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Outcome Prediction of Eating Disorders:  
Can admission data forecast outcome needs at discharge?

by

Linda D. Gouthro, R.N., B.S.N.

A Master's Research Project

Presented to  
Oregon Health Sciences University  
School of Nursing  
in partial fulfillment  
of the requirements for the degree  
Master of Science

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**ABSTRACT**

**TITLE:** Outcome Prediction of Eating Disorders:  
Can admission data forecast outcome  
needs at discharge?

**AUTHOR:** Linda D. Gouthro, R.N., B.S.N

**APPROVED:**

Gail M. Houck

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Prior research has examined the eating disorders in terms of etiology, predictive factors, treatment modalities, clinical course, and outcome with variable results and minimal consensus. No research was found linking collected assessment data to discharge needs, nor was research addressing the impact of discharge planning on successful treatment outcome identified. The purpose of this study was to determine if data collected for individuals during the initial assessment phase of an eating disorders program could predict the nature of discharge needs at the time of treatment completion. Using a data collection tool developed by the researcher, a one time retrospective chart review of 29 female subjects treated in an outpatient eating disorders program between 1994 and 1996 was accomplished. Using the Statistical Package for the Social Sciences, descriptive statistics were used to assess the characteristics of the sample population, analysis of variance was employed to examine differences between

diagnostic groups for particular variables and a Chi-square test was applied to test for associations. Probability levels were set at .05 for statistical significance and .10 to indicate a trend. Although limited by available data, several significant findings were noted. Women diagnosed with Bulimia Nervosa (BN) had significantly higher admission Global Assessment of Functioning versus women with Anorexia Nervosa (AN); those with AN were positively linked to a family history of mood disorders; a significant relationship existed between BN and a family history of eating disorders and to brothers having a psychiatric history; a link between treatment involvement and a) discharge type and b) clinical outcome; and a positive relationship between those with AN and the lack of follow through with discharge plans. Trends included an association between cognitive problems, positive legal histories, intact families, less frequent contact with fathers, and presence of treatment resistance and noncompliance for those diagnosed with AN. Although definitive conclusions can not be made, implications include the importance of early, comprehensive data collection, the possibility of examining treatment engagement in terms of strategies of care, and the need to further clarify treatment variables that might reduce resistance and noncompliance, resulting in improved clinical outcome.

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## CHAPTER 1

Outcome Prediction of Eating Disorders: Can admission data  
forecast outcome needs at discharge?

### Introduction

Long recognized as conditions that impair physical and psychological functioning, eating disorders continue to offer multiple dilemmas for the clinician. Anorexia nervosa was the first disorder identified in the late 1800's (Fairburn & Walsh, 1995), and has been examined for decades. The long research history of this syndrome provides an abundance of information for the contemporary researcher. For bulimia nervosa, identified in the late 1930's as a separate syndrome with unique diagnostic characteristics, research remains limited, in scope as well as in quantity.

Although a fair amount of research has focused on outcome studies for individuals diagnosed with an eating disorder, little consensus exists related to predictive factors (Herzog, Sacks, Keller, Lavori, von Ranson, & Gray, 1993; Rorty, Yaeger, & Rossotto, 1993; Hsu, 1991; & Rosenvinge & Mouland, 1990). Completed research has focused primarily on the clinical course and outcome of eating disorders occurring post-treatment. Studies had not been conducted to determine if data collected during the initial assessment phase were related to discharge needs. Similarly, investigations have not been directed at examining the impact discharge planning has had on positive

clinical outcomes.

Purpose

The eating disorders treatment program at Providence St. Vincent Medical Center located in Portland, Oregon, provides inpatient and outpatient care. Inpatient hospitalizations are short term (three to ten days) and focus on stabilization. Discharged patients are initially referred to the outpatient day hospital program. Active, full-time involvement in the program is progressively reduced, based on the individual's course of treatment.

Primary treatment for an individual diagnosed with an eating disorder is provided during four to eight weeks of outpatient treatment. Length of treatment is based on the severity of symptoms associated with the diagnosis, psychosocial needs, and existing comorbid diagnosis. This research study utilized the partial day hospitalization program because it provided comprehensive treatment for the majority of eating disordered patients.

The variable time frames for outpatient treatment are determined by a multi-disciplinary team reviewing the clinical course on a weekly basis. Professional nurses provide critical input to treatment interventions by integrating biopsychosocial perspectives (Irwin, 1993). A research assessment of this nursing contribution had not been accomplished at St. Vincent Medical Center, limiting the ability to evaluate the impact of nursing care delivered to eating disordered patients. Merwin and Mauck (1995) in

their review of the psychiatric nursing literature, identified a significant absence of outcome studies examining the process and effectiveness of nursing practice.

A need for a predictive outcome study was identified by the St. Vincent eating disorders unit. The purpose of this study was to determine if the nature of discharge could be based on data collected during the initial assessment phase of the treatment program. Identification of predictive factors could facilitate improved treatment planning, different treatment interventions, and use of discharge plans adapted to specific needs. Future research will further elucidate the relationship between discharge planning and successful outcomes.

A review of existing studies is discussed in a literature review providing a synopsis of the extensive research data. Existing gaps in the literature were identified and utilized to establish the need and relevance for this study. The design and methodology are reviewed and the results are discussed in the final sections.

#### Conceptual Framework

The conceptual approach used for this study was the theoretical model of developmental psychopathology. Developmental models of personality development approach an individual's life span as a continuous process beginning in infancy and ending with death. The ongoing relationships between the biological, sociological, cultural, and psychological environments of an individual provided the

foundation for personality development and establish the framework for life patterns. Challenged with the struggle to create stability from continuous change, the process of adaptation and growth is facilitated for each individual (Kimmel, 1990). Use of this model provided a framework for understanding the clinical course of eating disorders. Anorexia nervosa (AN) and Bulimia nervosa (BN) are viewed as ongoing processes with progressive changes occurring in response to the individual's experience of external and internal environments. Based on this theoretical model, it was reasonable to assume that behaviors associated with eating disorders could change in response to treatment. This study attempted to evaluate this process by examining the assessed changes observed between the beginning and the end of treatment.

## CHAPTER 2

Initial review of the literature addressing eating disorders revealed publications of multiple research interests ranging from the application of various theoretical assumptions to studies of idiosyncratic character traits predisposing an individual to abnormal eating patterns. The focus of this literature review was limited to three primary areas related to the research study: clinical course, treatment, and outcomes. From these broad areas, specific information addressing etiology, treatment issues, predictors of outcome, course of illness, and recovery rates were identified. A synthesis and analysis of the information is discussed.

### Etiology

Utilizing the theoretical model of developmental psychopathology, eating disorders can be understood as an ongoing process of progressive change, in response to the experienced external and internal environments of the individual (Smolak, Levine, & Striegel-Moore, 1996). The synthesis of what comprises development provides a guide to unraveling the processes leading to the constellation of symptoms associated with a specific eating disorder. Although a comprehensive description of the specific method has not clearly been identified, different patterns of development are linked to specific types of eating disorders (Smolak, et al., 1996). Young adolescents seem to have the greatest risk of developing anorexia nervosa (AN), possibly

associated with the development of self (Stein, 1996; Steinhausen, 1995, 1991; & Cashdan, 1988), cultural pressures (Connor-Greene, 1988) or developmental transitions (O'Kearney, 1996). In contrast, late adolescence and young adulthood present high risk developmental time frames linked with Bulimia Nervosa (BN) (O'Kearney, 1996; Smolak, et al., 1996; Irwin, 1993; Herzog, 1991; & Herzog, Keller, & Lavori, 1988). Developmental issues also seem related to the higher prevalence of diagnosed eating disorders in females versus males (Anderson, 1995; & Carlat & Camargo, 1991) and to the high incidence of co-existing diseases such as mood disorders, personality disorders, and substance abuse (Holderness, Brooks-Gunn, Warren, 1994; Rosen, Compas, Tacy, 1993; Herzog, Sacks, Keller, Lavori, von Ranson, & Gray, 1993; Herzog, 1991; & Herzog, et al., 1988).

Multiple studies have focused on the contributing factors predisposing an individual to the development of eating disorders (Anderson, 1995; Irwin, 1993; Herzog, 1991; Steinhausen, 1991; & Herzog, et al., 1988). Biological, sociocultural, and psychological issues have each been associated with causative factors (Irwin, 1993; & Kaplan, Sadock, & Greb, 1994).

Biological studies suggest the neurotransmitter and neuroendocrine systems associated with mood disorders are similar to those found in eating disorders (Schildkraut, Green, & Mooney, 1989). The biochemical changes accompanying starvation present in anorexia nervosa



contribute to amenorrhea and seem to be associated with enlarged sulci and ventricles (Kaplan, et al., 1994). The symptoms of bulimia nervosa have responded to various antidepressants, suggesting a relationship to serotonin and norepinephrine levels (McGowan & Whitbread, 1996).

Research implicating sociocultural factors in the development of eating disorders have focused on family systems, cultural expectations emphasizing and rewarding thinness in women, and social pressures equating successful women with high stress, competitive, achievement-oriented vocations (van Furth, van Strien, Martina, van Son, Hendrickx, & van Engeland, 1996; & Yaeger, Landsverk and Edelstein, 1987). The etiology of eating disorders has also been explained in terms of psychological factors. Distorted self-concept (Stein, 1996), developmental problems associated with attachment issues (Isabella, 1996; & O'Kearney, 1996), enmeshed family systems (van Furth et al., 1996; & Pope & Hudson, 1989), and behavioral response to anxiety (Rosen et al., 1993; & Wilson, 1991) represent a small sample of proposed psychological orientations.

Although different perspectives have influenced the direction of research and expanded existing theoretical constructs, no singular focus has conclusively explained the cause, the prognosis, or the ideal treatment intervention. Clearly defined, however, was the existence of a complex constellation leading to the manifestation of these syndromes. This intricate schema suggested a necessity for

multi-dimensional interventions and supported the need for continued research efforts (Hsu, 1995; Ratnasuriya, Eisler, Szmukler, & Russell, 1991; Rosenvinge & Mouland, 1990; Hsu & Sobkiewicz, 1989; Yager, Landsverk, & Edelstein, 1987).

#### Predictors of Outcome

Proposed predictors of poor clinical outcome have included early age of onset, duration of illness, early age of menarche, concomitant stress, social withdrawal, and poor family relations (Woodside & Garfinkel, 1996; Rosen, et al., 1993; Hsu, 1991; Rosenvinge & Mouland, 1987; & Woodside & Garfinkel, 1992). Others have suggested greater pretreatment symptom severity, lower body mass index, and coexisting personality disorders, substance abuse, or psychological disorders as predictors of negative outcome (Fahy & Russel, 1993; Rossiter, Agras, Telch, & Schneider, 1993; Sohlberg, Norring, & Rosemark, 1992; & Hsu, 1991).

Sohlberg, et al. (1992) commented on the extensive list of research attempts that have been relatively unsuccessful in isolating predictive outcomes. The authors posed several possibilities for this conjuncture, including the likelihood that the "the vital variables have not been adequately studied" (Sohlberg et al., 1992, p. 121). Sohlberg and his peers suggest that in view of the relative lack of past research success, combined with the ongoing pursuit for 'the vital variables', the motive for continuing the search is defined (Ibid).

