Pyle, & Eckert, 1981).
Episodes of binge eating are typically followed by self-induced vomiting, laxative, and diuretic abuse or vigorous exercise. Some bulimic individuals, however, restrict caloric intake intermittently as a means of purging to control weight. Strict dietary regimes are often followed, and calorie counting becomes a requirement (Fairburn et al., 1986, p. 391). Obsession and preoccupation with food is described by Willard, Anding, & Winstead (1986). Bulimic patients characteristically express "good food" or "bad food" dichotomy.

The relationship between attitudes and behavior continue to occupy research in the field of social psychology. Tesser & Shaffer (1990) suggest that "attitudes are evaluations based on belief, feelings, and past behavior." The influence that attitudes have on food habits and food choices is an important consideration if nutritional counseling is to involve changing preconceived attitudes about weight and dieting in eating disorder individuals.

Attitudes were constructed by Hølund (1989) into three components in her study of the effect of a nutrition education program on the dietary attitudes of a group of adolescents. She characterized these as: affect (taste), cognition (prohealth), and behavior (significant others). The affective component involved a person's liking of or emotional response to an object and was labeled "taste."
The cognitive component involved a person's beliefs about a factual knowledge of the object and was labeled "prohealth." The behavioral component involved the behavior directed toward the object. She considered the influence of others on these behaviors and termed it "significant others."

Hølund used 14-year-old adolescents teaching 10-year-old students as an approach to altering the 14-year-olds' attitudes toward sugar consumption. Improvements in the adolescents' attitudes toward learning about the food and use of the food as a prohealth measure were observed. Alterations in the affective component or taste, using this model, were not evident. Positive changes in the cognitive component (prohealth) were attributed in part to group dynamics. The lack of impact on attitudes of taste of healthy foods was attributed to the fact that the approach did not involve taste experiments.

Foley et al. (1979) characterized attitudes and their relationship to food into five categories; attitudes as food preferences, as food behavior, as flexible versus rigid, as agreement, and as a complexity of meanings. Attitudes in this section will be discussed in their relationship to food behavior, specifically those predominant in eating disordered clients.

Attitudes about thinness and obesity pervade our society. Current evidence suggests that dieting in itself may not cause eating disorders but that attitudes and
dieting behaviors associated with an attempt to lose weight may increase the risk of developing an eating disorder (Dwyer, 1985; Mitchell, 1985).

Patton, Hognson-Sabine, Wood, Mann, & Wakeling (1990) conducted a study to define the occurrence of eating disorders in a large representative population of 15-year-old London school girls. The estimated prevalence rate for simple dieting was 31%. A small proportion of dieters did become cases (2.7%) which made the relative risk of dieters developing anorexia nervosa eight times that of non-dieters.

Other reports regarding abnormal attitudes toward eating and weight control behaviors in the female population have been reported (Schotte & Stunkard, 1987). The effect of these abnormal attitudes on dietary intake and body weights was discussed in a study of female athletes (Bar, 1991). The Eating Attitude Test (EAT) was given to 14 members of a women's collegiate swim team to assess the subjects' perceptions about body weight and dieting practices. The swimmers' scores on the EAT were similar to those in the female population. Dietary analysis was also conducted. The mean nutrient intake exceeded the RDA's for all nutrients except calcium. Carbohydrate and fat intake were close to current recommendations. No significant relationships were observed between eating attitudes and energy intake. Subjects who scored high on the "dieting" subscale had energy intakes similar to those who scored low.
In this group of normal weight athletes, those that were heavier, or dieting, or perceived themselves as having less control over food intake reported energy intakes unrelated to these perceptions. Conflicting results have been found in other athletes (Benson, Geiger, Eiserman, & Wardlaw, 1989).

Clinton & McKinlay (1986) administered the EAT to a group of acutely ill anorexics, former anorexics considered recovered, and psychiatric controls. Results supported their hypothesis that even after physical features of the disorder had improved, former anorexics continued to demonstrate distorted attitudes to food, eating, and weight, although somewhat less extreme than in the acute phase. No description of specific dietary intervention was described.

The EAT was also utilized to study dieting attitudes in a high school population. Moss, Jennings, McFarland, & Carter (1984) administered the questionnaire to 151 girls from two public high schools in a small Georgia community. The results for items related to fear of weight gain indicated that 43.1% were frightened of being overweight, and 39.1% were preoccupied with a desire to be thinner.

Smith & Thelen (1984) have developed the Bulimia Test (BULIT) to assess symptoms of bulimia nervosa. The items were based on criteria from DSM-III for bulimia. Attitudes about dieting, eating patterns, and fear of fatness are included in this 32-item self-report multiple-choice scale.
Applications for its clinical and non-clinical populations have been tested in several studies (Thelen et al., 1987; Smith & Thelen, 1984).

In conclusion, attitudes about weight and dieting are reported in the literature. The strong relationship between distorted attitudes and their effects on weight and dieting is inconclusive. Measurement instruments to assess attitudes have been developed. Specific interventions by a dietitian have not been discussed to ascertain any impact on nutritional counseling and changes in attitudes.

**Perceptions of food portions**

Perception is defined as "an immediate or intuitive recognition, as of a moral or aesthetic quality" (Merriam & Merriam, 1972, p. 626). What people eat can be influenced in part by social, economic, and cultural events. One's perception of what is real and accurate can be shaped by ignorance, physical or emotional illness, previous life experiences, social and cultural pressures, and, as previously discussed, by one's own attitudes (Brill, 1984).

Clearly related to treatment effectiveness is the distorted perception of food portions. This is critical, not only related to food recall information utilized by the dietitian to predict nutrient intake upon initial evaluation, but also to recovery. If amounts of food are
taught for weight maintenance, accurate perceptions of these amounts to be consumed are imperative for proper energy intake.

Guthrie (1984) assessed the amount of food young adults selected as an average portion and the accuracy with which they could describe the amount in quantifiable terms. Men almost consistently selected larger portions than did women, but the ability to describe the amount by both groups was poor. Overall, there were certain major discrepancies between the amounts of food nutritionists regard as typical portions and the amounts this young adult population perceived as a standard portion.

Dwyer, Krall, & Coleman (1987) described reasons why reported estimates of food portions may be inaccurate. A phenomenon termed "unintentional distortion" is based on the concept that alterations in reporting are made to coincide with the person's perception of the message. A commonly observed example is the individual who "talks a good diet," reporting what they perceive they should have been eating. This distortion may be related to the "flat slope syndrome," in which respondents who have relatively low nutrient intake tend to over-report their intake and persons with high intakes tend to under-report. Pietinen et al. (1988) attributed overestimation and underestimation in their study to a bias in reporting a consumption of "desirable" items (foods considered healthy) and a negative bias in reporting
less desirable items. Overestimation was also demonstrated in a group of clients receiving funding from the Special Supplemental Food Program for Women, Infants, and Children (WIC) (Webb, 1988). A concern was voiced in this study that not only do inaccurate perceptions of food invalidate food recalls but that intake may appear more adequate than it really is.

Errors in self-reporting of obese individuals was examined in a study conducted by Lansky & Brownell (1982). Self-monitoring is a cornerstone of behavioral treatment of obesity and is often utilized for outpatient management of anorexic and bulimic clients. It is used to assess caloric intake and behavior change during treatment. There is controversy surrounding the accuracy of self-reported dietary assessment methods, and the purpose of their study was to examine the accuracy and usefulness of food records among dieting obese individuals. An essential requirement of self-monitoring is the ability to estimate the calories and quantity of food consumed. In this study, the accuracy of estimating quantities of ten common foods was evaluated. Subjects estimated the amount of each food in ounces by weight or fluid ounces. The quantities were overestimated for all foods.

Perception is also related to the sensory processes. Indirectly related is the perception of fullness or satiety. Satiety responses in a test meal paradigm were examined in a
preliminary study with six anorexic patients, four anorexics with bulimic features and nine normal control women. Patients and controls consumed the test meal which consisted of a liquid test meal in two separate containers. In the first container they could directly observe the amount consumed, and in the second container the amount was hidden from view by shielding the graduated glass reservoir. The patients were tested upon admission to an inpatient unit and at several weeks after weight restoration (Owen, Halmi, Gibbs, & Smith, 1985).

The researcher expected that the lowest weight patients would take in the least amount of food. A delay in gastric emptying had been observed in emaciated subjects with concomitant symptoms of abdominal discomfort with small intakes. This did not happen. The patients that were 60% of target weight took in the greatest amounts of food. These patients seem to have an enormous starvation hunger which, in the experimental situation, predominated over the psychological resistance to eating.

This author also observed restricted intake in the bulimic-anorexics which may be related to anxiety associated with losing control. In covered conditions, the intake was lower still, which may be associated with more anxiety with visual cues being removed. Thus it was observed in this study that the terms "hunger," "fullness," "appetite," and
"satiety" were subjectively perceived in different ways by different subjects.

Studies related to perception of food portions of eating disorder clients is sparse. Yellowlees, Roe, Walker, & Ben-Tovim (1988) tested the hypothesis that patients with anorexia nervosa exaggerate portion sizes. Video recordings of five high energy foods and four neutral objects of similar size were made so that the size of the object increased steadily from half to twice its normal size. Twenty female patients diagnosed with anorexia nervosa and twenty female controls were asked to adjust the size of the video recording using a remote control unit to that of the real object, which was displayed next to the screen. Both groups exaggerated the size of the food compared to the neutral objects. The patients exaggerated the size of the food to a greater extent than the controls. It was hypothesized that foods patients valued more would be exaggerated more than those they did not. Nutritional counseling involving food portion training would be an important intervention to measure improvements in the estimations.

Various training methods to improve accuracy of food portion estimation have been evaluated along with the effectiveness of training on increasing accuracy. Training methods have included the use of food models, videotapes,
and food pictures (Bolland & Bolland, 1990; Bolland, Yuhas, & Bolland, 1988; Brown et al., 1990; Pietinen et al., 1988).

Bolland et al. (1988) studied the effectiveness of two types of training on the ability to estimate food portions in 42 female college student volunteers. One training group practiced measuring various solid and liquid foods using household measurements. A second group viewed food models of solids and liquids. Following the training session, subjects were asked to quantify portion sizes of foods displayed within the context of meals. A third group received no training but also estimated the same portion sizes. Results indicated no statistically significant difference between the two types of training but there was improvement in estimation between the two trained groups compared to the third group receiving no training.

Improved accuracy of estimating portion sizes of college students was examined by Bolland & Bolland (1990). Training consisted of ten-minute sessions in which subjects passed around and viewed ten food models labeled with their respective portion sizes. They were asked to estimate the portions at three intervals: immediately after training, one week later, and four weeks later. Untrained subjects estimated quantities of the same foods. Trained subjects estimated food portions better than untrained subjects at each time interval. Estimates of the trained subjects at immediate and one-week intervals were more accurate than at
four weeks. This study implies that training may help improve accuracy and that periodic reviews may be necessary.
CHAPTER III

METHODOLOGY

Introduction

The intent of this study is to investigate the responses from individuals diagnosed with an eating disorder using three instruments at three different time intervals. Pilot studies for two of the instruments will be described in this chapter along with a profile of the respondents and procedural steps related to the collection of data. A list of the instruments used and their description will also be included.

Pilot Study

A pilot study was conducted using two of the instruments, the Nutrition Attitude (NA) Survey and the Food Portion Quiz (FPQ). The NA was used as a component of the weekly nutrition group held on the inpatient unit at a psychiatric hospital in the Tidewater area in Virginia. The questionnaire was given to a total of 15 clients admitted for anorexia or bulimia nervosa.

The FPQ was also administered within the same time period with inpatients from the same group plus seven outpatient clients. The purpose of conducting this trial was to evaluate each item for clarity for the actual study.
Particular attention was directed not only to responses but to comments from respondents as well.

Modifications were made in the NA that involved deletion of several items that were not directly related to nutritional terms. A more detailed description of the items is included in the next section.

A decision was made to develop a second FPQ with similar types of foods. Patients taking the identical quiz a second time relied on memory instead of their actual perceptions of portions.

Population

The target population for this study were female patients diagnosed with an eating disorder of anorexic or bulimic nature. Most subjects met the criteria for anorexia or bulimia nervosa as described in DSM-III-R. A few patients, however, were diagnosed with an eating disorder with bulimic features because they failed to meet all of the criteria, specifically those related to binge episodes. Those patients who required hospitalization were admitted to a Tidewater private psychiatric hospital. The Eating Disorders Unit was housed on a general, high-functioning adult psychiatric unit. Outpatients were those in treatment with the same health care professionals.

The twelve study participants were between the ages of 15 and 34. All patients were Caucasians with the exception
of one African-American. Patients were referred to both inpatient and outpatient programs by other health professionals, by self through advertising, or by other patient referrals, and came from the local Hampton Roads area. Those who were previously admitted to the program were excluded because changes in eating attitudes and perception of food portions may have been affected from prior treatment. Two patients had been previously hospitalized at other facilities, but they had not received nutritional counseling.

Approval

Approval to conduct the study and administer the instruments for hospital participants was granted on December 13, 1988, by the Executive Medical Committee at the psychiatric facility where the study was to be conducted. Copies of the tests and consent form (Appendix A-F) were distributed to members of the committee which included the hospital administrator, medical director, director of nursing, quality assurance coordinator, admitting psychiatrist for the Eating Disorder's Adult Program, and other psychiatrists. A brief description of the study was provided. No objections were voiced, and support for the study was offered by various committee members.

Outpatient approval was granted by the director of the outpatient component of the Center for Eating Disorders
along with team members that included other clinicians treating these clients. Again the instruments and consent forms were distributed, and support was unanimous.

**Instruments**

Three instruments were used with each subject. The Eating Attitude Test (EAT) was administered to patients receiving a diagnosis of anorexia nervosa. The Survey of Eating Styles or Bulimia Test (BULIT) was administered to those receiving a diagnosis of bulimia nervosa or those diagnosed with an eating disorder with bulimic features. All clients received a NA survey at each of three designated intervals. An FPQ was administered at the first two intervals to assess patients' estimations of selected food portions (Appendices B, C, D, E, and F).

**Description of the Instruments and Scoring Techniques**

**Eating Attitudes Test (EAT)** The EAT was developed by Garner and Garfinkle (1979) in an effort to develop a rating scale which would be useful in evaluating a broad range of certain behaviors and attitudes found in anorexia nervosa. The test consists of 40 items in a six-point, forced choice, self-report format. It was developed to provide a valid and efficient objective method for evaluating the severity of symptoms in anorexia nervosa. In addition to prognostic use, Clinton & McKinlay (1986) utilized the survey to
compare acutely ill and recovered anorexics. Thus the EAT may be suitable as either an outcome measure in clinical groups or as a screening instrument in non-clinical settings.

Total scores (greater than 30) were found by Garner & Garfinkle (1979) to be useful as a screening instrument for identifying actual or incipient cases of anorexia nervosa and were used in the current study to validate diagnosis. Subscales of the EAT, reported by Garner, Olmsted, Bohr, & Garfinkle (1982) were developed to determine whether item clusters were associated with clinical features of the disorder. Three factors---dieting, bulimia and food preoccupation, and oral control---were extracted (Table 4).

Factor I of the EAT subscales, dieting, reflects a pathological avoidance of fattening foods and body image preoccupations. The second factor, bulimia and food preoccupation, consists of items indicating thoughts about food and those indicating bulimic features. Oral control relates to self-control of eating and the perceived pressure from others to gain weight. It should be noted that fourteen items did not load on any of the factors and were eliminated, creating a later 26-item version which was proposed by Garner et al. (1987). The original 40 items were used in this study, however.

Scoring of the EAT is described by Garner and Garfinkle (1979). The most symptomatic response is given a numerical
## Table 4

**Eat-40 Factor Structure**

<table>
<thead>
<tr>
<th>Item Numbers</th>
<th>Item Content</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor 1: Dieting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Am terrified about being overweight</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Aware of the calorie content of foods that I eat</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Particularly avoid foods with high carbohydrate content</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Feel extremely guilty after eating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Am preoccupied with a desire to be thinner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>22.</td>
<td>Think about burning up calories when I exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>25.</td>
<td>Am preoccupied with the thought of having fat on my body</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>29.</td>
<td>Avoid foods with sugar in them</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>Eat diet foods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>36.</td>
<td>Feel uncomfortable after eating sweets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>Engage in dieting behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>38.</td>
<td>Like my stomach to be empty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>39.</td>
<td>Enjoy trying new rich foods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Factor 2: Bulimia and food preoccupation**

<table>
<thead>
<tr>
<th>Item Numbers</th>
<th>Item Content</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Find myself preoccupied with food</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>7.</td>
<td>Have gone on eating binges where I feel that I might not be able to stop</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>13.</td>
<td>Vomit after I have eaten</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>31.</td>
<td>Feel that food controls my life</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>34.</td>
<td>Give too much time and thought to food</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>40.</td>
<td>Have the impulse to vomit after meals</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

"X" designates the most symptomatic response

**Note.** 1-Always; 2-Very Often; 3-Often; 4-Sometimes; 5-Rarely; 6-Never
### TABLE 4 (continued)

**EAT-40 FACTOR STRUCTURE**

<table>
<thead>
<tr>
<th>Item Numbers</th>
<th>Item Content</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Avoid eating when I am hungry</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Cut my food into small pieces</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Feel that others would prefer if I ate more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Other people think that I am too thin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Take longer than others to eat meals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>Display self-control around meals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>Feel that others pressure me to eat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

"X" designates the most symptomatic response

**Note.** 1-Always; 2-Very Often; 3-Often; 4-Sometimes; 5-Rarely; 6-Never

---

score of 3 points. Adjacent responses were weighted as 2 points and 1 point, respectively. The EAT was validated using two groups of female anorexic subjects and a female control group.

Mean scores for the EAT were 8.9 for the anorexic group (N=33), 15.6 for the normal controls (N=59), and 11.4 for the clinically recovered anorexic patients (N=9). The final score suggested that the EAT is sensitive to clinical remission. These scores along with other criterion measures suggest that the EAT is a valid index of symptoms frequently observed in anorexic patients.

The Bulimia Test (BULIT)  One of the difficulties encountered in clinical work and research of bulimia is the absence of reliable and valid assessment indices. Smith & Thelen (1984) wanted to develop a tool that would help differentiate individuals who exhibit the bulimic syndrome from those without eating problems, as well as those with other eating disorders, such as anorexia nervosa or compulsive overeating.

The BULIT, a 32-item, self-report, multiple choice scale was developed to address this need. Cross-validation was performed on independent samples of bulimic and normal control subjects. The scale was then administered to 652 female college students enrolled in an introductory psychology class at the University of Missouri. A
stratified sample of these subjects was retested and interviewed to establish reliability of the test.

The BULIT in the present study was used to help support the diagnosis of bulimia nervosa. Those scoring above 102 were classified as meeting the criteria for diagnosis of bulimia. In addition, the BULIT was readministered after the acute (inpatient) treatment to assess any changes in total score.

Support for using the test in this situation can be found in Smith & Thelen's validation study (1984). Eight "false negative" subjects, that is subjects who scored in the normal range on the BULIT yet were classified by judges as bulimic, were described as improved or "in remission." Four of these subjects had, in fact, scored in the bulimic range on the first testing just two months prior to the interviews. This suggests that the scale is sensitive to clinical remission.

The original BULIT described thus far actually represents the first 36 questions of the Bulimia Test. The remaining 21 questions represent a revision of the BULIT to accommodate DSM-III-R criteria for bulimia nervosa. The revised DSM-III criteria contain changes from the earlier criteria and are being used on an exploratory basis. Depending on research findings, they may make up the criteria for DSM-IV. For example, DSM-III-R specifies a minimum number of binge episodes and preoccupation with body
image that were not included in the original DSM-III. However, at the time this study was conducted, no validation or reliability studies for the DSM-III-R criteria had occurred (Schotte & Stunkard, 1987). Although norms were never established for the last 21 questions, these items will be included as they address the revised criteria. See Table 5. (Pruitt, personal communication, 1990).

Scoring of the original 36 questions is described by Smith & Thelen (1984). The strongest symptomatic response receives a score of five points. One point is scored for the most "normal" response with 4, 3, and 2 being given in descending order from most to least symptomatic response. The additional 21 questions are scored in the same manner. Because these items have not been validated, they will be included in a factor structure described later. Total scores included the only original 36 validated questions.

Nutrition Attitudes (NA) The NA questionnaire was utilized to give patients an opportunity to rate their impressions of various nutrients and foods. The NA questionnaire appeared in "Healthy Eating," a manual published in 1984 at the University of Minnesota Hospital and Clinic. The original ten items were: fat, milk, carbohydrates, pasta, protein, white bread, apples, ice cream, eating after 8:00 p.m., and salad. Based on verbal responses from patients during the pilot study, the list was revised. Potatoes were substituted for pasta, suggesting a
**TABLE 5**
REVISED BULIT CRITERIA

<table>
<thead>
<tr>
<th>DSN-III-R CRITERIA</th>
<th>ITEM NUMBERS FROM SURVEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise</td>
<td>38, 54</td>
</tr>
<tr>
<td>Frequency of Binges/Control</td>
<td>39, 41, 57, 58, 46, 47, 51, 48</td>
</tr>
<tr>
<td>Body Shape/Image</td>
<td>40, 49, 52, 56, 44, 55, 42, 45</td>
</tr>
<tr>
<td>Length of Time Bingeing</td>
<td>43</td>
</tr>
<tr>
<td>Frequency of Fasting and Strict Diets</td>
<td>50, 53</td>
</tr>
</tbody>
</table>
more powerful interpretation of a feared food, i.e. "potatoes are fattening." A response to the word "protein" is often perceived differently from "foods containing protein." Meats, especially red meats, often being feared as high in fat, along with a lower fat alternative, chicken, were added to differentiate between the "all good" perception of protein as a nutrient and the "bad" perception of meats. While "eating after 8:00 p.m." is a controversial and often misunderstood concept, a decision was made to stay with food and nutrient items only. The final form lists the three major calorie contributing macro-nutrients, as well as one or two specific foods representative of the basic four food groups.

With this instrument, participants reflect their attitudes toward certain foods by rating them in a Likert scale format. Bulimic patients frequently express dichotomous thoughts about foods as "all good" or "all bad," with the "all bad" foods being excluded from their routine diets. However, these same "bad foods" frequently represent binge foods. This questionnaire is a self-administered, one-page instrument.

After the NA was administered, each of the ten items was discussed by the dietitian, either in group or in individual sessions, clarifying the facts attributed to each nutrient or food item. Common myths were discussed, and participants were encouraged to verbalize their individual
fears and prejudices. For example, the belief that consuming a high fat food would "turn to fat" was discussed in the context of energy requirements. It was hypothesized that following some exposure and discussion of these items along with improved eating habits, an alteration of their attitudes might be reflected in less extreme responses. Scoring of this instrument was not recommended (Frarey, personal communication, 1991). Degrees of positive or negative response are not necessarily related to healthy or unhealthy attitudes about foods. However, this instrument is valuable for describing dichotomous responses, patterns of responses, and subjective comments.

Food Portion Quiz (FPO) As previously emphasized, the ability of clients to accurately estimate portion sizes is an important feature of assessment and treatment of eating disordered clients. To assess the ability of patients to accurately estimate portion sizes, a form was developed by this author (Appendix E). This form listed 11 food items with varying portion sizes for each in a multiple choice format. Upon viewing each specific food item the patient was instructed to check the correct portion size. An alternate form was developed for the second administration (Appendix F).

A decision was made to use plastic food models instead of actual food, based on practicality of administration of the test and existing support for this medium in food
portion training (Bolland et al., 1988; Yuhas, Bolland, & Bolland, 1989). Food models also would provide consistency in size and appearance over time.

"Life Form" food replicas (Nasco, 1988) were shown to each client in a standard nine-inch dinner plate, a six-inch bowl, or a beverage glass provided with the food model. One exception was actual popcorn, which was used and displayed in a quart-size zip-lock transparent plastic bag. Table 6 lists the food items on FPQ 1 and FPQ 2.

FPQ 1 was administered first within one week of hospital admission or on the second follow-up visit for outpatients. FPQ 2 was administered a second time at the time of discharge for inpatients or after six weeks of treatment and after two months of outpatient treatments or after six sessions, whichever came first. FPQ 2 contains foods of similar type to FPQ 1 but different actual foods to avoid patients' responses based on memory of their original responses.

Hospitalized patients received the FPQ 2 in a group format as part of the educational groups offered by the hospital dietitian. To enhance the presentation of "food portion estimation," patients were asked to volunteer to measure out water and popcorn in various size glasses and cups (for the water) and bowls (for popcorn). This took place following the completion of the FPQ. While this
<table>
<thead>
<tr>
<th>FPQ 1</th>
<th>FPQ 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 3 oz. fish (cooked)</td>
<td>1. 3 oz. chicken</td>
</tr>
<tr>
<td>2. 3 oz. roast beef (raw portion)</td>
<td>2. 2½ oz. pork chop</td>
</tr>
<tr>
<td>3. 1 T. peanut butter</td>
<td>3. ½ oz. cottage cheese</td>
</tr>
<tr>
<td>4. ¼ c. broccoli</td>
<td>4. ¼ c. carrots</td>
</tr>
<tr>
<td>5. 1 c. cubed watermelon</td>
<td>5. 1 T. French dressing</td>
</tr>
<tr>
<td>6. 1 oz. sliced cheese</td>
<td>6. 1 oz. swiss cheese</td>
</tr>
<tr>
<td>7. 1 oz. cubed cheese</td>
<td>7. ¼ c. oatmeal (cooked)</td>
</tr>
<tr>
<td>8. ¼ c. cornflakes</td>
<td>8. ¼ c. chocolate ice cream</td>
</tr>
<tr>
<td>9. 1 c. spaghetti and meat sauce</td>
<td>9. ⅛ c. rice</td>
</tr>
<tr>
<td>10. 3 c. popped corn</td>
<td>10. French fries (&quot;regular&quot; fast food size)</td>
</tr>
</tbody>
</table>
exercise was not formally evaluated, the interaction or
direct experience may be useful in future studies of portion
size.