### Treatment Modalities

Review of the literature addressing effective treatment modalities identified numerous approaches, although all methods share basic treatment goals. Different theoretical models endorse either inpatient, outpatient, or a combination of the two as the preferred treatment setting. Numerous studies reported the superiority of one approach over another, but no clear evidence exists to support the claims (Callings & King, 1994; American Psychiatric Association, 1993; Herzog, et al., 1993; & Fallon, Walsh, Sadik, Saoud, & Lukasik, 1991). Research has suggested that treatment for those with AN is linked to prevention of early death (Hsu, 1995) and Callings (1995) notes that, although specific factors have not been identified, some unknown intervention variable relates to positive outcome for those diagnosed with BN. Ratnasuriya, et al. (1991) proposed that treatment was always indicated.

Strategies include cognitive-behavioral approaches, behavioral interventions, individual and group psychotherapy, family therapy, nutritional counseling, and medication trials as effective methods to reduce symptoms and initiate behavioral change (McGown & Whitbread, 1996; Hartmann, Herzog, & Drinkmann, 1991). Herzog (1991) stressed a multi-modal approach, combining psychotherapy, cognitive-behavioral strategies, and psychodynamic orientations with medication treatment, nutritional counseling and medical care. In view of the current

research data and lack of precise information defining etiology, perception of what effective treatment comprises is often a reflection of theoretical bias versus definitive understanding. This bias is also reflected in the multiple proposals offered to describe the disease course and the recovery rates associated with eating disorders.

#### Disease Course and Recovery Rates

Primary problems linked to the lack of etiological uniformity involve the nebulous interpretation of what represents a typical disease course and what constitutes recovery (Hsu, 1995; Herzog, et al., 1993; Hsu, 1991; & Herzog, et al., 1988). Multiple longitudinal studies—spanning forty years of research for AN and ten years of exploration of BN—have isolated numerous problem areas and have identified several generally accepted concepts.

In an effort to identify the course and prognosis of eating disorders, Hsu (1995) has provided extensive review information and compilation of the research data focused on AN and BN. From this ongoing analysis, Hsu (1995) has proposed five common research deficiencies frequently referenced as standard methodological criteria. The first deficiency was identified as the need for complete clinical data or adequate diagnostic criteria, or both. Second, Hsu cited the importance of including a complete description of the treatment modalities used. The third deficiency he identified was the need to clearly define and apply adequate outcome criteria. Fourth, Hsu noted the importance of

longitudinal follow-up studies, of long duration. The fifth deficiency was the reporting of comprehensive follow-up data, including explanations for the inability to follow-up on cohorts.

Morgan and Russell (1975) established general outcome categories defining good, intermediate, and poor outcomes for eating disorder treatment. Although rudimentary criteria were employed (percentage of body weight and menstrual cycle) and, more recently, researchers have questioned interrater reliability (Freeman, Walker, & Ben-Tovim, 1996), these categories continue to be standard measurements used in outcome research studies. Because of multiple research designs, conclusions vary from one study to the next (Hsu, 1988). Discussion of the various issues is addressed in terms of specific diagnostic categories.

Anorexia Nervosa. Recovery rates for individuals diagnosed with anorexia nervosa have been reported from 30% to 50% (Ratnasuriya, Eisler, Szumkler, & Russell, 1991; & Yaeger, Landsverk, & Edelstein, 1987). The development of bulimia nervosa has been reported in 15% to 50% of those diagnosed with anorexia (Ratnasuriya, et al., 1991; & Yaeger, et al., 1987), and a mortality rate for this group was estimated between 15% to 40% (Ratnasuriya, et al., 1991). Shorter follow-up time frames reflect more positive results. Unfortunately, longitudinal studies over twenty years indicate decreased rates of recovery, particularly after twelve to fifteen years of active anorexic symptoms.

Anorectic patients are six times more likely to die than the general population, primarily related to the medical complications resulting from chronic anorexic symptoms or from suicide (Hsu, 1995).

Bulimia Nervosa. Recovery rates for bulimia nervosa range from 27% to 31% (Callings, 1994; Fallon, Walsh, Sadik, Saoud, & Lukasik, 1991; & Hsu, 1989). Partial recovery is reported for 16% to 25%, with active bulimia present in 9% to 41% (Fahy & Russel, 1993). Herzog (1991) compared inpatient treatment to outpatient treatment and reported a recovery rate of 13% to 40% for inpatients with bulimia nervosa, whereas 30% to 70% recovered with outpatient treatment. Callings (1991) studied recovery rates for a single population and observed increased recovery rates at ten years versus observed recovery rates at five years. High rates (up to 77%) of concomitant affective disorders and substance abuse were reported. Mortality was not associated with bulimia nervosa.

Summary. Although not conclusive, current data suggests poorer recovery outcomes for patients with anorexia nervosa, with progressive resolution of symptoms for patients with bulimia nervosa. Anorexia nervosa presents a more critical syndrome, particularly with chronicity, resulting in additional eating disorders and mortality related to physiological stressors, medical complications, and psychological factors. Recovery patterns associated with bulimia nervosa suggest an episodic disorder with

varying degrees of symptomatology present at different times. These differences support diagnosing bulimia nervosa as a separate syndrome from anorexia nervosa and may suggest the need to treat the two disorders in different fashions.

#### Current Research Deficits

Gaps in the literature identified from this review included lack of research focusing on males diagnosed with anorexia nervosa (primarily related to the recent categorization of bulimia nervosa as a separate diagnostic syndrome), lack of nursing research studies focusing on outcome in general (with none identified focusing on eating disorders), and little research examining collected assessment data as a predictor of discharge needs (Steiger, Leung, & Thibaudeau, 1993). Compounding the existing limitations was the lack of consensus among researchers associated with definitions, the lack of consistent criteria applied to measure outcome, and differing research designs which complicate the task of comparing data and drawing conclusions.

The concept of discharge planning is a familiar one in nursing literature. Discharge planning begins at admission and is based on assessment of the problem, anticipated discharge needs, and available resources (Carpenito, 1995; Gordon, 1982). Cacciola, Durell, and McLellan, in their article discussing development of outcome studies, defined the goals of treatment as: "(1) reduce symptoms to a tolerable level; (2) improve ability to function to a level

that allows for living in the community; (3) initiate or engage the patient in the appropriate level of continuing care; and (4) prevent immediate relapse." (1995, p. 13). The Practice Guideline for Eating Disorders (American Psychiatric Association (APA), 1993) identifies specific discharge criteria for Anorexia Nervosa and Bulimia Nervosa. These include goals of stable weight, stable medical status, controlled behavioral symptoms, therapy addressing psychological and family issues, and realistic discharge plans that can be implemented (Ibid., 1993). This basic framework was utilized to examine the research questions.

The purpose of this study was to determine if data collected for individuals during the initial assessment phase of an eating disorders program could determine the nature of discharge at the time of treatment completion. Identification of specific factors could be utilized to enhance treatment efficacy and promote more effective individualized discharge planning. The impact of discharge planning on positive treatment outcome, for the identified eating disordered population, was not within the scope of this study and remains an unanswered question that will need to be explored in future research.

#### Research Questions

Review of outcome studies related to the focus of this study reflected several major deficit areas. Few studies have examined the influence of co-existing medical disorders, emotional disorders, or a combination of both on



the course and outcome of treatment. Follow-up studies of anorexia nervosa and bulimia nervosa have attempted to identify biological, sociocultural, and lifestyle events leading to the development of an eating disorder, with conflicting, non-conclusive results. From the literature reviewed, minimal research was found focusing on specific characteristics contributing to recovery or relapse. No research was found for review linking collected assessment data to discharge needs, nor was research examining the impact of discharge planning on successful treatment outcome for the eating disordered identified. The current study was designed in an effort to examine the relationship between data collected during the assessment phase and during the discharge phase of an eating disorders program, and to determine if that data was linked to discharge outcomes.

Specific questions to be addressed were: 1) What assessment factors were related to discharge outcomes? and 2) How well was the nature of discharge (e.g., successful vs. early) linked to what was known from assessment?

### CHAPTER 3

#### Methods

The identified sample included 30 retrospective medical record reviews for 29 females and 1 male. Sixty-five medical record numbers were annotated from the patient admission log, maintained by the personnel employed by Providence St. Vincent Medical Center in Portland, Oregon in the eating disorders program. The medical records selected for the study sample met the following criteria: 1) 18 years of age or older; 2) treated for a diagnosed eating disorder; and 3) admitted to the outpatient eating disorders program between 1994 and 1996. The list of identified medical records were submitted to the medical record department. All records reviewed were selected by personnel working in the medical record department. The medical records were examined for documented information in relation to assessment and discharge data.

Sample. Twenty-nine subjects were utilized as the study sample. Available data collected for male subjects was extremely limited ( $n = 1$ ) prohibiting meaningful analysis and was subsequently excluded. All sample subjects were female, with a range in age from 18 to 44 years and a mean age of 25 years ( $SD = 8.10$ ). Sixty-nine percent were Caucasian ( $n = 20$ ) and 31% ( $n = 9$ ) were of unknown ethnicity, related to missing data. See Table 1.

This was a well educated sample. At the time of admission intake completion, 20.7% ( $n = 6$ ) had high school

diplomas, 55% ( $\underline{n} = 16$ ) had completed some college, 6.9% ( $\underline{n} = 2$ ) had a college degree, and 3.4% ( $\underline{n} = 1$ ) had completed some post-graduate work. Fifty-two percent of the subjects were employed ( $\underline{n} = 15$ ). Of the 44.8% ( $\underline{n} = 13$ ) unemployed individuals, 13.8% ( $\underline{n} = 4$ ) were students, 10.3% ( $\underline{n} = 3$ ) were homemakers, and 10.3% ( $\underline{n} = 3$ ) were impacted by health or medical problems (Table 2). Unfortunately, nearly all (96.6%;  $\underline{n} = 28$ ) of the examined admission assessments did not document income data, impeding analysis for this variable.

Most of the sample was single with 62.1% ( $\underline{n} = 18$ ) of the subjects never married. This is likely due to the number of young women. Sixty-five percent ( $\underline{n} = 19$ ) had no children and 44.8% ( $\underline{n} = 13$ ) continued to live with parents. A third (27.6%;  $\underline{n} = 8$ ) were currently married, 10.3% ( $\underline{n} = 3$ ) were divorced, and 31.0% ( $\underline{n} = 9$ ) had one to three children (Table 3). Although nearly 40% of the sample were married or divorced, 96.6% ( $\underline{n} = 28$ ) had no stepchildren; thus, blended families were not represented in this sample.

All primary diagnoses were eating disorders with about half diagnosed with Anorexia Nervosa (48.3%;  $\underline{n} = 14$ ) and half diagnosed with Bulimia Nervosa (41.4%;  $\underline{n} = 12$ ). (Refer to Table 4). Mean height and admission weight for this sample was 64.48 ( $\underline{SD} = 2.89$ ) inches and 114.29 ( $\underline{SD} = 27.80$ ) pounds respectively. Mean age of onset for presenting eating disorder symptoms was 16.96 ( $\underline{SD} = 7.71$ ) with mean onset of menses reported at age 13.14 years ( $\underline{SD} = 1.21$ ).

(See Table 1).

The mean length of hospital stay for the sample population was 52.81 ( $SD = 60.16$ ) with a range between 1 and 320 days. An average of 1.64 ( $SD = 2.13$ ) previous psychiatric hospital admissions was reported. (Refer to Table 1).

#### Data Collection Procedure

Data collection was initiated after approval of the master's research proposal, was obtained from the Oregon Health Sciences University review board and from the Research and Ethical review board at Providence St. Vincent Medical Center. The study involved a retrospective chart review accomplished at the medical center.