A numerical score of "0" was given to each correct
response. A "-1" was given to the choice closest to correct
but underestimated, while a "+1" was given to the closest
overestimated choice. The next erroneous response was given
a "-2" or "+2," depending upon whether the response was
again over or underestimated. Therefore, a score of zero
indicated most items were either correctly estimated or
small errors of overestimation and underestimation were
made. A negative total score would indicate food portions
were generally underestimated, and a positive total score
would indicate general overestimation.

Procedure

A set of questionnaires (EAT, BULIT, and NA) and a
consent form (Appendix A) were presented to each client
following the initial nutritional evaluation conducted by
the dietitian. Outpatients were instructed to complete the
forms at that time if at all possible. If they were unable
to complete them immediately, they were asked to return them
to the dietitian at their first follow-up visit. Inpatients
were directed to return them to the nursing staff. A FPQ
was administered by the dietitian at the first follow-up
visit. As previously described, patients were instructed to
estimate a serving size using a forced choice questionnaire when shown a food model by the researcher. The form was then collected, and the correct responses were reviewed with the client.

A second administration of the questionnaires was conducted with each hospitalized client at the time of discharge or after six weeks of treatment, whichever occurred first. Outpatients received the same forms following the first two months of outpatient treatments or after six follow-up sessions with the dietitian, whichever came first. The second FPQ was also administered by the dietitian at this time.

All measures, with the exception of the FPQ, were again administered two months later, the time not being contingent on nutritional intervention. If the client was no longer seeing the dietitian, the receptionist or clinician requested the client to complete the forms prior to or after one of the scheduled appointments with the therapist. Patients that had dropped out of treatment all together did not receive the third set of questionnaires. (Appendix G illustrates the study design.)

Demographic and specific nutritional information about each client was obtained from the initial nutritional evaluation. Subsequent interviews provided follow-up comments and observations. Clients were asked to report
their intake as outpatients in a food diary format which was presented to the dietitian in outpatient sessions.

Subjects received individualized treatment following psychiatric, medical, and nutritional evaluation. Treatment consisted of psychotherapy with the individual sessions occurring one to three times weekly. Most patients were also involved in family and group therapy.

Inpatient treatment differed from outpatient treatment in several respects. For inpatients, a tightly structured protocol, including nursing supervision, meals, supplementation, and behaviorally controlled privileges were utilized. As patients progressed and weight was gained or appropriately maintained, a progression in "levels" and privileges, encouraging autonomy, was granted. Daily weights were taken by nursing staff after patients voided and before breakfast. Patients were dressed in nightgown only.

As part of the hospital protocol, meals were prepared by dietary staff with kilocalories and portions being determined by the dietitian until target weight was attained and/or the inpatient assessed through observation that the patient had made significant progress. All of the meals and snacks had to be consumed or a liquid supplement was required. Kilocalories were prescribed to attain a two-pound-a-week weight gain for anorexics or two-pound weight loss for overweight bulimics. If solid food was
insufficient to provide a weight gain, liquid supplementation was provided in addition to solid foods. A limit of four food dislikes was allowed to assure a wide variety of food was offered and to lessen avoidance of "forbidden" foods. Exclusion of total groups of foods was not allowed; that is, patients could not request "meat" as a dislike but could specify "pork" or "hot dogs."

A weekly nutrition education class was presented by the dietitian. Topics included metabolism, basic nutrition, estimating portion sizes, meal planning, and dining out. In the group session that focused on estimating portion sizes, in addition to using food models, the discussion included the deceptive nature of serving dishes in judging portion size, standard portions of four food groups necessary to meet minimum nutritional requirements, and methods to help improve judging portion size.

The inpatient program also included a body image class that met weekly, group psychotherapy three times a week, and other unit groups with adult patients without eating disorders. Topics at these other group meetings included coping skills, discharge planning, art, leisure therapy, and exercise.

Outpatient treatment lacked the structure and intensity provided in the hospital setting. Individual, family, and optional group therapy was provided by the same group of professionals providing inpatient care. Intervention
consisted of one to two individual therapies a week, family or marital therapy weekly, nutritional follow-up weekly, and group therapy once every two weeks. Patients were weighed on medical scales each visit (fully clothed) by the dietitian.

The dietitian's protocol for administering the nutritional component of treatment is outlined in Appendix H. This protocol was utilized for both inpatients and outpatients. The length of time spent on each step was variable and dependent on the patient's progress.

For all subjects, information was kept including age, sex, educational status, height, current weight and changes in weight, ideal body weight, and target weight.

**Statistical methods**

This research is an exploratory study with the goal of developing further research hypotheses. It was essential that the design of the study be somewhat flexible so that discovery of ideas and insight could be enhanced, formulating the problem for further research.

The case study format of this study permits an in-depth investigation of several factors with each participant which would not have been possible in a different format. A true experimental design is not possible due to the lack of a control population and the lack of an objectively measured
intervention. Data analysis will include descriptive statistics and frequency distributions.
CHAPTER IV
RESULTS AND DISCUSSION

Characteristics of the sample

All participants in the study were female, and all participants were Caucasian except one who was African-American. Their ages ranged from 15 to 35 years with a mean age of 24.17 years. Five of the participants were diagnosed with anorexia nervosa and seven with bulimia nervosa or with an eating disorder with bulimic features. A total of twelve participants completed at least two sets of questionnaires. Three of the anorexics and four of the bulimics were hospitalized. The duration of the hospitalization ranged from three to eight weeks. Table 7 lists the demographic features of the population. Participants will be referred to in the remainder of this paper by their designated code in the table.

All participants diagnosed with anorexia were at least 15% below their ideal body weight (IBW) as defined by DSM-III-R. Those participants with bulimia ranged from 87% to 111% of their IBW at the time of admission.

Three participants (IA-1, IB-9, and OB-12) were married. The first two had three children, and OB-12 had one child. Participant-IB 6 had been previously married and
## TABLE 7

DESCRIPTION OF THE SAMPLE AT TIME OF ADMISSION TO PROGRAM

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Age onset</th>
<th>Duration of illness</th>
<th>Hospital length of stay</th>
<th>Weight in pounds</th>
<th>% IBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA 1</td>
<td>34</td>
<td>19</td>
<td>15 yrs.</td>
<td>f4 wks.</td>
<td>95</td>
<td>80%</td>
</tr>
<tr>
<td>IA 2</td>
<td>15</td>
<td>14</td>
<td>1 yr.</td>
<td>6 wks.</td>
<td>97½</td>
<td>78%</td>
</tr>
<tr>
<td>IA 3</td>
<td>18</td>
<td>16</td>
<td>1½ yrs.</td>
<td>4 wks.</td>
<td>98</td>
<td>75%</td>
</tr>
<tr>
<td>OA 4</td>
<td>23</td>
<td>18</td>
<td>5 yrs.</td>
<td>N/A</td>
<td>106</td>
<td>85%</td>
</tr>
<tr>
<td>OA 5</td>
<td>22</td>
<td>21</td>
<td>1 yr.</td>
<td>N/A</td>
<td>95½</td>
<td>83%</td>
</tr>
<tr>
<td>IB 6</td>
<td>35</td>
<td>33</td>
<td>1½ yrs.</td>
<td>3 wks.</td>
<td>104½</td>
<td>100%</td>
</tr>
<tr>
<td>IB 7</td>
<td>19</td>
<td>13</td>
<td>6 yrs.</td>
<td>5 wks.</td>
<td>123½</td>
<td>96%</td>
</tr>
<tr>
<td>IB 8</td>
<td>28</td>
<td>24</td>
<td>4 yrs.</td>
<td>2 mos.</td>
<td>134</td>
<td>111%</td>
</tr>
<tr>
<td>IB 9</td>
<td>33</td>
<td>16</td>
<td>17 yrs.</td>
<td>f3 wks.</td>
<td>117</td>
<td>87%</td>
</tr>
<tr>
<td>OB 10</td>
<td>21</td>
<td>20</td>
<td>1 yr.</td>
<td>N/A</td>
<td>121</td>
<td>100%</td>
</tr>
<tr>
<td>OB 11</td>
<td>21</td>
<td>15</td>
<td>6 yrs.</td>
<td>N/A</td>
<td>138</td>
<td>99%</td>
</tr>
<tr>
<td>OB 12</td>
<td>21</td>
<td>17</td>
<td>4 yrs.</td>
<td>N/A</td>
<td>112</td>
<td>100%</td>
</tr>
</tbody>
</table>

*IA - inpatient anorexic
*OA - outpatient anorexic
*IB - inpatient bulimic
*OB - outpatient bulimic
*%IBW - percentage of actual weight to ideal body weight
*Number represents acute hospitalization. Both participants required transitioning to a day treatment program.
was engaged to be married at the time of the study. She had one child from her first marriage living outside the home.

Four of the five participants with anorexia nervosa were living with their families of origin. Three from the bulimic group were living with their family of origin, and the remainder were living with friends. A total of four participants from the anorexic group and four from the bulimic group were attending a college or had plans to return either after discharge from the hospital or when their condition had stabilized. All participants had a minimum of twelve years of education with the exception of IB-8 who had completed eleven years of school.

All of the participants received weekly or biweekly individual psychotherapy. Two of them (OB-19 and OB-12) were treated by a therapist outside the immediate treatment team; these individual therapists were kept informed as to their nutritional follow-up. These patients were discussed within the treatment team when necessary.

Subjects also participated in family and/or marital therapy. The frequency of these therapies varied but occurred at least weekly. All patients received medical attention with an initial history and physical and follow-up for medical problems. Nutritional consultation occurred in group and individual format on a weekly basis for inpatients and usually on a weekly basis for outpatients with individual consultation.
In addition to an eating disorder related diagnosis, the subjects were diagnosed with a variety of dual psychiatric disorders that are listed in Table 8. These accompanying dual diagnoses support the findings that eating disordered patients commonly have some underlying psychological dysfunction (Root et al., 1986, p. 83; Herzog & Copeland, 1985). Depressive disorders were diagnosed in 66.7% of the cases studied. Depression is characterized by apathy, dejection, sadness, and self-blame (Price & Lynn, 1986). Dysthymia, a chronic disturbance of mood involving depressed mood, is characterized by low self-esteem, poor concentration, and feelings of helplessness (DSM-III-R, p. 230). Dysthymic disorder was diagnosed in 58.3% of the cases. Substance abuse, suicidal attempt or ideation, and other disorders were also diagnosed in the population studied.

Herzog & Copeland (1985) report anorexia as beginning when the teenager is overweight or perceives herself to be overweight. If 110% of ideal body weight is used as a criteria for being overweight, only one of the anorexic individuals actually had a weight problem when symptoms began. However, a perceived weight problem and the need to "diet" was common among all participants. Five of the bulimic individuals had a true history of weight problems at the onset of their symptoms. Only one participant denied
## TABLE 8

**ACCOMPANYING PSYCHIATRIC DISORDERS**

<table>
<thead>
<tr>
<th>DIAGNOSIS</th>
<th>NUMBER OF PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Depressive Disorder</td>
<td>8</td>
</tr>
<tr>
<td>Dysthymic Disorder</td>
<td>7</td>
</tr>
<tr>
<td>Substance Abuse (alcohol, caffeine, drugs)</td>
<td>4</td>
</tr>
<tr>
<td>Suicidal Ideation or Attempt</td>
<td>4</td>
</tr>
<tr>
<td>Other (anxiety, adjustment disorder, borderline personality disorder, multiple personality disorder)</td>
<td>3</td>
</tr>
</tbody>
</table>
weight as an issue (IB-6). A preoccupation, therefore, for weight loss was common among all but one of the participants.

Overlap between anorexia and bulimia has been reported and is also common in the group studied. Frequency of bingeing, purging, and food restriction are represented in Table 9.

Binge eating, or a history of binge eating, was reported in 83.3% of the cases. The frequency and/or extent of the binge did not always meet the DSM-III-R criteria for binge eating or was not occurring at the time of admission which is why these individuals (4) did not qualify for DSM-III-R's diagnosis of bulimia nervosa. It is important to note that the occurrence of binge eating was based on the patient's subjective perception of what constitutes a binge. For some clients a "normal" meal would be considered excessive and would be described as a binge. There is an open question if self-report is valid to predict the severity of eating symptoms. Purging was reported in 100% of the cases. Purging mechanisms included food restriction (100%), vomiting (75%), laxative abuse (58.3%), exercise excess (41.7%), diet pills (33.3%), and diuretics (16.7%).

The selection of participants was typical from an epidemiological standpoint. They received similar treatment for their psychological, medical, and nutritional problems. The results of their test scores follow.
TABLE 9

FREQUENCY OF BINGEING, PURGING, AND FOOD RESTRICTION

<table>
<thead>
<tr>
<th></th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Binge Eating</td>
<td>83.3% (10)</td>
</tr>
<tr>
<td>History of Purging</td>
<td>83.3% (10)</td>
</tr>
<tr>
<td>History of Food Restriction</td>
<td>100% (12)</td>
</tr>
</tbody>
</table>
Test Scores for the EAT, BULIT, and FPQ

The instruments were scored as previously discussed in the methodology section. Table 10 lists the final scores from the EAT, BULIT, and FPQ for all participants.

EAT: anorexic participants  All anorexic participants, with one exception, scored above the diagnostic cut-off of 30 points for the first administration of the instrument. These same clients had improved scores when the test was administered a second time, still above the diagnostic cut-off of 30 points (Appendix I).

One participant, IA-3, scored below the diagnostic cut-off of 30 on the first administration of the instrument and was the only client whose score increased, indicating a worsening of symptoms. It was decided to keep her in the study initially because the circumstances of her admission may have had an impact on her score. Unlike other participants, she was directly admitted from a medical hospital where she had been treated for dehydration. She had received no prior treatment for her eating disorder. While other patients had sought treatment on their own accord, it is feasible that this patient's level of denial, which is very common in these individuals, interfered with her ability to respond to the questionnaire accurately. It can be suggested that as treatment progressed, her level of denial decreased, resulting in her scoring higher on the test at the time of discharge and in the diagnostic level.
# TABLE 10

**COMPOSITE SCORES OF EAT, BULIT, AND FPQ**

## EAT

<table>
<thead>
<tr>
<th>INPATIENT ANOREXICS</th>
<th>DIAGNOSTIC SCORE</th>
<th>1ST ADMINISTRATION</th>
<th>2ND ADMINISTRATION</th>
<th>CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA-1</td>
<td>&gt;30</td>
<td>71</td>
<td>36</td>
<td>-35</td>
</tr>
<tr>
<td>IA-2</td>
<td>&gt;30</td>
<td>60</td>
<td>12</td>
<td>-48</td>
</tr>
<tr>
<td>IA-3</td>
<td>&gt;30</td>
<td>20</td>
<td>38</td>
<td>+18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OUTPATIENT ANOREXICS</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OA-4</td>
<td>&gt;30</td>
<td>38</td>
<td>35</td>
<td>-3</td>
</tr>
<tr>
<td>OA-5</td>
<td>&gt;30</td>
<td>66</td>
<td>39</td>
<td>-27</td>
</tr>
</tbody>
</table>

## BULIT

<table>
<thead>
<tr>
<th>INPATIENT BULIMICS</th>
<th>DIAGNOSTIC SCORE</th>
<th>1ST ADMINISTRATION</th>
<th>2ND ADMINISTRATION</th>
<th>CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IB-6</td>
<td>&gt;102</td>
<td>58</td>
<td>40</td>
<td>-18</td>
</tr>
<tr>
<td>IB-7</td>
<td>&gt;102</td>
<td>104</td>
<td>87</td>
<td>-17</td>
</tr>
<tr>
<td>IB-8</td>
<td>&gt;102</td>
<td>74</td>
<td>89</td>
<td>+15</td>
</tr>
<tr>
<td>IB-9</td>
<td>&gt;102</td>
<td>129</td>
<td>87</td>
<td>-42</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OUTPATIENT BULIMICS</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OB-10</td>
<td>&gt;102</td>
<td>147</td>
<td>131</td>
<td>-16</td>
</tr>
<tr>
<td>OB-11</td>
<td>&gt;102</td>
<td>88</td>
<td>87</td>
<td>-1</td>
</tr>
<tr>
<td>OB-12</td>
<td>&gt;102</td>
<td>77</td>
<td>73</td>
<td>-4</td>
</tr>
</tbody>
</table>
TABLE 10 (CONTINUED)

COMPOSITE SCORES OF EAT, BULIT, AND FPQ

<table>
<thead>
<tr>
<th></th>
<th>FPQ 1</th>
<th>FPQ 2</th>
<th>CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANOREXICS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA-1</td>
<td>+5</td>
<td>+14</td>
<td>+9</td>
</tr>
<tr>
<td>IA-2</td>
<td>+1</td>
<td>+5</td>
<td>+4</td>
</tr>
<tr>
<td>IA-3</td>
<td>+2</td>
<td>+5</td>
<td>+3</td>
</tr>
<tr>
<td>OA-4</td>
<td>+8</td>
<td>+13</td>
<td>+5</td>
</tr>
<tr>
<td>OA-5</td>
<td>+2</td>
<td>+9</td>
<td>+7</td>
</tr>
<tr>
<td><strong>BULIMICS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IB-6</td>
<td>-2</td>
<td>0</td>
<td>+2</td>
</tr>
<tr>
<td>IB-7</td>
<td>+1</td>
<td>+8</td>
<td>+7</td>
</tr>
<tr>
<td>IB-8</td>
<td>+5</td>
<td>+1</td>
<td>-4</td>
</tr>
<tr>
<td>IB-9</td>
<td>+9</td>
<td>+9</td>
<td>0</td>
</tr>
<tr>
<td>OB-10</td>
<td>+11</td>
<td>+11</td>
<td>0</td>
</tr>
<tr>
<td>OB-11</td>
<td>+5</td>
<td>+10</td>
<td>+5</td>
</tr>
<tr>
<td>OB-12</td>
<td>0</td>
<td>-2</td>
<td>-2</td>
</tr>
</tbody>
</table>
This individual took the test a third time, two months after discharge, and scored 33 (net change of 13 points).

**BULIT: bulimic group of participants** Only three bulimic clients scored in the diagnostic range for the BULIT (greater than 102) (Appendix J). Of those three, two, who were hospitalized patients, improved their scores to below the diagnostic level. OB-10 reflected an improved score by 16 points but remained in the diagnostic range of 131.

The four participants who scored lower than the diagnostic level of 102 had a diagnosis of Eating Disorder with bulimic features. These patients denied active binge eating which is necessary for the diagnosis of bulimia nervosa. They either had a prior history of binge eating or did not admit to binge eating to the extent necessary for the diagnosis.

Of these four patients, all but one improved in their scores as well. IB-8 had a higher score by 15 points on the second administration of the BULIT. It should be noted that this patient required a total of two months of hospitalization so that her length of stay (LOS) had not been completed at the time of the second administration, six weeks after her admission.

Thelen et al. (1987) reported that bingeing was clearly the major variable in bulimia when a factor analysis was performed using the BULIT. It is not surprising, therefore, that the participants who were not actively bingeing at the
time of administration of the instrument scored lower than a diagnostic level set by the same authors. It should also be noted that these patients reported at least a history or perception of binge eating and fulfilled other DSM-III-R criteria for bulimia.

These participants who presented with active binge eating (IB-7, IB-9, and OB-10) did score above the 102 points. Only the inpatients responded below the diagnostic score on the second administration which may be a result of being unable to binge eat in the more controlled and structured environment of the hospital.

FFQ: all participants Total scores for the FFQ are also listed in Table 10 along with changes in their scores. It should be noted that a positive score (+) indicates an overall tendency to overestimate; a negative score (-) would indicate an overall tendency to underestimate food portion models.

Generally, clients tended to overestimate the portions of the food models rather than underestimate them, which is evident by their positive scores. This tendency has previously been reported in normal subjects (Yuhas et al., 1989; Webb & Yuhas, 1988; Yellowlees et al., 1988). The impact that these patients' altered attitudes and body image distortions have on estimating food portions can only be speculated. Differing results have been presented when comparing accuracy of food portion estimations by overweight
and normal weight subjects (Blake et al., 1989; Lansky & Brownell, 1982).

**Nutrition Attitudes (NA): all participants**

The patients' responses to the NA questionnaire are illustrated in Table 11, "Nutrition Attitudes." The number of responses in each category is listed along with identifying symbols to classify the type of patient responding.

Apples, Protein, and Salad scored more responses in the "all good" category in the first administration of the instrument. These same items were identified as "good" in the second test, but to a lesser degree.

Fat and Ice Cream scored the most frequently as "all bad" in the first administration. In the second administration these items were judged again as less "all bad," with responses varying from the "all bad" to the middle of the scale. Milk, Potatoes, Beef, Chicken, and Carbohydrate elicited less extreme responses in either direction.

In using Hølund's model of attitude components, no distinction was made as to what component of attitude a person's response was directed. Efforts to alter attitude involved all three components. These efforts included exposure to a wide variety of foods by including them in the hospitalized patients' meals or encouraging their inclusion
<table>
<thead>
<tr>
<th>ITEM</th>
<th>FIRST ADMINISTRATION</th>
<th>SECOND ADMINISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bad 1 2 3 4 5 6 7</td>
<td>Good 8</td>
</tr>
<tr>
<td>Milk</td>
<td>☐ o o o ☐ o o</td>
<td>☐ o o ☐ o o o o o</td>
</tr>
<tr>
<td>Potatoes</td>
<td>☐ o o o o o o o ☐</td>
<td>☐ o o o o o o o o</td>
</tr>
<tr>
<td>Protein</td>
<td>o o o o o o o o o o</td>
<td>o o o o o o o o o o o</td>
</tr>
<tr>
<td>Apples</td>
<td>o o o o o o o o o o</td>
<td>o o o o o o o o o o o</td>
</tr>
<tr>
<td>Fat</td>
<td>☐ o o o o o o o o o</td>
<td>o o o o o o o o o o o</td>
</tr>
<tr>
<td>Beef</td>
<td>o o o o o o o o o o</td>
<td>o o o o o o o o o o o</td>
</tr>
<tr>
<td>Chicken</td>
<td>o o o o o o o o o o</td>
<td>o o o o o o o o o o o</td>
</tr>
<tr>
<td>Ice Cream</td>
<td>o o o o o o o o o o</td>
<td>o o o o o o o o o o o</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>o o o o o o o o o o</td>
<td>o o o o o o o o o o o</td>
</tr>
<tr>
<td>Salad</td>
<td>o o o o o o o o o o</td>
<td>o o o o o o o o o o o</td>
</tr>
</tbody>
</table>

Note:  
☐ IA - inpatient anorexic  
☒ OA - outpatient anorexic  
☐ IB - inpatient bulimic  
☒ OB - outpatient bulimic
for outpatients. Beliefs related to nutritional terms were discussed in individual or group nutritional sessions. Alterations in behavior were encouraged by changing present eating habits, such as eating three meals a day and incorporating adequate calories for individual needs in a sample meal plan.

No effort to score this instrument was attempted, because theoretically there is no "perfect" score. A less extreme response emerges when comparing the second administration to the first administration of the instrument since those items with more "all good" or "all bad" responses decreased and/or were moderated in the second administration. The tendency of more extreme responses in the first administration parallels these patients' tendencies toward dichotomous thought patterns.

As previously mentioned, the NA instrument was used to provide a forum for discussion of the various topics and to dispel myths about nutrition in group or individual discussions. Graphic comparison cards (National Dairy Council, 1986, and charts from "You" booklet, National Dairy Council, 1983) were used to illustrate nutritive contents of foods and to focus attention on the nutrients instead of fat and calories. Table 12 summarizes actual comments made by the respondents to express their rationale for various
<table>
<thead>
<tr>
<th>BAD - FIRST THREE CATEGORIES</th>
<th>NEUTRAL - MIDDLE CATEGORY</th>
<th>GOOD - LAST THREE CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high fat; high calories; dislike</td>
<td>calcium and protein sources</td>
<td>a perfect food; infants survive on this</td>
</tr>
<tr>
<td>POTATOES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fattening; put a lot of fat on them</td>
<td>not too high in calories; high in carbohydrates</td>
<td>low in fat</td>
</tr>
<tr>
<td>PROTEIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foods high in protein are high in fat and cholesterol</td>
<td>necessary for growth; may contain some fat nutrient</td>
<td>most important nutrient</td>
</tr>
<tr>
<td>APPLES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sweet; high in sugar</td>
<td>high in fiber; filling</td>
<td>high fiber; healthy food; low calories</td>
</tr>
<tr>
<td>FAT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>body fat; disgust; ugly</td>
<td>need some to satisfy hunger</td>
<td>few good comments</td>
</tr>
<tr>
<td>BEEF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high fat; high cholesterol; high calories</td>
<td>high protein</td>
<td>high protein; contains iron</td>
</tr>
<tr>
<td>CHICKEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>animal fat; meat</td>
<td>lean; high protein; do not fry or eat the skin</td>
<td>lean; low fat; high protein; low calories</td>
</tr>
<tr>
<td>ICE CREAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high fat; make you fat; &quot;trigger food&quot; binge food</td>
<td>acceptable if use low fat variety; dairy product</td>
<td>like the taste</td>
</tr>
<tr>
<td>CARBOHYDRATE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fattening; refined starches, i.e. bread</td>
<td>high fiber; low fat</td>
<td>many nutrients; contains protein; low fat</td>
</tr>
<tr>
<td>SALAD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>too filling; includes salad dressing that is high fat</td>
<td>high nutrients; caution at salad bars</td>
<td>low fat; filling; substitute for a meal</td>
</tr>
</tbody>
</table>
nutrition terms and foods. Participants were encouraged to share their comments with the dietitian and/or other group members.

**Composite scores of the FPQ**

The participants' numerical scores for the FPQ are portrayed in Table 13. Individual scores for each food item as well as numerical totals are listed. There are two types of total scores on this instrument. Total scores are listed as either "algebraic" scores to illustrate a tendency to overestimate, correctly estimate, or underestimate the food portion. A total of +46 points is scored algebraically for the first FPQ and a score of +81 for the second administration of the FPQ. This indicates a greater tendency to overestimate food portions the second time the test was administered.

The other total is called "absolute" error, which is a frequency count of all errors and estimations, whether it be for overestimating or underestimating the food model. A total of 86 was scored for the first administration and 125 for the second administration. Again, there was more of a tendency to error in the second test for both overestimation and underestimation.