Using the patient admission log, 65 medical record numbers were identified by the primary researcher. This log is maintained by the personnel employed by Providence St. Vincent Medical Center in Portland, Oregon who were working in the eating disorders program in that hospital between 1994 and 1996. This method of sample identification was used because the medical records department at Providence St. Vincent Medical Center does not have a unique computer identifier for outpatient admissions to the Eating Disorder Treatment Program.

The list of identified medical records was submitted to the medical record department. All records reviewed were selected by personnel working in the medical record department.

Initial data collection was derived from the examination of the admission clinical interview and the medical examination. At the outset of the study, examination and documentation of available data for those adult subjects completing the Eating Disorder Inventory-2 (EDI-2) was planned. Although several subjects completed the EDI-2, no data were available in the chart for review. Consequently, this option was deleted.

All chart data was reviewed with the following information collected: demographic data; the DSM-IV diagnosis given at the time of admission; developmental history; review of systems; onset; severity and duration of the illness; family history; co-morbidity; and prior psychiatric treatment history. Existing stressors at the time of admission were noted, as well as patient strengths, including social and occupational functioning, education, and the existence and quality of support systems. Review of discharge data examined the degree of symptom reduction, changes in the subject's ability to function independently, documented levels of engagement, the existing support systems, the utilization of follow-up resources and discharge diagnosis.

Each reviewed chart was number coded prohibiting identification of the specific individual after completion of the chart review. Data was collected only by this investigator.

### Instruments

The demographic survey was a compilation of questions developed by the researcher. Data addressed included age, marital status, living arrangements, employment status, education level, and gender.

Assessment variables identified for the purposes of this study were:

1. Presentation of clinical status, including: onset of eating disorder, pattern of illness, and family response.
2. Medical history and admission status, including: height, current and past weights, ideal weight, symptoms of eating disorder, unusual eating practices, onset of menses, allergies, medication, and presence of an Axis III medical diagnosis.
3. Psychiatric history, including: other psychiatric disorders, past psychiatric hospitalizations, and past psychiatric treatment, history of abuse (physical, sexual, emotional), and substance abuse history.
4. Current support system, including: family of origin, spouse, friends, or community organizations (church, self-help groups).
5. Assessment of stressors, including: identified stressful life events and assessment of GAF (see Appendix A for instrument).

Level of symptom resolution and ability to function independently was based on the established general outcome categories developed by Morgan and Russell (1975), the APA

criteria for discharge established in the Practice Guidelines for Eating Disorders (1993), and documented clinical data assessing the condition of the subject at discharge. Change in the Global Assessment of Functioning (GAF) was expected to provide a measure of symptom resolution but consistent lack of documentation for the GAF prohibited this strategy.

Presence or absence of engagement in treatment was assessed based on clinical records documenting interactions and rated as low, minimal, moderate or maximum. Low participation was defined by reported behaviors of resistance, rebellion, isolation, unwillingness to initiate treatment program, and termination of treatment program without the approval of the treatment personnel. Participation assessed as minimal was based on identified behaviors of limited interaction, avoidance of participation in treatment plan and program activities, dependence on others to determine goals, little demonstrated change of behavior, and lack of involvement in discharge planning.

A moderate level of participation reflected inconsistent involvement in the treatment program with a resistance to address areas identified relevant by the treatment team and interaction with others and identification of a realistic discharge plan but with reluctance to initiate use of the discharge plan or to activate support systems. A maximum level of participation was defined by behaviors documenting active involvement in

treatment activities, willingness to take risks in an effort to make behavior changes, involvement with others including the subject's support system, and initiation of a discharge plan prior to departure from program, including the establishment of an available support system.

Data collection identifying use of available resources was obtained from the documented discharge plan. This included the clinician's assessment of the subject's tendency to function independently, to have a willingness to utilize resources, and to initiate follow-up arrangements prior to discharge (see Appendix B).



## CHAPTER 4

### Results

A retrospective design was used with one time data collection. Descriptive and other analyses were accomplished using the Statistical Package for the Social Sciences (SPSS). Data collected by the researcher using the Admission and Discharge Data Collection Instruments (Appendices A & B) was entered into the computer by a research assistant. Missing data was addressed by entering data as 'missing'. Analysis files were created and utilized to assess relationships between admission and discharge variables and differences between eating disorder diagnoses.

Descriptive statistics were employed to assess the characteristics of the sample population, including simple percentages and measures of central tendency including the mean, mode, median, and standard deviation. Data has been organized and presented with the use of tables. A statistical analysis of variance was applied to assess differences between diagnostic groups for particular variables. A Chi-square test was used to test for associations between admission and discharge variables.

The primary focus of this discussion is concentrated on findings with statistical significance or those that support the existence of a trend. Probability levels were set at .05 for statistical significance and .10 to indicate a trend. Probabilities greater than .10 were assessed as non-significant.

Attempts were made within the parameters of the study to avoid or account for the common methodological deficits identified by Hsu (1995). Efforts were made to obtain complete clinical data and adequate diagnostic criteria, to incorporate a description of treatment modalities, and to account for all program participants, exclusive of length of stay. Outcome criteria was defined. The externally imposed time frame, inadequate funds, and purpose of the research study precluded long-term longitudinal follow-up studies.

### Diagnosis

Diagnostic criteria for eating disorders were defined by the standards outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (American Psychiatric Association, 1994). Criteria identified for Anorexia Nervosa include: 1) maintenance of weight at less than 85% of the weight considered normal for the age and height of the individual; 2) intense fear of gaining weight; 3) presence of significant disturbance in the perception of shape or size of the body which defines the individual's self-esteem; and 4) amenorrhea present in postmenarcheal women. Using the criteria outlined in the DSM-IV (APA, 1994), 48.3% ( $n = 14$ ) of the subjects were diagnosed with Anorexia Nervosa.

Criteria utilized for the diagnosis of Bulimia Nervosa were as follows: 1) uncontrolled binge eating (consumption of significantly larger amounts of food than normal) confined to a period of two hours or less; 2) recurrent use of

inappropriate compensatory behaviors to prevent weight gain; 3) binge eating and inappropriate compensatory behaviors occurring at least two times per week for a period of three months; 4) excessive emphasis on body shape and weight used as the primary determinant for self-evaluation; and 5) disturbances occur exclusive of an episode of Anorexia Nervosa. Forty-one percent ( $n = 12$ ) of this sample met the criteria for Bulimia Nervosa.

Diagnostic criteria for an Eating Disorder, Not Otherwise Specified were: 1) all criteria for Anorexia Nervosa (AN) are met except that regular menses is present; 2) all criteria for AN are met except that, despite significant weight loss, weight remains in the normal range; 3) all criteria for Bulimia Nervosa (BN) are met except that the binge eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than three months; 4) regular use of inappropriate compensatory behavior by an individual of normal body weight after eating small amounts of food; 5) repeatedly chewing and spitting out, but not swallowing, large amounts of food; 6) Binge-eating disorder: recurrent episodes of binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of BN. In this study 10.3% ( $n = 3$ ) met the criteria for Eating Disorder, Not Otherwise Specified (NOS) (See Table 4).

#### Results of Assessed Admission Data

The primary Axis I diagnoses of this sample, Anorexia

Nervosa (307.10), Bulimia Nervosa (307.51), and Eating Disorders, Not Otherwise Specified (ED/NOS) (307.50), were statistically compared based on assessment characteristics. Associations between variables were also computed. Findings related to AN and BN are reported in this section. The specific ED/NOS findings were omitted due to limited sample size ( $n = 3$ ), although reported results for the total population include this subsample.

Presenting Symptoms - Bulimia Nervosa. Results indicated that 68% ( $n = 13$ ) of the total sample population binged. Eighty-five percent ( $n = 11$ ) of the 13 subjects were diagnosed BN versus 15% ( $n = 2$ ) AN. Eighty-four percent ( $n = 16$ ) reported lack of control; 75% ( $n = 12$ ) of those with BN exhibited lack of control versus 19% ( $n = 3$ ) of those with AN. The presence of inappropriate compensatory acts was noted in 68% of the sample ( $n = 13$ ), with 69% ( $n = 9$ ) of these diagnosed as BN versus 23% ( $n = 3$ ) diagnosed as AN. Seventy-nine percent ( $n = 15$ ) had symptoms present a minimum of twice a week for three months; again, 80% ( $n = 12$ ) of those with BN reflected this symptom versus 13% ( $n = 2$ ) of subjects with AN. Purging behaviors were annotated in 74% ( $n = 14$ ) of the sample; 79% ( $n = 11$ ) had BN versus 21% ( $n = 3$ ) with AN. Vomiting was present in 62% ( $n = 18$ ) of the cohort; 61% ( $n = 11$ ) were diagnosed with BN versus 39% ( $n = 7$ ) with AN. (See Table 5).

Presenting Symptoms - Anorexia Nervosa. Body weight maintained at less than 85% of the expected range was

reported in 48% ( $\underline{n} = 12$ ) of the sample; 92% ( $\underline{n} = 11$ ) were diagnosed with AN. Sixty-eight percent ( $\underline{n} = 17$ ) reported fear of gaining weight; 71% ( $\underline{n} = 12$ ) of them were diagnosed with AN versus 18% ( $\underline{n} = 3$ ) with BN. Distorted perception of the body was exhibited in 76% ( $\underline{n} = 19$ ) of the sample population. All (74%,  $\underline{n} = 14$ ) AN subjects reported distorted perceptions of body versus 16% ( $\underline{n} = 3$ ) of cohorts with BN. Symptoms of amenorrhea were present in 50% ( $\underline{n} = 12$ ) of the total sample population, with 75% ( $\underline{n} = 9$ ) AN versus 17% ( $\underline{n} = 2$ ) BN. Bingeing and purging behaviors were present in 64% ( $\underline{n} = 16$ ) of the sample with 75% ( $\underline{n} = 12$ ) with AN exhibiting these behaviors versus 13% ( $\underline{n} = 2$ ) reported for BN. Significant severe weight change was assessed for 45% ( $\underline{n} = 9$ ) of the sample. Seventy-eight percent ( $\underline{n} = 7$ ) of the subjects with AN demonstrated significant weight change in contrast to no reports of BN subjects with this problem. (See Table 6).

#### Symptoms - Anorexia Nervosa and Bulimia Nervosa.

Laxative use was evident in 59% ( $\underline{n} = 17$ ) of the sample: 47% ( $\underline{n} = 8$ ) were diagnosed with BN versus 47% ( $\underline{n} = 8$ ) with AN. Use of diuretics was reported for only 14% ( $\underline{n} = 4$ ) of the sample; 2 with each sample. Identified diet pill use was acknowledged by 28% ( $\underline{n} = 8$ ) of this sample population with 62% ( $\underline{n} = 5$ ) BN versus 37% ( $\underline{n} = 3$ ) AN. Exercise levels were assessed as distorted in 72% ( $\underline{n} = 21$ ) of the total sample. Forty-three percent ( $\underline{n} = 9$ ) with BN versus 48% ( $\underline{n} = 10$ ) with AN reported excessive exercise levels. Sleep was reported

as a problem for 31% ( $\underline{n} = 9$ ) of the sample with 56% ( $\underline{n} = 5$ ) with BN and 33% ( $\underline{n} = 3$ ) with AN. Only 7% ( $\underline{n} = 2$ ) of the total sample had histories of Ipecac use in association with the Axis I diagnosis, both diagnosed with BN. (See Table 7).