Those items most commonly either overestimated or underestimated (absolute error) on the first test were spaghetti, cornflakes, roast beef, and cubed cheese. Those
## TABLE 13

COMPOSITE SCORES OF FPQ

<table>
<thead>
<tr>
<th>FPQ 1</th>
<th>IA QA</th>
<th>IB OB</th>
<th>ALGEBRAIC ERROR</th>
<th>ABSOLUTE ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>0, -1, +1</td>
<td>-1, -1, +2, +1</td>
<td>0, 0, +1</td>
<td>0</td>
</tr>
<tr>
<td>Roast beef</td>
<td>0, 0, +2</td>
<td>0, -2, +2, +1</td>
<td>+1, +1, +2</td>
<td>+8</td>
</tr>
<tr>
<td>Peanut butter</td>
<td>0, 0, -1</td>
<td>0, -1, 0, 0</td>
<td>-2, 0, 0</td>
<td>-5</td>
</tr>
<tr>
<td>Broccoli</td>
<td>0, 0, 0</td>
<td>0, 0, 0, 0</td>
<td>0, 0, +1</td>
<td>+1</td>
</tr>
<tr>
<td>Watermelon</td>
<td>0, 0, 0</td>
<td>0, 0, +1, 0</td>
<td>+1, 0, +1</td>
<td>+4</td>
</tr>
<tr>
<td>Sliced cheese</td>
<td>0, 0, 0</td>
<td>0, +1, +1, 0</td>
<td>0, -1, +1</td>
<td>+3</td>
</tr>
<tr>
<td>Cubed cheese</td>
<td>-1, +1, +1</td>
<td>-1, -1, +1, +1</td>
<td>0, 0, +2</td>
<td>+4</td>
</tr>
<tr>
<td>Cornflakes</td>
<td>+1, +1, +1</td>
<td>+1, 0, +1, +1</td>
<td>+2, -1, 0</td>
<td>+10</td>
</tr>
<tr>
<td>Spaghetti</td>
<td>+2, +1, +2</td>
<td>0, +1, +2, 0</td>
<td>+2, +1, +2</td>
<td>+17</td>
</tr>
<tr>
<td>Popcorn</td>
<td>+1, -1, -1</td>
<td>-1, 0, 0, 0</td>
<td>0, 0, 0</td>
<td>-1</td>
</tr>
<tr>
<td>Milk</td>
<td>-1, 0, 0</td>
<td>0, +2, 0, +1</td>
<td>+1, 0, +1</td>
<td>+5</td>
</tr>
</tbody>
</table>

Total = +46
Absolute error = +81
TABLE 13 (CONTINUED)

COMPOSITE SCORES OF FPQ

<table>
<thead>
<tr>
<th>FPQ 2</th>
<th>IA OA</th>
<th>IB OB</th>
<th>ALGEBRAIC ERROR</th>
<th>ABSOLUTE ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>0,+1,0</td>
<td>-2,-2,-2,-1</td>
<td>-5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>0,+1</td>
<td>-1,0,+1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porkchop</td>
<td>0,0,0</td>
<td>-1,-1,+1,-1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>-1,+1</td>
<td>0,-1,+1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salad dressing</td>
<td>0,-1,0</td>
<td>0,+2,0,-1</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>0,0</td>
<td>0,0,+2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrots</td>
<td>+1,+2,+2</td>
<td>+1,+2,+2,+2</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>+1,+2</td>
<td>+1,-1,+2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange juice</td>
<td>+1,0,+2</td>
<td>0,+1,+2,+2</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>+2,+2</td>
<td>+1,0,+1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cottage cheese</td>
<td>+1,0,+1</td>
<td>+1,+1,+1,0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>+2,+2</td>
<td>+1,+1,0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swiss cheese</td>
<td>0,0,+2</td>
<td>0,+2,0,+2</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>+1,+1</td>
<td>+1,0,0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oatmeal</td>
<td>+1,+2,+1</td>
<td>0,+2,+2,0</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>+1,+2</td>
<td>+2,-1,+1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>+1,-1,+2</td>
<td>+1,0,+1,-1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>+1,+1</td>
<td>+1,-1,+1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>French fries</td>
<td>0,+2,+2</td>
<td>0,+1,+2</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>+1,+2</td>
<td>+2,0,+1,-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ice cream</td>
<td>0,0,+2</td>
<td>0,+1,0,0</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>+2,+1</td>
<td>+1,0,0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total = +86
Absolute error = +125
most commonly overestimated would be spaghetti, cornflakes, roast beef, and milk. On the second test those items most commonly erred were carrots, oatmeal, orange juice, and french fries. Those most commonly overestimated were the same. Those items most often correctly estimated should also be noted and are listed in Table 14.

It is interesting to note that broccoli, watermelon, and popcorn in the first test were more often correctly estimated. These foods would characteristically be considered "safer" and lower calorically than other foods on the test and thus "less threatening." However, the second test is not consistent with this trend. This researcher suspects carrots were misjudged, primarily because their presentation is deceiving; that is, they are spread out and the sliced carrot model appears to be more than it reportedly is. The salad dressing was molded to a tablespoon shape which may have aided the estimation process. The meats, cheeses, and carbohydrates were configured in a similar way in both test administrations.

Yuhas et al. (1989) found that solids were more accurately reported than amorphous foods which were more accurately reported than liquids. This would be consistent with foods that were most commonly overestimated, that is spaghetti, cornflakes, carrots, oatmeal, milk, and orange juice compared to the other items on the test.
TABLE 14
CORRECT FPQ ESTIMATIONS

<table>
<thead>
<tr>
<th>FPQ 1</th>
<th>CORRECT ESTIMATIONS SCORE = &quot;0&quot;</th>
<th>FPQ 2</th>
<th>CORRECT ESTIMATIONS SCORE = &quot;0&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broccoli</td>
<td>11</td>
<td>Salad dressing</td>
<td>8</td>
</tr>
<tr>
<td>Watermelon, popcorn</td>
<td>8</td>
<td>Ice cream</td>
<td>7</td>
</tr>
<tr>
<td>Peanut butter, sliced cheese</td>
<td>7</td>
<td>Swiss cheese</td>
<td>6</td>
</tr>
<tr>
<td>Milk</td>
<td>6</td>
<td>Chicken, pork chop</td>
<td>4</td>
</tr>
<tr>
<td>Fish, roast beef</td>
<td>4</td>
<td>Orange juice, cottage cheese</td>
<td>3</td>
</tr>
<tr>
<td>Cubed cheese</td>
<td>3</td>
<td>Oatmeal</td>
<td>2</td>
</tr>
<tr>
<td>Cereal, spaghetti</td>
<td>2</td>
<td>Rice</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carrots</td>
<td>none</td>
</tr>
</tbody>
</table>
Body image perceptions

To further investigate the relationship between body image perception and what influence it may have on perception of food portions, two subscales were developed, called "Fear of Fatness." These subscales were formulated from the EAT and the BULIT to depict a "fear of fatness." Factor I subscale from the EAT (Table 4) was utilized. It was described by Garner et al. (1987) as containing those items that included dieting issues that reflected an avoidance of fattening foods and body image preoccupation. In addition, items 16 and 17 were added. These items did not sufficiently load to be factored in the original analysis but they are pertinent to this application. Table 15 lists the Fear of Fatness subscales for the EAT and the BULIT.

The DSM-III-R criteria of "persistent overconcern with body shape and weight" was added in the revised BULIT. A factoring of the last 21 items had not been performed. Table 15 lists the items selected for this study to parallel the factors designated in the EAT to again reflect avoidance of fattening foods and body image preoccupation.

Two questions emerged from the data presented in the current study. First, do "feelings of fatness" diminish or increase as patients with eating disorders gain weight or resume more normal eating patterns; and second, how do the "feelings of fatness" relate to estimations of food by these
### TABLE 15

**FEAR OF FATNESS SUBSCALES FOR EAT AND BULIT**

**FOR EAT**

4. Am terrified about being overweight.

9. Aware of the caloric content of foods that I eat.

10. Particularly avoid foods with a high carbohydrate content.

14. Feel extremely guilty after eating.

15. Am preoccupied with a desire to be thinner.

16. Exercises strenuously to burn off calories.

17. Weigh myself several times a day.

22. Think about burning up calories when I exercise.

25. Am preoccupied with the thought of having fat on my body.

29. Avoid foods with sugar in them.

30. Eat diet foods.

36. Feel uncomfortable after eating sweets.

37. Engage in dieting behavior.

38. Like my stomach to be empty.

39. Enjoy trying new rich foods.

**Fear of Fatness Total possible points (most symptomatic):** 45
### TABLE 15 (CONTINUED)

**FEAR OF FATNESS SUBSCALES FOR EAT AND BULIT**

**FOR BULIT**

25. What is the most weight you've ever lost in one month?
26. If I eat too much at night I feel depressed the next morning.
19. I have tried to lose weight by fasting or going on strict diets.
29. I feel depressed immediately after I eat too much.
40. I am very bothered about my physical shape.
42. Other people's comments about my appearance:
44. I feel fat when I compare myself with other people of my sex.
45. I weigh myself more than once a day:
49. I am very concerned about being fat or gaining weight.
50. In the last three months, I have tried to lose weight by fasting (eating nothing).
52. I feel fat.
53. In the last three months, I have tried to lose weight by going on strict diets.
54. I exercise vigorously in order to burn calories.
55. Most people I know would be surprised at how fat I look after I eat a lot of food.
56. I am concerned that parts of my body are too large.
58. Right after I eat a lot of food I feel:

---

Fear of Fatness for BULIT: 85
Total score (most symptomatic)
individuals? Although no conclusions can be presumed in this study, patterns in individuals' responses can be observed.

Table 16 addresses the first question. In all anorexic clients the feelings of fatness scores decreased as weight increased. In the bulimic individuals, all but one individual (IB-8, who had previously been identified as requiring further inpatient treatment) also experienced at least some decline in the subscale. (No norms have been established for these subscales in Table 15, however total possible scores are listed for the EAT and the BULIT.) The tendency toward less "fear of fatness" with weight gain supports Powers' (1990) clinical observations that fear of obesity intensifies with weight loss, and conversely, lessens with weight gain during treatment.

Regarding the second issue, influence of body size perceptions and estimation of portion sizes, Table 17 compares individual FPQ scores to the same subscale scores. In seven of the participants, a decrease in the feeling of fatness subscale (indicating less fear of fatness) was accompanied by a continued or worsening tendency to overestimate food portions. Although IB-8 had an increase in her BULIT subscale, she approached a more accurate estimation of portion size. (She has been identified previously as requiring further acute treatment for her condition.) One other client, OB-12, showed a slight
### TABLE 16

**FEELING OF FATNESS SUBSCALE COMPARED TO WEIGHT**

<table>
<thead>
<tr>
<th>PATIENT</th>
<th>ADMINISTRATION 1</th>
<th>ADMINISTRATION 2</th>
<th>ADMINISTRATION 3</th>
<th>SUBSCALE CHANGE</th>
<th>WEIGHT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SUBSCALE</td>
<td>% TARGET</td>
<td>SUBSCALE</td>
<td>% TARGET</td>
<td>SUBSCALE</td>
</tr>
<tr>
<td>IA-1</td>
<td>26</td>
<td>88.8%</td>
<td>11</td>
<td>95.2%</td>
<td>7</td>
</tr>
<tr>
<td>IA-2</td>
<td>23</td>
<td>86.3%</td>
<td>3</td>
<td>89.6%</td>
<td>2</td>
</tr>
<tr>
<td>IA-3</td>
<td>7</td>
<td>79%</td>
<td>14</td>
<td>86.5%</td>
<td>5</td>
</tr>
<tr>
<td>OA-4</td>
<td>10</td>
<td>94%</td>
<td>20</td>
<td>107%</td>
<td>9</td>
</tr>
<tr>
<td>OA-5</td>
<td>18</td>
<td>90%</td>
<td>8</td>
<td>99.5%</td>
<td>--</td>
</tr>
<tr>
<td>IB-6</td>
<td>32</td>
<td>101.7%</td>
<td>27</td>
<td>97.6%</td>
<td>--</td>
</tr>
<tr>
<td>IB-7</td>
<td>68</td>
<td>101%</td>
<td>65</td>
<td>101%</td>
<td>--</td>
</tr>
<tr>
<td>IB-8</td>
<td>70</td>
<td>101.5%</td>
<td>81</td>
<td>101.5%</td>
<td>--</td>
</tr>
<tr>
<td>IB-9</td>
<td>85</td>
<td>90%</td>
<td>76</td>
<td>96%</td>
<td>--</td>
</tr>
<tr>
<td>OB-10</td>
<td>74</td>
<td>107%</td>
<td>65</td>
<td>107.5%</td>
<td>--</td>
</tr>
<tr>
<td>OB-11</td>
<td>77</td>
<td>109.5%</td>
<td>70</td>
<td>114.3%</td>
<td>75</td>
</tr>
<tr>
<td>OB-12</td>
<td>70</td>
<td>102.4%</td>
<td>59</td>
<td>102.7%</td>
<td>--</td>
</tr>
</tbody>
</table>

*% target means actual weight x 100
target weight
### TABLE 17

**FPQ AND FEAR OF FATNESS SUBSCALE**

<table>
<thead>
<tr>
<th></th>
<th>1ST ADMINISTRATION</th>
<th>1ST FPQ</th>
<th>2ND ADMINISTRATION</th>
<th>2ND FPQ</th>
<th>CHANGE IN SUBSCALE</th>
<th>CHANGE IN FPQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA-1</td>
<td>26</td>
<td>+5</td>
<td>11</td>
<td>+14</td>
<td>-15</td>
<td>+9</td>
</tr>
<tr>
<td>IA-2</td>
<td>23</td>
<td>+1</td>
<td>3</td>
<td>+5</td>
<td>-20</td>
<td>+4</td>
</tr>
<tr>
<td>IA-3</td>
<td>7</td>
<td>+2</td>
<td>14</td>
<td>+5</td>
<td>+7</td>
<td>+3</td>
</tr>
<tr>
<td>OA-4</td>
<td>10</td>
<td>+8</td>
<td>10</td>
<td>+13</td>
<td>0</td>
<td>+5</td>
</tr>
<tr>
<td>OA-5</td>
<td>18</td>
<td>+2</td>
<td>8</td>
<td>+9</td>
<td>-10</td>
<td>+7</td>
</tr>
<tr>
<td>IB-6</td>
<td>32</td>
<td>-2</td>
<td>27</td>
<td>0</td>
<td>-5</td>
<td>+2</td>
</tr>
<tr>
<td>IB-7</td>
<td>68</td>
<td>+1</td>
<td>65</td>
<td>+8</td>
<td>-3</td>
<td>+7</td>
</tr>
<tr>
<td>IB-8</td>
<td>70</td>
<td>+5</td>
<td>81</td>
<td>+1</td>
<td>+11</td>
<td>-4</td>
</tr>
<tr>
<td>IB-9</td>
<td>85</td>
<td>+9</td>
<td>76</td>
<td>+9</td>
<td>-9</td>
<td>0</td>
</tr>
<tr>
<td>OB-10</td>
<td>74</td>
<td>+11</td>
<td>65</td>
<td>+11</td>
<td>-9</td>
<td>0</td>
</tr>
<tr>
<td>OB-11</td>
<td>77</td>
<td>+5</td>
<td>70</td>
<td>+10</td>
<td>-7</td>
<td>+5</td>
</tr>
<tr>
<td>OB-12</td>
<td>70</td>
<td>0</td>
<td>59</td>
<td>-2</td>
<td>-11</td>
<td>-2</td>
</tr>
</tbody>
</table>
tendency to underestimate; however, she was quite accurate in both of her estimations, correctly estimating seven out of eleven items in each test.

**Feared foods**

An individual's attitude or beliefs about an item can influence her behavior. For example, in eating disorders, consumption of even a small amount of a "forbidden" food can trigger binge episodes (Fairburn, 1981). In the initial nutritional interview, clients were asked to name foods they feared consuming. The terms "food phobia" and "foods you're afraid to eat" were used to describe the question. The items named are listed in Table 18.

In certain instances, foods a patient listed as feared were included in the FPQ. Responses regarding estimation of these items were inconclusive and tended to vary widely (Appendix K). Certainly the generalization that foods feared are foods "valued" more, thus influencing their perception of portion size could not be supported in this brief study.

Feared foods were eventually included in hospitalized patients' meal plans to encourage their use in a "controlled" environment. Outpatients were encouraged to gradually reintroduce foods they "feared less" and then foods they "fear more" back into their eating routine.


<table>
<thead>
<tr>
<th>FOODS FEARED</th>
<th>NUMBER OF PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fried and high fat foods: fried foods, french fries, junk foods, fast food, fats</td>
<td>7</td>
</tr>
<tr>
<td>Red meat: beef, pork, hot dogs, luncheon meat</td>
<td>5</td>
</tr>
<tr>
<td>Sweets: ice cream, desserts</td>
<td>5</td>
</tr>
<tr>
<td>Starches: pasta, rice, potatoes, casseroles, baked potatoes</td>
<td>4</td>
</tr>
<tr>
<td>Cheese</td>
<td>2</td>
</tr>
<tr>
<td>Other: large meal, high calorie food</td>
<td>2</td>
</tr>
</tbody>
</table>
Reassurance was offered to the participants that inclusion of small amounts of these foods "wouldn't make them fat" and any nutritional merits of the foods were discussed.

Final interviews – subjective observations

Final interviews were conducted with clients completing or terminating treatment with the dietitian. Table 19 represents a summary of the comments made by seven of the participants.

Comments on meal selection, eating regular meals, and recording intake are similar to a longer term follow-up study conducted by Gannon & Mitchell (1986). The intensive treatment program, i.e. hospitalization, was viewed by some as helpful in their treatment. The gaining of self-autonomy and control is an important aspect of treatment and was evident by some other comments such as "gave me the confidence," "view of self," and "having more responsibility." An alteration in fear of fatness coupled with attitudes about foods attributable to weight gain was also apparent.

Overall, previous research using the EAT and BULIT to measure certain attitudes related to symptoms of the disorders can be supported. Patients with reported disorders scored appropriately on the instruments, and the scores were sensitive to improvements in symptomatology.
### Question 1: What in your treatment do you feel has helped you the most?

- Being able to talk about food fears.
- Having more responsibility for myself and my meals.
- Recording my intake and working in therapy.
- Learning my value of self and the ability to care for myself rather than always taking care of others. Can also see a difference in my thought patterns - less negative thought.
- As much as I disliked hospitalization, it showed me that by eating, I wouldn't get fat. It gave me the confidence to select and eat my own meals.
- Recording what I eat helps me feel in control.
- I remember how terrible I felt before, and I don't want to feel that bad again.

### Question 2: How do you feel you have made improvements in your eating habits?

- I now eat breakfast. Not as afraid of foods and less focused on my weight.
- I can recognize when purging or restricting how it makes me "feel good" emotionally. I can recognize that consistency with what I eat is my main problem, and I am continuing to improve on this. I try not to skip meals. Some food fears still exist.
- I no longer obsess over food. I feel I can get back on track after a lapse. Bingeing and purging less often. I eat better meals now; I never felt I could eat a whole meal without feeling guilty. I don't need to eat all the sugar I was eating before.
- I can focus on events and planning of meals around those events without obsessing about the food. I can stop the binge midcycle. I really want to recover.
- I eat more of a variety of foods.
- I learned in the hospital I can eat a lot more foods than I thought without getting fat. I never would have believed that. I can eat meals with my family now.
- Even though I still am afraid to eat high fat foods, I know I need to eat more than I was before. I'm still afraid of getting fat, but I know now I was too thin before, and that wasn't healthy.
When factored out, Fear of Fatness subscales improved with treatment and usually with weight gain.

Alterations in the NA, toward less extreme responses, was observed. How this affects actual intake is a noteworthy topic for future research. In general, subjects that participated in the study tended to overestimate food items and showed no significant improvement when the second administration was given. Patients' comments regarding improvements in their conditions were positive and insightful.
CHAPTER V
LIMITATIONS AND RECOMMENDATIONS

The exploratory nature of this study merits discussion of limitations. The purpose of this discussion is to provide a context to interpret the study findings.

First, the small number of patients participating prohibits any generalizations about treatment effectiveness and causality. While this is a limitation, this study is qualitative in nature, thus the small number of cases allow a more in-depth comparison of various treatment issues involving this particular treatment group. The fact that patients were receiving treatment from the same treatment team can also be limiting as to implications addressed later in the study.

Effectiveness of treatment cannot be addressed due to the limited time of follow-up. A minimum of four years is recommended for follow-up studies of eating disorder patients (Hsu & Sobklewicz, 1989). In addition, a control group and specific intervention were not part of the design of this study, further prohibiting conclusions about treatment effectiveness.

Questionnaires were of the self-report format. Inherent in this type of data collection is the possibility that clients will misinterpret or answer questions on the
basis of "what the dietitian wants to hear." This is particularly true of inpatients, as the dietitian was the one "in control" of their meals. In addition, it is possible they might have tried to impress or "please" the dietitian in hopes that she might have provided positive feedback to treatment team members. The timing of the administration of the tests was spaced with this problem in mind; however, the problem is still a possibility. Outpatients were allowed to take the questionnaire home so that influence for other individuals may have been possible. Inpatients were allowed to complete the questionnaire in a period of time to allow input from other patients or nursing staff if they discussed questions with others.

While plastic food replicas are practical and consistent, they are not real food. This could be a limiting factor as prejudices and perceptions of foods the individual has to consume versus an observed portion may be different. Misperceptions of portion size of foods not usually consumed may be in part due to unfamiliarity of that food item. Patients who cook for their families or are generally familiar with measurements may accurately judge portions of objects but still misjudge quantities they feed themselves.

Interviews were conducted by the dietitian delivering treatment. Biased interpretation of these interviews is possible as the dietitian is hopeful treatment is effective
and, therefore, may wish to perceive responses in a positive light. Clients, too, may have been less likely to tell the researcher negative aspects of their thought process directly.

This is particularly a limitation in the NA questionnaire, as specific issues were addressed after the first administration so that alterations in the second or third administration may have again been partly affected by clients wanting to answer "correctly." Some of the NA topics were discussed in a group format. While this approach was useful to create lively discussions, tendencies to "go with the crowd" may have influenced responses on the NA instrument for those patients hospitalized.

Another limitation of the study is the lack of specific norms for the FPQ and the NA questionnaire which could be used to allow comparison of the population surveyed to other similar groups or to normal controls. It is hoped that the mean scores in the present survey can be used in later studies for such comparisons. The NA, if used again, should be expanded to include more items such as specific desserts, "junk foods," beverages containing caffeine, and diet foods, as these too are important foods to discuss. Nutrition terms, such as macronutrients, calories, and vitamins should be categorized separately. Consideration should be given to the formulation of two separate forms; one to administer when the client is first evaluated, and a second at a later
date. This would help to limit the focus of the discussion, both in terms of time and content.

An updated, validated version of the BULIT should be used to allow inclusion of the revised criteria. Consideration might be made regarding restriction of EAT administration to acutely anorexic and bulimic individuals, as a number of "sub-clinical" cases of bulimia nervosa are just as important to study as pure bulimia nervosa patients. A shorter, 26-item version of the EAT could be used to reduce administration time of the test so that patients could complete it in a more controlled situation.

Allowing patients to portion some foods by themselves as opposed to simply observing and estimating occurred in the group format only for liquids and popcorn. A more thorough investigation of food portions should involve observing portions they serve themselves. A third follow-up administration is recommended.
CHAPTER VI
CONCLUSIONS AND IMPLICATIONS FOR FUTURE REFERENCE

The original impetus to conduct this research was a clinical observation made by this researcher concerning inpatient and outpatient treatment of eating disorder clients. That observation was that convincing outpatients with eating disorders that they could indeed eat foods without getting fat and improve their general health by weight gain or improved nutrition was a long and tedious task that often seemed ineffective. For inpatients, in this particular treatment group, the dietitian was given the control, and in essence, patients were forced to gain weight and/or alter eating behavior. The observation was made that a good number of patients seemed to benefit from this experience, at least at the time of discharge from the hospital. Could this part of treatment, that is, hospitalization, be a more effective way of instituting changes in behavior and would these changes be long lasting?

This phenomenon, given the limited qualitative research involving dietitians, formed the foundation for the beginning of this study. The problem of limited numbers of patients in this treatment program reflected an ongoing shift in economic conditions and insurance reimbursement
policies that prohibited a study of greater variety and number of clients. Nonetheless, a number of observations can be made.

**Nutrition attitudes**

Utilization of the EAT and the BULIT to verify diagnoses and evaluate certain eating attitudes can be useful adjuncts in the treatment process. Individuals' responses can be observed to evaluate the intensity and severity of distorted attitudes that accompany the symptoms of food restriction, bingeing, purging, and body image distortion. At least short-term improvements can be observed. Longer term evaluation to measure treatment effectiveness is recommended. If distorted attitudes about food and nutrition have evolved because of misinformation and emphasis on weight loss or because they are a biological or psychological function of the disease itself, attention to these attitudes should not be ignored.

Shifts in severity of responses in the EAT, BULIT, and the NA reflected a "softening" of the affective component of attitude. The observation that improvements in attitude occur despite weight increases is important to remember when trying to convince these clients that weight gain or weight stabilization is important. If attitude does play a part in behavior (specifically that of making food choices), then at the very least, correct and factual information should be
presented to these individuals. Some individuals will apply and utilize this information to some degree when making food choices, and others may not. In my experience clients want to recover, they want factual information, and they require a lot of reassurance.

Body image

The intense fear of weight gain is evident in this population. Attitudes towards certain foods reflected this attitude in that high fat and high calorie foods were often implicated negatively either by listing them as "feared" and by the participant's response on the NA. While this information is not surprising, it allows the patient and treatment professional a vehicle to discuss the issue. For example, if a client reports being a vegetarian upon initial evaluation and can then at some point identify "red meat" as a feared food, discussion can proceed to allow the client and treating professional a chance to voice their rationale.