Although not significantly associated with one diagnosis versus the other, fasting was evident in 76% ( $\underline{n} = 22$ ) of the sample; 55% ( $\underline{n} = 12$ ) were diagnosed AN, in contrast to 32% ( $\underline{n} = 7$ ) BN. Body size estimation was distorted by 48% ( $\underline{n} = 14$ ) of the sample with 57% ( $\underline{n} = 8$ ) reported for AN versus 36% ( $\underline{n} = 5$ ) for BN. Estimation of body shape was distorted by 35% ( $\underline{n} = 10$ ) of this sample. The AN population reflected a 70% ( $\underline{n} = 7$ ) incident rate versus 30% ( $\underline{n} = 3$ ) for BN. (See Table 6).

#### Relationship of Axis I Diagnosis and Presenting Symptoms

An overall relationship between diagnosis and eating disorder symptoms for this sample was not established, although there were trends noted for BN and symptom behaviors. These included: bingeing,  $\chi^2(2, \underline{N} = 19) = 9.20$ ,  $p \leq .10$ ; lack of control,  $\chi^2(2, \underline{N} = 19) = 6.21$ ,  $p \leq .10$ ; frequency and duration of symptoms,  $\chi^2(2, \underline{N} = 19) = 8.77$ ,  $p \leq .10$ ; and purging,  $\chi^2(2, \underline{N} = 19) = 8.08$ ,  $p \leq .10$ . (Refer to Table 5).

Physical Illnesses and Symptoms. At the time of admission, significant differences in weight existed between diagnostic groups. As predicted in the research literature, the mean weight for the 12 BN subjects was significantly higher at 138.10 pounds ( $\underline{SD} = 24.30$ ) in comparison to the

mean weight of the 14 AN subjects at 92.29 pounds ( $SD = 9.94$ ). The reported weight range for AN was between 74.0 and 105.5 pounds in sharp contrast to a weight range of 114.25 to 196.00 pounds for BN.

Sixty-two percent ( $n = 18$ ) of the sample reported major illnesses at the time of admission, while 34.5% denied existing problems ( $n = 10$ ). Respiratory illnesses were reported by 18% ( $n = 5$ ), 27% ( $n = 7$ ) reported allergies, and 18% ( $n = 5$ ) reported digestive problems. Unidentified major illnesses, categorized by "other", accounted for 39% ( $n = 7$ ) of the reported major illnesses. Cardiac illnesses were not prevalent in this sample (7%,  $n = 2$ ), although this is a commonly reported complication noted by a number of researchers (Hsu, 1995, 1988; & Ratnasuriya, et al., 1991) Neurological problems accounted for 10% ( $n = 3$ ) of the reported medical problems. (Refer to Table 8).

Results of Admission Mental Status Exam. A Mental Status Exam (MSE) was accomplished on 24 subjects with 12 assessed and diagnosed with AN and the remaining 12 diagnosed with BN. For all subjects, the MSE was assessed "abnormal". No significant relationships were identified when the MSE was associated with the major diagnostic categories (AN or BN), except a trend for an association between cognitive problems and AN  $\chi^2(1, N = 24) = 6.17, p \leq .10$ . Eighty-three percent ( $n = 10$ ) of the sample was positively assessed with cognitive problems.

Statistical application of a one-way analysis of variance (ANOVA) revealed a significant difference between diagnostic groups on the admission Global Assessment of Functioning (GAF),  $F(1, 168) = 3.95, p \leq .05$ . Those with BN had a mean GAF of 54.30 ( $SD = 4.76$ ) compared to a mean GAF of 48.64 ( $SD = 7.78$ ) for those diagnosed with AN. There were no statistical differences between groups on the GAF during the past year. Reported life satisfaction was also not related to the major diagnostic categories, although a majority of the sample (87.5%,  $n = 21$ ) expressed dissatisfaction.

Psychiatric Symptoms. Half of the total sample had a history of psychiatric hospital admissions (54%,  $n = 15$ ), but no significant link with diagnosis was established. Forty-six percent ( $n = 13$ ) had previously been hospitalized for an eating disorder but, again, no significance was established in relation to diagnosis. Of interest was the finding that none ( $n = 3$ ) of the sample with NOS had previous psychiatric hospitalizations for an eating disorder; however, this may simply reflect error associated with the small sample size.

Past hospitalizations were linked to depression (36%,  $n = 10$ ) or substance abuse (11%,  $n = 3$ ). Interestingly, for this sample, all cohorts with a history of past substance abuse treatment were diagnosed with AN (100%,  $n = 3$ ), although 54% ( $n = 15$ ) of the total sample had a history of substance abuse. Forty-two percent ( $n = 11$ ) had a history



of self-mutilating behaviors.

Inferences about the relationship between Axis II diagnosis and AN or BN could not be made because of the high number of deferred ( $\underline{n} = 23$ ) or missing diagnoses ( $\underline{n} = 5$ ) for this sample.

A majority of the subjects had received previous psychiatric treatment (86%,  $\underline{n} = 25$ ). Individual treatment was used by 57% ( $\underline{n} = 16$ ) of the subjects. While some form of group treatment had been used by 29% ( $\underline{n} = 8$ ) of the sample population, the majority (72%,  $\underline{n} = 18$ ) had not accessed self-help groups, either in the past nor at the time of admission assessment. At the time of referral, 48% ( $\underline{n} = 14$ ) were actively involved in some form of psychiatric treatment. Treatment history variables were not associated with diagnostic group.

Social History. As described earlier, 78% ( $\underline{n} = 14$ ) of the total sample did well academically. Most had no legal histories (86%,  $\underline{n} = 18$ ), although a trend for AN to be linked with this variable was noted ( $\chi^2(1, \underline{N} = 21) = 3.18, p \leq .10$ ). Social history included childhood friends for 88% ( $\underline{n} = 15$ ), although 72% ( $\underline{n} = 13$ ) had a history of difficulties with peer relationships. At the time of referral, 83% ( $\underline{n} = 20$ ) identified a stable relationship, 62% ( $\underline{n} = 13$ ) had current friends, with contact varying from daily (24%,  $\underline{n} = 4$ ) to at least weekly (24%,  $\underline{n} = 4$ ), and 50% ( $\underline{n} = 12$ ) identified available professional support systems. Recreational activity was used daily for 32% ( $\underline{n} = 8$ ) of this

group, whereas 56% ( $\underline{n} = 14$ ) were never or rarely involved in leisure pastimes. No significant relationships were established between past social functioning and Axis I diagnosis.

Family Functioning and Diagnostic Categories. Analysis of the relationship between family functioning and major diagnostic categories was examined. No significant relationships were identified, although a number of near trends and descriptive statistics provide relevant information. The majority of the sample population was raised in an intact family (58%,  $\underline{n} = 15$ ) and maintained contact with family members (96%,  $\underline{n} = 25$ ). Frequency of contact for 54% ( $\underline{n} = 14$ ) of the sample varied from daily contact (46%,  $\underline{n} = 12$ ) to between two and four times per week (8%,  $\underline{n} = 7$ ). No significant association existed for the number of siblings or the frequency of contact.

Although two-thirds (68%,  $\underline{n} = 17$ ) of the sample population at the time of referral viewed family members as supportive and 96% ( $\underline{n} = 25$ ) maintained contact with mother, 54% ( $\underline{n} = 13$ ) indicated noncohesive family interactions. The extent of existing relationships between major diagnostic categories and frequency of family activities, frequency of conflict, and frequency of family violence could not be reliably examined due to the number of missing observations. Two trends for relationships were noted: anorexia was associated with intact families (71% AN versus 42% BN;  $\chi^2(1, \underline{N} = 26) = 1.21, p \leq .10$ ) and with less frequent contact

with father (78.6% AN versus 50% BN;  $\chi^2(1, N = 26) = 2.33, p \leq .10$ ).

Diagnosis and Substance Use History. A history of substance abuse was reported by 54% ( $n = 15$ ) of the total sample with 46% ( $n = 6$ ) diagnosed with AN and 58% ( $n = 7$ ) with BN (refer to Table 9). Drugs of abuse included alcohol (47%,  $n = 13$ ), marijuana (25%,  $n = 7$ ), amphetamines (7%,  $n = 2$ ), and cocaine (11%,  $n = 3$ ). Alcohol abuse was evident for 39% ( $n = 5$ ) of the AN subjects, 50% ( $n = 6$ ) of the BN group, and 2 of 3 of those diagnosed with NOS. No significant links with diagnoses were established.

Diagnosis and Family History. The major diagnostic categories were assessed in relation to family history variables. Anorexia Nervosa was positively linked to a family history of mood disorders ( $\chi^2(1, N = 21) = 4.07, p \leq .05$ ). A significant relationship existed between BN and a family history of eating disorders ( $\chi^2(2, N = 22) = 6.28, p \leq .05$ ). Associations were noted between BN and siblings identified as having psychiatric histories, significant with brothers ( $\chi^2(1, N = 20) = 7.50, p \leq .05$ ) and a trend for sisters ( $\chi^2(1, N = 20) = 3.03, p \leq .10$ ). A family history of psychiatric problems was present for 76% ( $n = 16$ ) of the total sample, a third (32%;  $n = 7$ ) had mothers with psychiatric histories and 40% ( $n = 8$ ) had fathers with reported psychiatric problems.

Abuse histories were prevalent for this sample with 68% ( $n = 16$ ) reporting some form of past abuse. Sexual abuse

was reported by half (55%;  $n = 6$ ) diagnosed with BN and almost half (39%;  $n = 5$ ) diagnosed with AN. Emotional abuse was cited for 31% ( $n = 4$ ) with AN compared to 18% ( $n = 2$ ) with BN. Only two women admitted to histories of physical abuse.

A family history of substance abuse was assessed for two-thirds (64%,  $n = 14$ ) of the population, with alcohol identified as the primary drug of abuse (64%,  $n = 14$ ). Unfortunately, substantial data for existing psychiatric disorders in parents (mothers,  $n = 15$ ; fathers,  $n = 18$ ) and eating disorders active in family members ( $n = 19$ ) was missing, preventing analysis of these variable.

#### Results of Assessed Discharge Data

Discharge assessments, including changes in symptoms, level of involvement in the treatment program, treatment modalities used, type of discharge from the hospital, and clinical outcomes were assessed in relation to intake variables. Again, significant lack of data reduced the sample size by as much as 50%, reducing the validity and reliability of the results. Overall, significant associations identified for this sample included: 1) a link between treatment involvement and a) discharge type and b) clinical outcomes and 2) a positive relationship between the diagnosis AN and the lack of follow-up with discharge plans. Identified trends included a relationship between AN and treatment resistance and noncompliance.

At the time of discharge, the average length of stay for

those with AN was 65 days ( $\underline{n} = 13$ ,  $\underline{SD} = 82.22$ ) and for those with BN was 38.8 days ( $\underline{n} = 10$ ,  $\underline{SD} = 23.85$ ). Although only fourteen percent ( $\underline{n} = 4$ ) continued to exhibit body weight less than 85% of the expected, half (48%;  $\underline{n} = 14$ ) expressed continued fear of gaining weight, a quarter (24%;  $\underline{n} = 7$ ) were amenorrheic, half (52%;  $\underline{n} = 15$ ) still expressed distorted perceptions of their body, and 21% ( $\underline{n} = 6$ ) continued to demonstrate denial of symptom severity. Bingeing and purging continued for nearly a third (28%;  $\underline{n} = 8$ ); bingeing without purging existed in 21% ( $\underline{n} = 6$ ). Fourteen percent ( $\underline{n} = 4$ ) identified continued lack of control, with 10% ( $\underline{n} = 3$ ) demonstrating inappropriate compensatory acts. Throughout treatment, 14% ( $\underline{n} = 4$ ) exhibited symptoms at least twice a week with 45% ( $\underline{n} = 13$ ) continuing to fast, 17% ( $\underline{n} = 5$ ) vomiting, 21% ( $\underline{n} = 6$ ) exercising excessively and 14% ( $\underline{n} = 4$ ) demonstrating unusual food practices. (See Table 10).