The impact that these attitudes may have on behavior is evident when initial diet histories are reported. Behaviors include avoidance of certain foods, severe food restriction, bingeing, and purging practices, and they reflect the intense fear of weight gain. The psychological precursors cannot be ignored in this process and the assumption that more knowledge does not necessarily result in improved behavior.
It is the opinion of this researcher, however, that by allowing the client the opportunity to voice her concerns, a step can be taken to challenge her rationale, present factual information about the attitude and hopefully give the individual the opportunity to voice a need for change. Future research is important to investigate the validity and effectiveness of this concept.

Perception of portion size

The tendency to overestimate food portions is evident. It may or may not be of the same level of error as non eating disordered clients, but the fact remains: in eating disordered individuals, some will misperceive portions. It was also observed that despite improved attitudes and weight gain, there was no noticeable improvement in estimations.

Results of the FPQ were used for individual participants to illustrate to them certain tendencies. For example, if an anorexic patient were trying to maintain her target weight after discharge from the hospital, yet her weight was dropping despite reports in her food diary that she was consuming enough food, previous tendencies to over-report portions could account for the weight loss. This may indicate the need for further late-stage psychoeducational training in food portion estimation. In addition, patients'
reports of their typical intake from 24-hour recalls may be more accurately assessed following the evaluation of the FPQ.

Finally, clients need both reassurance and self-confidence that they can learn how to eat appropriately and consume adequate but not excessive amounts of foods. By standardizing portions and evaluating their accuracy in estimations, this self-confidence can be built.

It is important to note that errors in perception were not extreme. None of the participants erred more than two points. This was true even in the first administration before any training took place. Gross exaggerations were not evident even for foods they labeled as "feared foods."

**Hospitalization versus outpatient treatment**

Given the current climate of third-party reimbursement, approval for hospitalization is less common now than at the onset of this study. Criteria for hospitalization from researchers are prudent, however not always feasible. The cachectic individual with poor concentration and judgement impairment cannot participate fully in psychotherapy until renourishment begins. The willingness of severely underweight individuals to gain the weight on an outpatient basis requires a highly motivated patient and family along with the skillful treatment by trained professionals. This can also be said for the bulimic individual when asked to
abandon strict dieting rituals. The liability of treating such clients, especially if medical symptoms are evident, is noteworthy, and only with close medical supervision and involvement would this course of treatment be feasible.

Certainly no conclusive evidence is apparent from this type of study to support hospitalization versus outpatient treatment. Long-term follow up to ascertain if alterations in attitudes, weight, and eating habits are as long lasting in the hospitalized versus outpatient would be worthwhile.

Summary

The complexity of each case, presence of dual-diagnoses, varying length of illness, severity of symptoms, and family dysfunction are all uncontrolled variables that have an impact on treatment success. Effective nutritional counseling must be adaptive, flexible, and highly individualized to be meaningful. Sessions with one individual may require dealing with restaurant eating; another client may have difficulty making decisions in the grocery store; and another may need assistance in meal planning. Family involvement may be necessary for the adolescent in order to define the role of the caretakers in the patient's recovery. Bizarre eating rituals may need to be confronted and discussed. The dietitian must be firm yet supportive and must challenge without intimidating the client.
No single instrument in this study is meant, in itself, to provide conclusive information in the treatment of eating disordered clients. However, the combination of measures involving attitudes about food, nutrition, and estimation of portions provides the reader with a rich descriptive view of certain treatment issues in these clients in two different settings. It was the intent of this study to enhance the growing volume of research, to stimulate the need for future research, and to provide applied information to those involved in the treatment of these individuals.
REFERENCES


SUBJECT CONSENT FOR PARTICIPATION

An important component of eating disorders involves attitudes about food and dieting. This study will measure these attitudes in individuals who are requesting help for eating problems: before treatment begins, and during later phases of treatment.

Your completion of these questionnaires is very important to the investigation. You will be asked to complete these forms now and at two other intervals during your treatment. In addition, a brief questionnaire will be conducted by the principal investigator during a nutritional counselling session.

Please answer the questions as honestly and completely as possible. The information will be used only as a part of this study and will be held confidential. The results of this study may be published in a scientific journal, but your name and any identifying information will not be disclosed.

I will be happy to go over your test results after all of the questionnaires have been completed.

Thank you in advance for your help.

Susan Gibson, R.D.
Registered Dietitian
Nutrition Consultant to the Center for Eating Disorders

I understand the study described above and agree to participate.

Name: __________________________
Date: __________________________
Appendix B

EATING ATTITUDES TEST

Please place an (x) under the column which applies best to each of the numbered statements. All of the results will be strictly confidential. Most of the questions directly relate to food or eating, although other types of questions have been included. Please answer each question carefully. Thank you.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
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</table>

1. Like eating with other people.

2. Prepare foods for others but do not eat what I cook.

3. Become anxious prior to eating.

4. Am terrified about being overweight.

5. Avoid eating when I am hungry.

6. Find myself preoccupied with food.

7. Have gone on eating binges where I feel that I may not be able to stop.

8. Cut my food into small pieces.

9. Aware of the calorie content of foods that I eat.

10. Particularly avoid foods with a high carbohydrate content (e.g. bread, potatoes, rice, etc.).

11. Feel bloated after meals.

12. Feel that others would prefer if I ate more.

13. Vomit after I have eaten.

14. Feel extremely guilty after eating.

15. Am preoccupied with a desire to be thinner.

16. Exercises strenuously to burn off calories.

17. Weigh myself several times a day.
<table>
<thead>
<tr>
<th>Always</th>
<th>Very often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
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<tr>
<td>18.</td>
<td>Like my clothes to fit tightly.</td>
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<tr>
<td>20.</td>
<td>Wake up early in the morning.</td>
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<tr>
<td>21.</td>
<td>Eat the same foods day after day.</td>
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<td>22.</td>
<td>Think about burning up calories when I exercise.</td>
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<td>23.</td>
<td>Have regular menstrual periods.</td>
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<td>24.</td>
<td>Other people think that I am too thin.</td>
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<tr>
<td>25.</td>
<td>Am preoccupied with the thought of having fat on my body.</td>
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<td>26.</td>
<td>Take longer than others to eat my meals.</td>
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<td>27.</td>
<td>Enjoy eating at restaurants.</td>
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<td>28.</td>
<td>Take laxatives.</td>
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<tr>
<td>29.</td>
<td>Avoid foods with sugar in them.</td>
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<td>30.</td>
<td>Eat diet foods.</td>
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<tr>
<td>31.</td>
<td>Feel that food controls my life.</td>
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<tr>
<td>32.</td>
<td>Display self control around food.</td>
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<tr>
<td>33.</td>
<td>Feel that others pressure me to eat.</td>
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<tr>
<td>34.</td>
<td>Give too much time and thought to food.</td>
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<td>35.</td>
<td>Suffer from constipation.</td>
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<td>36.</td>
<td>Feel uncomfortable after eating sweets.</td>
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<td>37.</td>
<td>Engage in dieting behavior.</td>
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<tr>
<td>38.</td>
<td>Like my stomach to be empty.</td>
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<tr>
<td>39.</td>
<td>Enjoy trying new rich foods.</td>
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<tr>
<td>40.</td>
<td>Have the impulse to vomit after meals.</td>
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</table>

X = most symptomatic response
Appendix C

Age: \_

Date: \_

Sex: Male  Female

Height: \_

Weight (in pounds): \_

Survey of Eating Styles

Answer each question on the following pages by circling the appropriate answer. Please respond to each item as honestly as possible; remember all of the information you provide will be kept strictly confidential.

1. Do you ever eat uncontrollably to the point of stuffing yourself (i.e., go on eating binges)?
   1. once a month or less (or never)
   2. 2-3 times a month
   3. once or twice a week
   4. 3-6 times a week
   5. once a day or more

2. I am satisfied with my eating patterns.
   1. agree
   2. neutral
   3. disagree a little
   4. disagree
   5. disagree strongly

3. Have you ever kept eating until you thought you'd explode?
   1. practically every time I eat
   2. very frequently
   3. often
   4. sometimes
   5. seldom or never

4. Would you presently call yourself a "binge eater"?
   1. yes, absolutely
   2. yes
   3. yes, probably
   4. yes, possibly
   5. no, probably not
5. I prefer to eat:
   1. at home alone
   2. at home with others
   3. in a public restaurant
   4. at a friend's house
   5. doesn't matter

5. Do you feel you have control over the amount of food you consume?
   1. most or all of the time
   2. a lot of the time
   3. occasionally
   4. rarely
   5. never

7. I use laxatives or suppositories to help control my weight.
   1. once a day or more
   2. 3-6 times a week
   3. once or twice a week
   4. 2-3 times a month
   5. once a month or less (or never)

3. I eat until I feel too tired to continue.
   1. at least once a day
   2. 3-6 times a week
   3. once or twice a week
   4. 2-3 times a month
   5. once a month or less (or never)

9. How often do you prefer eating ice cream, milk shakes, or puddings during a binge?
   1. always
   2. frequently
   3. sometimes
   4. seldom or never
   5. I don't binge

10. How much are you concerned about your eating binges?
    1. I don't binge
    2. bothers me a little
    3. moderate concern
    4. major concern
    5. probably the biggest concern in my life
11. Most people I know would be amazed if they knew how much food I can consume at one sitting.
   (1) without a doubt
   (2) very probably
   (3) probably
   (4) possibly
   (5) no

12. Do you ever eat to the point of feeling sick?
   (1) very frequently
   (2) frequently
   (3) fairly often
   (4) occasionally
   (5) rarely or never

13. I am afraid to eat anything for fear that I won't be able to stop.
   (1) always
   (2) almost always
   (3) frequently
   (4) sometimes
   (5) seldom or never

   (1) always
   (2) frequently
   (3) sometimes
   (4) seldom or never
   (5) I don't eat too much

15. How often do you intentionally vomit after eating?
   (1) 2 or more times a week
   (2) once a week
   (3) 2–3 times a month
   (4) once a month
   (5) less than once a month or never

16. Which of the following describes your feelings after binge eating?
   1. I don't binge eat
   2. I feel ok
   3. I feel mildly upset with myself
   4. I feel quite upset with myself
   5. I hate myself
17. I eat a lot of food when I'm not even hungry.
   1. very frequently
   2. frequently
   3. occasionally
   4. sometimes
   5. seldom or never

18. My eating patterns are different from the eating patterns of most people.
   1. always
   2. almost always
   3. frequently
   4. sometimes
   5. seldom or never

19. I have tried to lose weight by fasting or going on strict diets.
   1. not in the past year
   2. once in the past year
   3. 2-3 times in the past year
   4. 4-5 times in the past year
   5. more than 5 times in the past year

20. I feel sad or blue after eating more than I'd planned to eat.
   1. always
   2. almost always
   3. frequently
   4. sometimes
   5. seldom, never, or not applicable

21. When engaged in an eating binge, I tend to eat foods that are high in carbohydrates (sweets and starches).
   1. always
   2. almost always
   3. frequently
   4. sometimes
   5. seldom, or I don't binge

22. Compared to most people, my ability to control my eating behavior seems to be:
   1. greater than others' ability
   2. about the same
   3. less
   4. much less
   5. I have absolutely no control
23. One of your best friends suddenly suggests that you both eat at a new restaurant buffet that night. Although you'd planned on eating something light at home, you go ahead and eat out, eating quite a lot and feeling uncomfortably full. How would you feel about yourself on the ride home?

1. fine, glad I'd tried that new restaurant
2. a little regretful that I'd eaten so much
3. somewhat disappointed in myself
4. upset with myself
5. totally disgusted with myself

24. I would presently label myself a 'compulsive eater', (one who engages in episodes of uncontrolled eating).

1. absolutely
2. yes
3. yes, probably
4. yes, possibly
5. no, probably not

25. What is the most weight you've ever lost in one month?

1. over 20 pounds
2. 12-20 pounds
3. 8-11 pounds
4. 4-7 pounds
5. less than 4 pounds

26. If I eat too much at night I feel depressed the next morning.

1. always
2. frequently
3. sometimes
4. seldom or never
5. I don't eat too much at night

27. Do you believe that it is easier for you to vomit than it is for most people?

1. yes, it's no problem at all for me
2. yes, it's easier
3. yes, it's a little easier
4. about the same
5. no, it's less easy
28. I feel that food controls my life.
   1. always
   2. almost always
   3. frequently
   4. sometimes
   5. seldom or never

29. I feel depressed immediately after I eat too much.
   1. always
   2. frequently
   3. sometimes
   4. seldom or never
   5. I don’t eat too much

30. How often do you vomit after eating in order to lose weight?
   1. less than once a month or never
   2. once a month
   3. 2-3 times a month
   4. once a week
   5. 2 or more times a week

31. When consuming a large quantity of food, at what rate of speed do you usually eat?
   1. more rapidly than most people have ever eaten in their lives
   2. a lot more rapidly than most people
   3. a little more rapidly than most people
   4. about the same rate as most people
   5. more slowly than most people (or not applicable)

32. What is the most weight you’ve ever gained in one month?
   1. over 20 pounds
   2. 12-20 pounds
   3. 8-11 pounds
   4. 4-7 pounds
   5. less than 4 pounds

33. (Females only) My last menstrual period was:
   1. within the past month
   2. within the past 2 months
   3. within the past 4 months
   4. within the past 6 months
   5. not within the past 6 months
34. I use diuretics (water pills) to help control my weight.
   1. once a day or more
   2. 3-5 times a week
   3. once or twice a week
   4. 2-3 times a month
   5. once a month or less (or never)

35. How do you think your appetite compares with that of most people you know?
   1. many times larger than most
   2. much larger
   3. a little larger
   4. about the same
   5. smaller than most

36. (Females only) My menstrual cycles occur once a month.
   1. always
   2. usually
   3. sometimes
   4. seldom
   5. never

37. I eat only when I'm hungry.
   1. always
   2. almost always
   3. frequently
   4. sometimes
   5. never

38. Compared to most people, my interest in exercising to burn calories is:
   1. much greater than average
   2. greater than average
   3. average
   4. less than average
   5. much less than average

39. In the last 3 months, on the average how often did you binge eat (eat uncontrollably to the point of stuffing yourself)?
   1. once a month or less (or never)
   2. 2-3 times a month
   3. once a week
   4. twice a week
   5. more than twice a week
40. I am very bothered about my physical shape:
   1. always
   2. almost always
   3. frequently
   4. sometimes
   5. seldom or never

41. There are times when I rapidly eat a very large amount of food:
   1. more than twice a week
   2. twice a week
   3. once a week
   4. 2-3 times a month
   5. once a month or less (or never)

42. Other people's comments about my appearance:
   1. never affect me
   2. affect me a little
   3. affect me some
   4. affect me a lot
   5. affect me a great deal

43. How long have you been binge eating (eating uncontrollably to the point of stuffing yourself)?
   1. not applicable; I don't binge eat
   2. less than 3 months
   3. 3 months - 1 year
   4. 1 - 3 years
   5. 3 or more years

44. I feel fat when I compare myself with other people of my sex:
   1. always
   2. almost always
   3. frequently
   4. sometimes
   5. seldom or never

45. I weigh myself more than once a day:
   1. always
   2. very often
   3. often
   4. rarely
   5. never
46. I eat too much:

1. always
2. almost always
3. frequently
4. sometimes
5. never

47. When I binge eat (eat uncontrollably to the point of stuffing yourself), I feel that I may not be able to stop.

1. always
2. almost always
3. frequently
4. sometimes
5. seldom or never, or I don't binge

48. I only eat food that is good for me:

1. always
2. almost always
3. frequently
4. sometimes
5. never

49. I am very concerned about being fat or gaining weight.

1. always
2. almost always
3. frequently
4. sometimes
5. seldom or never

50. In the last 3 months, I have tried to lose weight by fasting (eating nothing).

1. at least once per week
2. once every two weeks
3. once each month
4. once in the last 3 months
5. I don't fast

51. How do you think your appetite compares with other people of your sex?

1. many times larger
2. much larger
3. a little larger
4. about the same
5. smaller
51. I feel fat.
   1. always
   2. almost always
   3. frequently
   4. sometimes
   5. seldom or never

53. In the last 3 months, I have tried to lose weight by going on strict diets.
   1. at least once per week
   2. once every two weeks
   3. once each month
   4. once in the last 3 months
   5. I don't go on strict diets

54. I exercise vigorously in order to burn calories.
   1. much more than average
   2. more than average
   3. average
   4. less than average
   5. much less than average

55. Most people I know would be surprised at how fat I look after I eat a lot of food.
   1. definitely
   2. probably
   3. possibly
   4. unlikely
   5. no or I never eat a lot

56. I am concerned that parts of my body are too large.
   1. never concerned
   2. slightly concerned
   3. somewhat concerned
   4. very concerned
   5. intensely concerned

57. Compared to other people of my sex, my ability to control how much I eat is:
   1. greater
   2. about the same
   3. less
   4. much less
   5. I have absolutely no control
58. Right after I eat a lot of food I feel:

1. so fat and bloated I can't stand it
2. extremely fat
3. fat
4. a little fat
5. OK about how my body looks or I never eat a lot

(Most symptomatic response is circled)
Appendix D

NUTRITION ATTITUDES

The following list of words represents different foods and nutrients. Think about what each word means to you and rate each word on a "good" - "bad" scale. Mark your response by placing an "x" anywhere along the scale.

1. Milk
   | | | | | | | | | |
   Bad |
   Good

2. Potatoes
   | | | | | | | | | |
   Bad |
   Good

3. Protein
   | | | | | | | | | |
   Bad |
   Good

4. Apples
   | | | | | | | | | |
   Bad |
   Good

5. Fat
   | | | | | | | | | |
   Bad |
   Good

6. Beef
   | | | | | | | | | |
   Bad |
   Good

7. Chicken
   | | | | | | | | | |
   Bad |
   Good

8. Ice cream
   | | | | | | | | | |
   Bad |
   Good

9. Carbohydrate
   | | | | | | | | | |
   Bad |
   Good

10. Salad
    | | | | | | | | | |
    Bad |
    Good

Thank you.
Estimating Food Portions #1

Please select the portion size that best describes the corresponding food model.

Thank you.

1. Fish  \(-2\) oz, \(-1\) oz, \(-0\) oz, \(+1\) oz, \(+2\) oz.

2. Roast Beef  \(-2\) lb, \(-1\) lb, \(-0\) lb, \(+1\) lb, \(+2\) lb.

3. Peanut Butter  \(-2\) tsp, \(-1\) tsp, \(0\) tbsp, \(1\) tbsp, \(+1\) cup

4. Broccoli  \(-2\) cup, \(-1\) cup, \(-0\) cup, \(+1\) cup, \(+2\) cup

5. Watermelon  \(-2\) cup, \(-1\) cup, \(0\) cup, \(+1\) cup, \(+2\) cup

6. Sliced Cheese  \(-2\) oz, \(-1\) oz, \(-0\) oz, \(+1\) oz, \(+2\) oz.

7. Cubed Cheese  \(-2\) oz, \(-1\) oz, \(-0\) oz, \(+1\) oz, \(+2\) oz.

8. Cereal  \(-1\) cup, \(-0\) cup, \(+1/2\) cup, \(+2\) cup, \(+3\) cups

9. Spaghetti and Meat Sauce  \(-1\) cup, \(-0\) cup, \(+1\) cup, \(+1\) cup, \(+2\) cups

10. Popcorn  \(-2\) cup, \(-1\) cup, \(-0\) cup, \(+1\) cup, \(+2\) cups

11. Milk  \(-2\) cup, \(-1\) cup, \(-0\) cup, \(+1\) cup, \(+2\) cups
## Appendix F

### Estimating Food Portions #2

Please select the portion size that best describes the corresponding food model.

Thank you.

<table>
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<tr>
<th>Item</th>
<th>3 oz.</th>
<th>2 oz.</th>
<th>1 1/2 oz.</th>
<th>1 oz.</th>
<th>1/2 oz.</th>
<th>0 oz.</th>
<th>1/4 oz.</th>
<th>1/3 cup</th>
<th>1/4 cup</th>
<th>1/5 cup</th>
<th>1/6 cup</th>
<th>1/8 cup</th>
<th>+ 1/2 cup</th>
<th>+ 1/3 cup</th>
<th>+ 1/4 cup</th>
<th>+ 1/5 cup</th>
<th>1 tablespoon</th>
<th>1/2 tablespoon</th>
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Appendix G

STUDY DESIGN

EVALUATION BY TREATMENT TEAM

REFERRED FOR NUTRITIONAL EVALUATION

CONSENT FORM
EAT OR BULIT
NA
FFQ 1

HOSPITALIZED
6 WEEKS

EAT OR BULIT
NA
FFQ 2

OUTPATIENTS
6 SESSIONS

OUTPATIENTS TREATMENT
2 MONTHS
EAT OR BULIT
NA

FINAL INTERVIEW
**APPENDIX H**

**NUTRITION COUNSELING PROTOCOL FOR EATING DISORDER PATIENTS**

<table>
<thead>
<tr>
<th>STEP</th>
<th>COMPONENTS</th>
<th>METHODS</th>
</tr>
</thead>
</table>
| Step 1.  
Problem identification | 1. Define calorie and nutrient deficits  
2. Identify nutrition attitudes  
3. Evaluate food portion perception | 1. Initial nutritional evaluation  
2. Administer EAT or BULIT, NA and FPQ 1  
3. Review psychiatric and medical evaluations |
| Step 2.  
Problem clarification and presentation to client | 1. Review results of step 1 with client  
2. Assess level of interest and awareness  
3. Discuss target weight and calorie needs | 1. Patient discussions  
2. Clarify barriers to implementing changes, i.e. “fear of weight gain”  
3. Review of food diary  
4. Define discrepancies |
| Step 3.  
Formulation of plan and implementation | 1. Define calorie/nutrient needs for restoration or maintenance of weight  
2. Nutrition education  
3. Facilitate formulation of goals | 1. Meal plan  
2. Individual or group sessions for nutrition education topics  
3. Food models, Comparison Cards, meal pictures, restaurant menus, "You" book  
4. Clarify application of information |
| Step 4.  
Evaluation and reassessment | 1. Review progress (or lack of)  
2. Identify eating behaviors as symptoms of underlying psychological problems  
3. Communication with individual #1 or family therapist, psychiatrist, and medical physician  
4. Education process continues | 1. Monitor patient's weight and current eating symptoms  
2. Food diary to compare intake to expectations  
3. Multidisciplinary team meetings  
4. Readminister EAT or BULIT, NA and FPQ 2  
5. Use of positive self statements, imagery, alternatives to "all or nothing" choices, development of coping strategies |
Appendix I

EAT SCORES

x = diagnostic score

*** 1st Administration

[Diagram showing EAT scores for different administrations]

2nd Administration

3rd Administration
Appendix J

BULT SCORs

IB-7    IB-9    OB-10
104  87
123  87
147  131

v = 102 diagnostic score
# Appendix K

<table>
<thead>
<tr>
<th>Patient</th>
<th>Food Feared</th>
<th>FPQ 1 Score for Corresponding Item</th>
<th>FPQ 2 Score for Corresponding Item</th>
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<tr>
<td>IA-1</td>
<td>red meat</td>
<td>+2 roast beef</td>
<td>0 pork chops</td>
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<tr>
<td></td>
<td>potatoes</td>
<td></td>
<td>+2 french fries</td>
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<tr>
<td></td>
<td>cheese</td>
<td>0 sliced cheese</td>
<td>+1 cottage cheese</td>
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<tr>
<td></td>
<td>ice cream</td>
<td>+1 cubed cheese</td>
<td>+2 swiss cheese</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>+2 ice cream</td>
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<tr>
<td>IA-2</td>
<td>pork</td>
<td></td>
<td>0 pork chop</td>
</tr>
<tr>
<td></td>
<td>high fat foods</td>
<td></td>
<td>-2 salad dressing</td>
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<tr>
<td></td>
<td></td>
<td>0 peanut butter</td>
<td>0 ice cream</td>
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<td></td>
<td></td>
<td></td>
<td>+1 french fries</td>
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<tr>
<td>IA-3</td>
<td>denied feared foods</td>
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<td>IA-4</td>
<td>ice cream</td>
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<td>+1 ice cream</td>
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<td></td>
<td>fried foods</td>
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<td>+2 french fries</td>
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<tr>
<td></td>
<td>meat</td>
<td>0 roast beef</td>
<td>-1 pork chop</td>
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<td>-2 chicken</td>
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<td>cheese</td>
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<td>0 cubed cheese</td>
<td>+1 cottage cheese</td>
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<td>IB-6</td>
<td>denied feared foods</td>
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<tr>
<td>IB-7</td>
<td>&quot;large meals&quot;</td>
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<td>IB-8</td>
<td>sweets</td>
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<td></td>
<td>fried foods</td>
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<td>+1 french fries</td>
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<tr>
<td>IB-9</td>
<td>pasta, lasagna, rice</td>
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<td>+2 spaghetti</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>+1 rice</td>
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<tr>
<td>OB-10</td>
<td>red meat</td>
<td>+2 roast beef</td>
<td>+1 pork chops</td>
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<tr>
<td></td>
<td>high fat and fried foods</td>
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<td>+1 french fries</td>
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<tr>
<td></td>
<td>sweets</td>
<td>0 peanut butter</td>
<td>0 ice cream</td>
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<tr>
<td>OB-11</td>
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<tr>
<td>OB-12</td>
<td>french fries</td>
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<td>0 french fries</td>
</tr>
</tbody>
</table>
VITA

Susan G. Gibson was born March 27, 1951, in Milwaukee, Wisconsin. She received her B.S. degree in Dietetics and Institutional Management from Kansas State University and completed a coordinated undergraduate program. She accepted her first position as a registered dietitian at the Johns Hopkins Hospital in Baltimore, Maryland and was appointed Chief Clinical Pediatric Dietitian. She married Tim Gibson and moved to Virginia Beach, Virginia. For five years she assumed the Chief Clinical position at Riverside Hospital in Newport News, Virginia. Following the births of her two children, she became a consultant in renal and psychiatric facilities. She entered private practice in 1988 with First Hospital Corporation in Norfolk, Virginia. In addition to the Eating Disorder Program, she was the nutrition consultant to the Optifast Program for weight management. She currently has an office with Psychotherapy Associates of Ghent in Norfolk, Virginia.

Susan G. Gibson, R.D.