Medically, the sample population exhibited limited physical problems, although a fourth (24%  $\underline{n} = 7$ ) demonstrated sleep disturbances and 17% ( $\underline{n} = 5$ ) had had some level of treatment interference related to medical problems. Additional psychiatric history was revealed during treatment for one third of this population (31%;  $\underline{n} = 9$ ), with 10% ( $\underline{n} = 3$ ) acting out self-mutilating behavior during the treatment program. In addition to the Axis I primary diagnosis of an eating disorder, mood disorders were documented at discharge for 31% ( $\underline{n} = 9$ ) and post-traumatic stress disorder for 7% ( $\underline{n}$

= 2) of the subjects. Personality disorders were noted for 10% ( $\underline{n} = 3$ ) of the sample population.

Lifestyle changes had occurred for many of the subjects during the course of treatment. The living situation had changed from the time of admission to discharge for 21% ( $\underline{n} = 6$ ). Employment status was different for 7 individuals (24%), but type of change could not be evaluated with the current data base. Nearly one quarter (21%;  $\underline{n} = 6$ ) did not have an existing stable relationship, whereas 66% ( $\underline{n} = 19$ ) did have a partner that participated in the treatment program. Most (76%;  $\underline{n} = 22$ ) had friends at the time of discharge, although the majority (86%,  $\underline{n} = 25$ ) did not have friends participate in the treatment process. Most (86%;  $\underline{n} = 25$ ) were also connected to people or agencies that were available to provide emotional support. (Table 11).

Intake variables assessed at admission were analyzed in relation to the nature or type of discharge with no significant relationships or trends established. Similar results were obtained when admission intake variables were compared to clinical outcome assessments.

Diagnosis in Relation to Nature of Discharge and Clinical Outcome. Diagnosis was not linked to the discharge type nor was an association established simply between diagnosis and clinical outcome. (See Table 12). The level of resistance exhibited during treatment suggested an association between those diagnosed with AN and increased resistance ( $\chi^2(1, \underline{N} = 25) = 3.23, p \leq .10$ ). A trend was

also apparent between those diagnosed with AN and noncompliance with program expectations ( $\chi^2(1, N = 25) = 3.43, p \leq .10$ ). Level of involvement was not linked with major diagnostic categories. However, the maximal level of involvement and commitment was assessed only for the BN subsample ( $n = 4$ ). The one variable significantly related to a major diagnosis was lack of follow-through with program expectations, associated with AN ( $\chi^2(1, N = 25) = 5.15, p \leq .05$ ). (Refer to Table 13).

Involvement/Commitment in Relation to Clinical Outcome.

Moderate and maximal levels of treatment involvement and commitment to program expectations were significantly linked to successful completion of the program ( $\chi^2(20, N = 28) = 62.04, p \leq .001$ ), as well as intermediate and good outcomes ( $\chi^2(8, N = 28) = 20.45, p \leq .05$ ). (See Table 14). Eighty-two percent ( $N=9; \chi^2(1, N = 28) = 7.63, p \leq .05$ ) of the subjects demonstrating compliance with program expectations completed the program with an intermediate or good outcome. Conversely, noncompliance with program expectations was related to discharge against treatment team recommendation (35%,  $n = 6$ ) or discharge by the treatment team related to the level of noncompliance (12%,  $n = 2$ ). Successful completion was documented for 91% ( $n = 10$ ) of the subjects demonstrating compliance versus 41% ( $n = 7$ ) of the noncompliant subjects. This association was significant, ( $\chi^2(5, N = 28) = 10.73, p \leq .05$ ). (See Table 15 & 16). Conversely, poor outcome was significantly linked to lack of

follow-through with program expectations ( $\chi^2(2, N = 28) = 6.57, p \leq .05$ ). Sixty-one percent ( $n = 14$ ) of the subjects demonstrating lack of follow-through were discharged with assessments for poor clinical outcomes (Table 17). Type of discharge, however, was not linked to lack of follow through ( $\chi^2(5, N = 28) = 3.93, ns$ ). Resistance for this sample, was not linked to the type of discharge ( $\chi^2(5, N = 28) = 5.14, ns$ ) or to clinical outcome ( $\chi^2(2, N = 28) = 1.34, ns$ ).

Treatment in Relation to Nature of Discharge and Clinical Outcome. Treatment modalities employed during the subject's admission to the treatment program were unrelated to the type of discharge and the discharge assessment of clinical outcome. However, descriptive statistics suggested some interesting patterns. The majority of subjects participating in family therapy (100%,  $n = 17$ ), group therapy (100%,  $n = 17$ ), cognitive-behavioral therapy (88%,  $n = 15$ ), and pharmacological treatment (71%,  $n = 12$ ) successfully completed the treatment program. In addition, the majority of this group (82%,  $n = 14$ ) did not receive individual therapy. Use of self-help groups was not linked to a successful discharge. As depicted in Table 18, clinical outcome for this sample was not associated to the type of treatment modality used.



## CHAPTER 5

### Discussion

The purpose of this study was to explore the relationship between data collected during the assessment phase of treatment and the discharge phase for individuals admitted to an outpatient eating disorder treatment program. Two questions were posed at the outset of this study: 1) What assessment factors were related to discharge outcome? and 2) How well was the nature of discharge linked to what was known from assessment? Assessment variables included: 1) demographic data; 2) DSM-IV diagnosis with GAF; 3) developmental history; 4) review of systems; 5) eating disorder symptoms; 6) social history; 7) family functioning; 8) co-morbidity, and 9) treatment history. Variables identified from discharge data included: 1) diagnosis with GAF; 2) treatment involvement; 3) treatment modalities; 4) changes in eating disorder symptoms; 5) clinician discharge assessments of outcome; and 6) nature of discharge or type of disposition.

Admission data was compared to discharge data to assess for relationships and differences. Findings of this study were consistent with previous research linking developmental patterns, biochemical changes, and sociocultural factors with eating disorder diagnoses. A similar pattern of low rate of occurrence for male subjects was also encountered. In this chapter, the results, limitations, and conclusions

will be offered and discussed.

### Symptomatology

In general, the women in this study were in their mid-twenties, Caucasian, well-educated, single, and employed. Nearly half of the women were diagnosed with Anorexia Nervosa (AN), while the remainder were diagnosed with Bulimia Nervosa (BN).

Bingeing, lack of control, inappropriate compensatory acts, frequency of behaviors at least twice a week, and purging behaviors were prevalent in the majority of the women, but were clearly associated with BN. Conversely, low body weight, fear of weight gain, distorted perceptions of body, amenorrhea, and bingeing with purging behaviors described women diagnosed with AN. Laxative use, vomiting, excessive levels of exercise, and fasting were frequently cited behaviors for both diagnostic groups. Although a significant relationship was not established between diagnosis and eating disorder symptoms, trends were present for BN and symptom behaviors.

Significant differences in weight did exist, with the mean weight of those with BN higher than the mean weight of those diagnosed with AN. This finding is consistent with previous research linking lower body mass to AN (Herzog, 1988 & Lavori, 1988).

All patients were found to have abnormal mental status. Results of the admission mental status exam reflected a significant association between cognitive problems and the

diagnosis of AN. Biochemical changes accompanying starvation present in anorexia nervosa have been related with enlarged sulci and ventricles in previous research (Kaplan, et al., 1994). This may increase vulnerability and explain, in part, the observed cognitive changes in this group. Otherwise, the group of women were equally compromised in terms of mental status.

Higher Global Assessment of Functioning in women diagnosed with BN is consistent with the research data reporting fewer premorbid stressors and a more positive overall outcome (Hsu, 1995 & Callings, 1994). Similarly, the BN subjects in this study were the only ones who evidenced maximal involvement in treatment. In contrast, those diagnosed with AN present with a more critical syndrome, particularly with respect to chronicity (Steinhauser, 1991).

The data from this study was consistent with previous research with regard to diagnosis at younger ages and prevalence in women. Developmentally, young adolescents seem to have a greater risk of developing AN, possibly related to the development of self (Stein, 1996; Steinhausen, 1995, 1991; & Cashdan, 1988) or with developmental transitions (O'Kearney, 1996). The development of BN seems to be linked with late adolescence and young adulthood (O'Kearney, 1996; Smolak, et al., 1996; Irwin, 1993; Herzog, 1991; & Herzog, Keller, & Lavori, 1988). Additionally, prevalence seems to be higher for

women versus men (Anderson, 1995; & Carlat & Camargo 1991) and associated with mood disorders, personality disorders, and substance abuse (Keating, 1995 & Callings, 1994). Findings available from this study were insufficient to draw conclusions about existing mood disorders, personality disorders, and substance abuse.

Findings did suggest that distortion of body image was prevalent for the sample group. Stein (1996) suggests that self-concept is distorted for the eating disordered population. Additional findings from this study reflects high frequency of contact with family members, particularly with mothers, noncohesive family units, and life dissatisfaction. Attachment issues (Isabella, 1996 & O'Kearney, 1996) and enmeshed family systems (van Furth et al., 1996) have been linked to the etiology of eating disorders and are consistent with this study.

Research has been relatively unsuccessful in isolating predictive outcomes, a result that was consistent with this study. Predictors suggested by the research, including age of onset, duration of illness, age of menarche, social withdrawal, and poor family relations (Woodside & Garfinkel, 1996; Rosen, et al., 1993; Hsu, 1991; Rosenvinge & Mouland, 1987; & Woodside & Garfinkel, 1992) were not related to outcomes in this study.

Findings reporting pretreatment symptom severity, lower body mass index (LBMI), personality disorders, substance abuse and comorbid psychological disorders (Fahy &

Russel, 1993; Rossiter, Agras, Telch, & Schneider, 1993; Sohlberg, Norring, & Rosemark, 1992; & Hsu, 1991) could not be substantiated in this study, related to insufficient data. However, several factors were identified within the sample population, specifically LBMI and substance use. Women with BN had fewer hospital days and had fewer presenting psychiatric symptoms but seemed to have more serious family problems. Although these findings were not significant, they are similar to previous research findings.

In terms of treatment modalities, previous research has supported a combination of multiple strategies as most effective in treating this population (McGown & Whitbread, 1996; Hartmenn, Herzog, & Drinkmann, 1991). Although this study did not link treatment modalities to the type of discharge or to the assessed clinical outcome, all individuals who participated in family therapy, group therapy, cognitive-behavioral therapy and pharmacological treatment, successfully completed the treatment program. This is consistent with the research and points to the importance of group therapy, in addition to individual therapy. Unfortunately, given the success of group treatment modalities, the majority of the women in this study were discharged with referrals to individual therapy.

A significant finding associated noncompliance and resistance to treatment to poor clinical outcome and discharge against treatment team recommendations for those diagnosed with AN. Additionally, poor outcome was

significantly linked to lack of follow-through with program expectations.

Callings (1995) suggested that some unknown intervention variable relates to positive outcome for those diagnosed with BN. In view of the observed relationships noted in this study, it seems relevant to question what it is specifically about resistance and noncompliance that might impact intervention variables for those diagnosed with AN. Additional information about the unknown intervention variables, might positively impact the clinical outcome for those with AN or might support previous suggestions made to treat the two disorders in different fashions.

#### Implications

The findings reported from this study have implications for the nurse practitioners in practice at Providence St. Vincent's Medical Center. They may have implications for other nurse practitioners working in similar clinical settings, but based on the limitations of the study, the degree of valid generalizability is questionable.

Need for early and complete diagnostic assessment is indicated, especially with regard to Axis II diagnosis and assessment of current psychiatric and family history that may impact treatment and discharge outcomes. Keating (1995) discussed comorbid Axis I and Axis II diagnosis as predictors of outcome. Additionally, improved GAF levels were linked to more positive clinical courses. Availability of this data could be helpful in terms of treatment

interventions with this population.

The level of involvement in the treatment process was significantly related to a positive clinical outcome. In view of these findings, it may be helpful to further examine treatment engagement in terms of strategies of care or intervention versus patient characteristics. Maximal involvement ratings were only obtained in this study by those with BN. These findings pose several questions: 1) they may reflect earlier suggestions made by Callings (1995) relating unknown treatment variables to positive outcome, 2) they might support research linking negative outcome to coexisting personality disorders (Herzog, et al., 1993 & Sohlberg, et al., 1992) or 3) they might again imply the need for different treatment strategies to be used for the different eating disorders.

In view of the frequency that group therapy was used as a treatment modality and its association with successful treatment completion, the lack of discharge planning incorporating group involvement is a concern. Referral to community-based groups may be an available post-discharge support system that has so far not been sufficiently utilized.

Findings that link the anorectic woman to the probability of noncompliance and resistance during treatment, combined with the lack of discharge follow-through, may indicate the need for treatment strategies that focus on these traits. Particular attention regarding

discharge preparation and follow-through is suggested. Use of the EDI-2, or another instrument specific to this population, might provide valuable information to answer some of the unknown variables. Cost factors, however, may be too prohibitive making use of this option impracticable.

Finally, it is appropriate to mention that the complexity of this population was not reflected in terms of the outcome data, suggesting that further research is indicated to clarify the many unknown variables.

#### Study Limitations

Limitations identified for this study included the use of a sample of convenience with a limited number, the retrospective design with one-time data collection, and the use of a data collection tool developed by the researcher. Reliability was not established for the data collection tool and had not been pilot tested. An additional limitation was the amount of missing data. Specifically, a lack of documented discharge assessments and the omissions of DSM-IV multi-axial diagnosis restricted the extent of analysis.

#### Recommendations

Future studies are indicated to further identify the relationship between admission and discharge data. Of note is the particularly small sample in this study which did not allow for conclusive findings. Trends identified during this study can provide a beginning framework to build on in future research studies.

Additional research is needed to assess the impact of



treatment on discharge outcomes. A particularly intriguing question remains unanswered with respect to the variables that facilitated some subjects to engage and commit to treatment with positive outcomes. The answer could be related to individual treatment strategies employed, unknown client variables, or external factors. Answers could provide valuable data in terms of treatment interventions.

Further refinement of the data collection tool is indicated to improve the quality and relevance of data collected. Variables such as "income level" were too broad resulting in minimal data collection. Had "income" been framed in terms of type of employment, a truer representation of the sample may have resulted. Rewording or restructuring of the tool could result in better data with more focused conclusions.

The use of formally defined criteria to evaluate outcome measures would also be helpful in the process of assessment in addition to providing a structure for the client to establish goals. Formal documentation of discharge assessments, in terms of multiaxial diagnoses, including GAF, is necessary for program evaluation and conclusions drawn about treatment for this population.

### Conclusion

Original research questions identified at the beginning of this study offer a useful framework to draw conclusions.

First: What assessment factors were related to discharge clinical outcome?

Although the question was not definitively answered, those individuals with Anorexia Nervosa were assessed with greater frequency to have lower body weights, cognitive problems, greater incidence of amenorrhea, and lower admission Global Assessment of Functioning. Mood disorders in family members were positively linked to those with Anorexia Nervosa. Although not significant, a trend established some relationship for a history of legal problems. At discharge, body weight continued to be lower for this group and amenorrhea was found only in those with AN. Further conclusions cannot be made based on the lack of data but, in view of the presenting cognitive problems on admission and the frequency of treatment resistance and noncompliance paired with poor clinical outcomes, the possibility that some relationship exists needs to be entertained.

Subjects with the diagnosis of Bulimia Nervosa were more likely to abuse laxatives, have sleep disturbances, and a higher rate of substance abuse. Trends were noted for bingeing, lack of control, frequency and duration of symptoms, and purging behaviors to be related to this group. Additionally, a significant relationship existed between family histories positive for eating disorders and those with Bulimia Nervosa. Associations also existed between psychiatric histories and siblings of subjects diagnosed with Bulimia Nervosa. Once more, the data is sufficient only to speculate regarding the research question. It appears

that higher admission weight and higher initial GAF levels might reflect the availability of more resources to cope with the presenting symptoms and thereby lead to more positive clinical outcomes.

Second: How well was the nature of discharge linked to what was known from assessment?

Results of this study indicate the question remains essentially unanswered. Some interesting relationships were established, which may prove useful in terms of discharge planning. Those subjects with the diagnosis of AN were positively linked to resistance behaviors and associated with behaviors of treatment resistance and noncompliance. Additionally, a significant link was made between those with AN and the lack of follow-through at the time of discharge. The likelihood that the subject with AN will terminate treatment prior to successful completion of the program combined with the poor clinical outcome for this group, indicates treatment interventions and discharge planning might need to be modified to address these treatment outcomes.

Conversely, for those subjects with BN, compliance, engagement in the treatment process, and greater frequency of successful completion with more positive clinical prognosis, may provide a forum for identifying treatment strategies or factors contributing to these positive findings. Identified factors may facilitate treatment strategies that lead to more successful outcomes for those

with AN.

At the outset of this study, the complexity of the picture presented by those individuals diagnosed with an eating disorder, was unequivocally evident. The data presented has not clarified the confusion, but has provided a beginning step to answering some questions and will hopefully provide important information for the treatment team at Providence St. Vincent's Medical Center.

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Appendix A

Admission Data Collection Tool

Code Number: \_\_\_\_\_

DEMOGRAPHICS:

Date of Admission \_\_\_\_\_ Date of Discharge \_\_\_\_\_

Length of Treatment Stay \_\_\_\_\_

Gender \_\_\_\_\_ Male \_\_\_\_\_ Female

Date of Birth: Mo \_\_\_\_\_ Day \_\_\_\_\_ Yr \_\_\_\_\_ Age \_\_\_\_\_

Marital Status

<u>Never married</u>	<u>Cohabiting</u>	<u>Married</u>	<u>Separated</u>
<u>Divorced</u>	<u>Widow</u>	<u>Widower</u>	

Number of children:

<u>None</u>	<u>Living in home</u>	<u>Away from home</u>	<u>Deceased</u>
<u>Stepchildren</u>	<u>Grandchildren</u>	<u>Other</u>	

Race:

<u>Caucasian</u>	<u>African American</u>	<u>Oriental</u>
<u>Hispanic</u>	<u>Native American</u>	<u>Other</u>

Educational Level:

<u>8th grade or less</u>	<u>Some high school</u>	<u>High school graduate</u>
<u>Some college</u>	<u>College graduate</u>	<u>Any post-graduate work</u>

Living Situation:

<u>Own home</u>	<u>Rented home/apt./room</u>	<u>Shelter</u>
<u>Halfway house/Group home</u>	<u>Jail</u>	<u>Homeless</u>

Number of Persons in Home other than subject \_\_\_\_\_  
 Residing with:

Parents	Partner/Spouse	Partner/Spouse w/ children	Children
Siblings	Married Child	Adult Friend(s)	Roommate
Grandchildren	Grandparents	Alone/No one	Other

Employment Status \_\_\_\_\_ Employed \_\_\_\_\_ Unemployed  
 If unemployed, reason:

Student:	Poor health	Disabled	Homemaker
Retired	Laid Off	Jail	Other

Income Status:

Less than \$20,000	\$20,000-39,000	\$40,000-59,000	\$60,000-79,000	\$80,000 +
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Referral Source: (List all that apply)


**History of Present Illness:**

Age of onset \_\_\_\_\_ years

Current Stressors:


**Symptoms of Disease**

**Anorexia Nervosa:**

Body Weight Less Than 85%	Fear of gaining weight	Amenorrhea
Distorted perception of body	Denial of severity of problem	Bingeing/Purging Present Y N

**Bulimia Nervosa:**

Bingeing Present	Lack of control	Inappropriate compensatory acts	Sx present 2x/wk x3mos
Unrealistic self-eval	Not only w/ AN Sx	Purging Behaviors	Nonpurging Behaviors

**Changes in Symptom Pattern:**

Frequency of Behaviors	Menses	Weight changes/Severity
AN-->BN @ 6 mos.	New Behaviors	Other

**Medical History:**

Height: \_\_\_\_\_

Body Weight:

Current	Highest	Lowest	Usual	Ideal
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**Eating Disorder Symptoms:**

Fasting	Vomiting	Laxative Use	Diuretics
Diet Pill Use	Ipecac	Estimation body size	Estimation body shape
Unusual Food practices	Exercise Level	Sleep Disturbance	Other:

Has current health care provider \_\_\_\_\_ No \_\_\_\_\_ Yes

Date of last physical exam \_\_\_\_\_

Allergies \_\_\_\_\_ No \_\_\_\_\_ Yes



What? \_\_\_\_\_

Onset of menses \_\_\_\_\_ years

Frequency of menstruation:

Absent	Q 6 mos or less	Q 3 mos or less	Q 2 mos	Monthly
Bi-monthly	Other			

Major illnesses

	No		Yes	
Neurological	Respiratory	Skeletal	Digestive	
Muscular	Lymphatic	Cardiac	Circulatory	
Sensory	Hormonal	Skin	Other	

Medication:

_____	_____
_____	_____
_____	_____

Current Physical Symptoms:

Neurological	Respiratory	Skeletal	Digestive
Muscular	Lymphatic	Cardiac	Circulatory
Sensory	Hormonal	Skin	Other

Past Psychiatric History:

Past Psychiatric Hospitalizations \_\_\_\_\_ No \_\_\_\_\_ Yes

Frequency \_\_\_\_\_  
Hospitalization for what:

Eating Disorder	Depression	Substance Abuse
Adjustment Disorder	Personality Disorder	Other

Previous Treatment \_\_\_\_\_ No \_\_\_\_\_ Yes

History of self-mutilating behavior \_\_\_\_\_ No \_\_\_\_\_ Yes

Type of Therapy Received from Mental Health Professionals:

<u>Individual</u>	<u>Group</u>	<u>Individual/Group</u>	<u>Unknown</u>
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At time of Referral in Therapy \_\_\_\_\_ No \_\_\_\_\_ Yes

History of Substance Abuse:

<u>Alcohol</u>	<u>Cannabis</u>	<u>Cocaine</u>	<u>Amphetamines</u>
<u>Caffeine</u>	<u>Nicotine</u>	<u>Barbiturates</u>	<u>Opiates</u>
<u>Hallucinogens</u>	<u>Inhalants</u>	<u>Other</u>	

Active use of substances \_\_\_\_\_ No \_\_\_\_\_ Yes  
 Current use of which substances:

<u>Alcohol</u>	<u>Cannabis</u>	<u>Cocaine</u>	<u>Amphetamines</u>
<u>Caffeine</u>	<u>Nicotine</u>	<u>Barbiturates</u>	<u>Opiates</u>
<u>Hallucinogens</u>	<u>Inhalants</u>	<u>Other</u>	

History of Abuse: \_\_\_\_\_ No \_\_\_\_\_ Yes

<u>Sexual</u>	<u>Physical</u>	<u>Emotional</u>
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Other Psychiatric Diagnosis:

<u>Mood Disorder</u>	<u>Anxiety Disorder</u>	<u>Schizophrenia</u>
<u>PTSD</u>	<u>Obsessive/Compulsive Disorder</u>	<u>Personality Disorder</u>
<u>Dissociative Disorder</u>	<u>Cognitive Disorder</u>	<u>Other</u>

Use of Self-Help Groups: \_\_\_\_\_ No \_\_\_\_\_ Yes

<u>Never</u>	<u>Once</u>	<u>Less than five</u>	<u>Frequent</u>	<u>Intermittent</u>
<u>Distant Past</u>	<u>Recent</u>	<u>Current</u>	<u>Other</u>	

Types Attended: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Family Psychiatric History:

History of Family Psychiatric Problems Exists \_\_\_ No \_\_\_ Yes

Psychiatric History:

<u>Mood Disorder</u>	<u>Anxiety Disorder</u>	<u>Schizophrenia</u>
<u>PTSD</u>	<u>Obsessive/Compulsive Disorder</u>	<u>Personality Disorder</u>
<u>Dissociative Disorder</u>	<u>Cognitive Disorder</u>	<u>Other</u>

Mother: \_\_\_ No \_\_\_ Yes      Active \_\_\_ No \_\_\_ Yes

Psychiatric Family Hx - Maternal family members:

<u>Father</u>	<u>Mother</u>	<u>Brother</u>	<u>Sister</u>
<u>Paternal Grfather</u>	<u>Paternal Grmother</u>	<u>Paternal Uncle</u>	<u>Paternal Aunt</u>
<u>Maternal Grfather</u>	<u>Maternal Grmother</u>	<u>Maternal Uncle</u>	<u>Maternal Aunt</u>

Father: \_\_\_ No \_\_\_ Yes      Active \_\_\_ No \_\_\_ Yes

Psychiatric Family Hx - Paternal family members:

<u>Father</u>	<u>Mother</u>	<u>Brother</u>	<u>Sister</u>
<u>Paternal Grfather</u>	<u>Paternal Grmother</u>	<u>Paternal Uncle</u>	<u>Paternal Aunt</u>
<u>Maternal Grfather</u>	<u>Maternal Grmother</u>	<u>Maternal Uncle</u>	<u>Maternal Aunt</u>

Brothers with Psychiatric Hx :  No  Yes

Number:

One	Two	Three	Four	Other
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Sisters with Psychiatric Hx:  No  Yes

Number:

One	Two	Three	Four	Other
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Family History of Substance Abuse:

Alcohol	Cannabis	Cocaine	Amphetamines
Caffeine	Nicotine	Barbiturates	Opiates
Hallucinogens	Inhalants	Other	

Mother:  No  Yes      Active  No  Yes

Maternal family with substance abuse hx:

Father	Mother	Brother	Sister
Paternal Grfather	Paternal Grmother	Paternal Uncle	Paternal Aunt
Maternal Grfather	Maternal Grmother	Maternal Uncle	Maternal Aunt

Father:  No  Yes      Active  No  Yes

Paternal family with substance abuse hx:

Father	Mother	Brother	Sister
Paternal Grfather	Paternal Grmother	Paternal Uncle	Paternal Aunt
Maternal Grfather	Maternal Grmother	Maternal Uncle	Maternal Aunt

Brothers with substance abuse hx:  No  Yes

Number:

One	Two	Three	Four	More than four
-----	-----	-------	------	----------------

Sisters with substance abuse hx: \_\_\_\_\_ No \_\_\_\_\_ Yes  
Number:

One	Two	Three	Four	More than four
-----	-----	-------	------	----------------

History of Family Members with Eating Disorders: \_\_\_\_\_ No \_\_\_\_\_ Yes

Active Problem: \_\_\_\_\_ No \_\_\_\_\_ Yes

Who has problem:


**Social History:**

Raised in intact family (parents remained married) \_\_\_\_\_ No \_\_\_\_\_ Yes

Number of siblings:

One	Two	Three	Four	Other
-----	-----	-------	------	-------

Socioeconomic status of parents:

Less than \$20,000	\$20,000-39,000	\$40,000-59,000	\$60,000-79,000	\$80,000 +
--------------------	-----------------	-----------------	-----------------	------------

Current contact with family members \_\_\_\_\_ No \_\_\_\_\_ Yes

Who: (Circle all that apply)

- Mother..... 1
- Father..... 2
- Sister..... 3
- Brother..... 4
- Other (List) \_\_\_\_\_ 5

Frequency of Contact: (Circle one)

- About Daily.....1
- 2-4 times a week.....2
- About once a week.....3
- About once every 2 weeks.....4
- Around once a month.....5
- 2-5 times in past 6 months.....6
- Once in past 6 months.....8
- Never.....9
- Other.....10

Quality of Relationship with Family Members:

Frequency of family activities:

Never	Once or Twice/yr.	Monthly	Bi-monthly	Weekly
Daily	No Family	Other:		

Frequency of Conflict:

Never	Once or Twice/yr.	Monthly	Bi-monthly	Weekly
Daily	No Family	Other:		

Frequency of Violence between family members:

Never	Once or Twice/yr.	Monthly	Bi-monthly	Weekly
Daily	No Family	Other:		

Family viewed as supportive/available to help      \_\_\_ No \_\_\_ Yes

Family members got along      \_\_\_ No \_\_\_ Yes

**Early Social Adjustment:**

Had childhood friends \_\_\_\_\_ No \_\_\_\_\_ Yes

Did well academically \_\_\_\_\_ No \_\_\_\_\_ Yes

Had difficulty getting along with others \_\_\_\_\_ No \_\_\_\_\_ Yes

Had difficulty with the law \_\_\_\_\_ No \_\_\_\_\_ Yes

**Current Support System**

Does a stable relationship exist \_\_\_\_\_ No \_\_\_\_\_ Yes

With Whom \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Current friends \_\_\_\_\_ No \_\_\_\_\_ Yes

Number \_\_\_\_\_

**Frequency of Contact: (Circle one)**

- About Daily.....1
- 2-4 times a week.....2
- About once a week.....3
- About once every 2 weeks.....4
- Around once a month.....5
- 2-5 times in past 6 months.....6
- Once in past 6 months.....8
- Never.....9
- Other.....10

Currently connected with people/agencies able to provide

emotional/practical support : \_\_\_\_\_ No \_\_\_\_\_ Yes

**Leisure Activities:**

Identifies recreational activities \_\_\_\_\_ No \_\_\_\_\_ Yes  
Frequency of Activity

<u>Never</u>	<u>Rarely</u>	<u>Monthly</u>	<u>Bi-monthly</u>	<u>Weekly</u>
<u>Daily</u>	<u>No Activities</u>	<u>Other:</u>		

Expresses satisfaction with Life \_\_\_\_\_ No \_\_\_\_\_ Yes

**Mental Status Exam:**

Accomplished on Admission \_\_\_\_\_ No \_\_\_\_\_ Yes

Results within Normal Limits \_\_\_\_\_ No \_\_\_\_\_ Yes  
If 'No' Areas of Identified Problems:

<u>Appearance/Behavior</u>	<u>Mood/Affect</u>	<u>Cognition</u>
<u>Orientation</u>	<u>Concentration/Memory</u>	<u>Intelligence</u>
<u>Abstraction</u>	<u>Judgment</u>	<u>Insight</u>

**DSM-IV Diagnosis:**

Axis I: \_\_\_\_\_

\_\_\_\_\_

Axis II: \_\_\_\_\_

\_\_\_\_\_

Axis III: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

GAF: \_\_\_\_\_



Appendix B

Discharge Data Collection Tool

Code Number: \_\_\_\_\_

Type of Discharge:

Successful Completion	Termination w/o Program agreement	Noncompliant w/ Program rules & regs	Relapse requiring more intensive tx.
Subject physically ill & unable to complete tx	Subject emotionally ill & unable to complete treatment	Subject transferred to residential treatment program	Subject has no means of getting to program (bus, car, etc.)
Subject moved from area	Subject incarcerated	Subject deceased	Other

During treatment program involved in following treatment modalities:

<u>Group</u>	<u>Family</u>	<u>Individual</u>
<u>Cog/Beh</u>	<u>Nutritional</u>	<u>Pharmacology</u>
<u>Individual Psychotx</u>	<u>Self-help grp</u>	<u>Other</u>

Quality of Treatment Participation:

Level of subject's involvement & commitment to treatment:

<u>Minimal</u>	<u>Low</u>	<u>Moderate</u>
<u>Maximal</u>	<u>Unable to define</u>	<u>Other</u>

Circle all behaviors documented during treatment:

- Resistance to treatment plan. . . . . 1
- Noncompliance with program expectations. . . . . 2
- Lack of follow through with program expectations . . . 3
- Interaction with other treatment participants. . . . . 4
- Interaction with staff. . . . . 5
- Interaction with family. . . . . 6

- Interaction with friends . . . . . 7
- Inappropriate expressions of emotions. . . . . 8
- Inability to develop realistic goals. . . . . 9
- Inability to develop realistic view of self. . . . . 10

**Medical Status at Time of Discharge:**

**Diagnostic Symptoms of Disease (List all symptoms that exist at time of discharge):**

**Anorexia Nervosa:**

Body Weight Less Than 85%	Fear of gaining weight	Amenorrhea
Distorted perception of body	Denial of severity of problem	Bingeing/Purging Present <u>Y</u> <u>N</u>

**Bulimia Nervosa:**

Bingeing Present	Lack of control	Inappropriate compensatory acts	Sx present 2x/wk during tx
Unrealistic self-eval	DoNot only Occur w/ AN Sx	Purging Behaviors Frequency:	Nonpurging Behaviors

**Symptomatic Behaviors Present at Time of Discharge:**

<u>Fasting</u>	<u>Vomiting</u>	<u>Laxative Use</u>	<u>Diuretics</u>
<u>Diet Pill Use</u>	<u>Ipecac</u>	<u>Estimation body size</u>	<u>Estimation body shape</u>
<u>Unusual Food practices</u>	<u>Exercise Level</u>	<u>Sleep Disturbance</u>	<u>Other:</u>

**Body Weight:**

<u>Current</u>	<u>Highest During TX</u>	<u>Lowest During TX</u>
----------------	--------------------------	-------------------------

Menstruation present at time of discharge?  No  Yes

Is this a change from admission?  No  Yes

Physical Symptoms Present at Discharge:

Neurological	Respiratory	Skeletal	Digestive
Muscular	Lymphatic	Cardiac	Circulatory
Sensory	Hormonal	Skin	Other

Did physical symptoms interfere with treatment program?

\_\_\_\_\_ No \_\_\_\_\_ Yes \_\_\_\_\_ Unknown

If yes, in what way was treatment impacted?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Medication at time of Discharge:

_____	_____
_____	_____
_____	_____
_____	_____

Did self-mutilating behavior occur during tx? \_\_\_\_\_ No \_\_\_\_\_ Yes

Additional psychiatric history revealed: \_\_\_\_\_ No \_\_\_\_\_ Yes

List any identified:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Other Psychiatric Diagnosis Documented at Discharge:

<u>Mood Disorder</u>	<u>Anxiety Disorder</u>	<u>Schizophrenia</u>
<u>PTSD</u>	<u>Obsessive/Compulsive Disorder</u>	<u>Personality Disorder</u>
<u>Dissociative Disorder</u>	<u>Cognitive Disorder</u>	<u>Other</u>

Type of Continued Mental Health Treatment Recommended At Discharge:

<u>Individual</u>	<u>Group</u>	<u>Individual/Group</u>	<u>Unknown</u>
<u>Self-Help Groups</u>	<u>Other</u>		

At time of Discharge in Therapy  No  Yes

Living Situation Changed from Admission:  No  Yes

If yes, list new living situation: (Situation/People)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Employment Status Changed:  No  Yes

If yes, List Changes:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Support System at Time of Discharge:**

Does a stable relationship exist \_\_\_\_\_ No \_\_\_\_\_ Yes

With Whom \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Did he/she participate in Treatment Program \_\_\_\_\_ No \_\_\_\_\_ Yes

Current friends \_\_\_\_\_ No \_\_\_\_\_ Yes

Did friends participate in treatment program \_\_\_\_\_ No \_\_\_\_\_ Yes

Currently connected with people/agencies able to provide emotional/practical support : \_\_\_\_\_ No \_\_\_\_\_ Yes

**Leisure Activities:**

Demonstrated active use of recreational activities during TX

Frequency of Activity \_\_\_\_\_ No \_\_\_\_\_ Yes \_\_\_\_\_ Unknown

Never	Rarely	Monthly	Bi-monthly	Weekly
Daily	No Activities	Other:		

Expresses satisfaction with Life at time of Discharge

\_\_\_\_\_ No \_\_\_\_\_ Yes \_\_\_\_\_ Unknown

Identified Stressors at time of Discharge:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Mental Status Exam:**

Documented at Discharge \_\_\_\_\_ No \_\_\_\_\_ Yes

Results within Normal Limits \_\_\_\_\_ No \_\_\_\_\_ Yes  
If 'No' Areas of Identified Problems:

<u>Appearance/Behavior</u>	<u>Mood/Affect</u>	<u>Cognition</u>
<u>Orientation</u>	<u>Concentration/Memory</u>	<u>Intelligence</u>
<u>Abstraction</u>	<u>Judgment</u>	<u>Insight</u>

**Discharged to what Referral Source(s):** (List all that apply)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Type of medical referral made at time of discharge?**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Has an appointment with current health care provider at time of discharge? \_\_\_\_\_ No \_\_\_\_\_ Yes

Severity of behavioral symptoms minimal \_\_\_\_\_ Yes

Capable of implementing discharge plan \_\_\_\_\_ Yes

**Clinical Outcome Assessment**

**Good Outcome:**

Body weight within +/- 15% of normal \_\_\_\_\_ Yes

Regular menstrual periods \_\_\_\_\_ Yes

Medically stable \_\_\_\_\_ Yes

**Intermediate Outcome:**

Body weight occasionally outside +/- 15% of normal \_\_\_\_\_ Yes

Presence of amenorrhea/Irregular periods \_\_\_\_\_ Yes

Medically stable \_\_\_\_\_ Yes

Severity of behavioral symptoms moderate	_____	Yes
Capable of implementing discharge plan	_____	Yes

**Poor Outcome:**

Body weight consistently outside +/- 15% of normal	_____	Yes
Presence of amenorrhea/Irregular periods	_____	Yes
Medically unstable	_____	Yes
Severe behavioral symptoms present	_____	Yes
Incapable of implementing discharge plan	_____	Yes

**DSM-IV Diagnosis at time of Discharge:**

Axis I: \_\_\_\_\_  
\_\_\_\_\_

Axis II: \_\_\_\_\_  
\_\_\_\_\_

Axis III: \_\_\_\_\_  
\_\_\_\_\_

GAF: \_\_\_\_\_  
\_\_\_\_\_



Appendix C

**Table 1****Characteristics of Sample**

	Mean	Standard Deviation	Range
Age (yrs)	25.07	8.1	18-44
Length Hosp Stay	52.81	60.16	1-320
Height	64.48	2.89	54-70
Current Wt (Adm)	114.29	27.80	74-196
High Wt	139.52	26.34	98-225
Low Wt	98.75	16.16	74-130
Usual Wt	122.68	14.41	95-148
Ideal Wt.	123.29	9.94	105-142
Onset Menses-yr.	13.14	1.21	12-15
Age Onset ED SX	16.96	7.71	4-44
# Past $\Psi$ Hosp	1.64	2.13	0-8
	n	%	
<u>Ethnicity</u>			
Caucasian	20	69.0	
Missing	9	31.0	

Table 2Education, Employment, and Income Level of Population

	<u>n</u>	<u>%</u>
<u>Educational Level</u>		
High School	6	20.7
Some College	16	55.2
College Grad	2	6.9
Post-Grad Work	1	3.4
Missing	3	10.3
<u>Employment Status</u>		
Unemployed	13	44.8
Employed	15	51.7
Missing	1	3.4
<u>Unemployment Reason</u>		
Student	4	13.8
Poor Health	2	6.9
Disabled	1	3.4
Homemaker	3	10.3
Other/Missing	4	13.8
<u>Income Status</u>		
< 20,000	28	96.6
Other/Missing		

Table 3  
Family Composition

	<u>n</u>	<u>%</u>
<u>Marital Status</u>		
Never Married	18	62.1
Married	8	27.6
Divorced	3	10.3
<u>Residing With</u>		
Parents	13	44.8
Partner/Spouse	4	13.8
Partner/Spouse /Child	6	20.7
Children	3	10.3
Adult Friends	1	3.4
Alone	2	6.9
<u>Number of Children</u>		
None	19	65.5
One	5	27.6
Two-Three	4	13.8
Missing	1	3.4
<u>Children @ Home (#)</u>		
None	20	69.0
One	7	24.1
Two-Three	1	3.4
Missing	1	3.4

Table 4

<u>DSM-IV Diagnosis Axis I- Primary</u>	<u>n</u>	<u>%</u>
<u>Anorexia Nervosa (307.10)</u>	14	48.3
<u>Bulimia Nervosa (307.51)</u>	12	41.4
<u>Eating Disorder NOS (307.50)</u>	3	10.3
<u>Total</u>	<u>29</u>	<u>100.0</u>

**Table 5**  
Presenting Symptoms Associated with Bulimia Nervosa:

	Bingeing		Control		Comp Act		SX>2x/wk		Purging		Vomiting	
	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)
<u>Anorexia</u>	50% 3	15% 2	67% 2	19% 3	33% 2	23% 3	75% 3	13% 2	40% 2	21% 3	64% 7	39% 7
<u>Bulimia</u>	17% 1	85% 11	0	75% 12	50% 3	69% 9	0	80% 12	20% 1	79% 11	9% 1	61% 11
<u>EDO, NOS</u>	33% 2	0	33% 1	6% 1	17% 1	8% 1	25% 1	7% 1	40% 2	0	27% 3	0
<b>Total</b>	32%	68%	16%	84%	32%	68%	21%	79%	26%	74%	38%	62%
<b>Sample</b>	6	13	3	16	6	13	4	15	5	14	11	18
<b>Missing #</b>	10		10		10		10		10		10	

**Trends:**

Bingeing

 $\chi^2(2, N = 19) = 9.20, p \leq .10$ 

Lack of Control

 $\chi^2(2, N = 19) = 6.21, p \leq .10$ 

SX Present 2x/wk x 3 mos

 $\chi^2(2, N = 19) = 8.77, p \leq .10$ 

Purging Behaviors

 $\chi^2(2, N = 19) = 8.08, p \leq .10$

**Table 6**

Presenting Symptoms Associated with Anorexia Nervosa:

	Wt < 85%		Fear Gain Weight		Sees Body Distorted		Amenorrhea		Bingeing/Purging		Severe Wt Change	
	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)
<u>Anorexia</u>	21% 3	92% 11	25% 2	71% 12		74% 14	33% 4	75% 9	22% 2	75% 12	27% 3	78% 7
<u>Bulimia</u>	100% 8	0	63% 5	18% 3	83% 5	11% 2	50% 6	17% 2	68% 6	13% 2	73% 8	0
<u>EDO, NOS</u>	67% 2	33% 1	13% 1	12% 2	17% 1	16% 1	17% 2	8% 1	11% 1	13% 2	0	22% 2
<u>Total Sample</u>	52% 13	48% 12	16% 3	68% 17	24% 6	76% 19	50% 12	50% 12	36% 9	64% 16	55% 11	45% 9
<u>Missing #</u>	4		4		4		4		4		9	

**Table Continued**

	Fasting		Body Size Distorted		BodyShape Distorted	
	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)	No (% & #)	Yes (% & #)
<u>Anorexia</u>	29% 2	55% 12	40% 6	57% 8	37% 7	70% 7
<u>Bulimia</u>	71% 5	32% 7	47% 7	36% 5	47% 9	30% 3
<u>EDO, NOS</u>	0	14% 3	13% 2	7% 1	16% 3	0
<u>Total Sample</u>	24% 7	76% 22	52% 15	48% 14	66% 19	35% 10
<u>Missing #</u>	0		0		0	





Table 8**Prevalence of Physical Illness:**

<u>Current Symptoms</u>	<u>Major Illness Present</u>	<u>Major Illness Denied</u>	<u>Missing</u>
Total Sample	62%/ <u>n</u> = 18	34.5%/ <u>n</u> = 10	1
Respiratory	18%/ <u>n</u> = 5	79%/ <u>n</u> = 23	1
Allergies	27%/ <u>n</u> = 7	35%/ <u>n</u> = 9	3
Digestive	18%/ <u>n</u> = 5	46%/ <u>n</u> = 13	1
Other Maj Ill	25%/ <u>n</u> = 7	39%/ <u>n</u> = 11	1
Cardiac Ill	7%/ <u>n</u> = 1	88%/ <u>n</u> = 26	1
Neurological	10%/ <u>n</u> = 3	83%/ <u>n</u> = 24	2



**Table 10****Results of Assessed Discharge Data:**

Average Length of Stay

AN: 65days/ $\bar{n}$ =13/ $\underline{SD}$ =82.22BN: 39days/ $\bar{n}$ =10/ $\underline{SD}$ =23.85Total: 54days/ $\bar{N}$ =23/ $\underline{SD}$ =64.05

<b>Presenting Symptoms (Total Sample)</b>	<b>Admission</b>	<b>Discharge</b>
Body Weight Less Than 85%	48%/ $\bar{n}$ =12	13.8%/ $\bar{n}$ =4
Fear of Gaining Weight	68%/ $\bar{n}$ =17	48%/ $\bar{n}$ =14
Amenorrhea	50%/ $\bar{n}$ =12	24%/ $\bar{n}$ =7
Distorted Body Perception	76%/ $\bar{n}$ =19	51.7%/ $\bar{n}$ =15
Denial of severity of symptoms	missing	20.7%/ $\bar{n}$ =6
Bingeing and Purging	64%/ $\bar{n}$ =16	27.6%/ $\bar{n}$ =8
Lack of Control	84%/ $\bar{n}$ =16	13.8%/ $\bar{n}$ =4
Inappropriate Compensatory Acts	68%/ $\bar{n}$ =13	10.3%/ $\bar{n}$ =3
Symptoms 2x/wk for 3 months	79%/ $\bar{n}$ =15	13.8%/ $\bar{n}$ =4
Fasting	76%/ $\bar{n}$ =22	44.8%/ $\bar{n}$ =13
Vomiting	62%/ $\bar{n}$ =18	17.2%/ $\bar{n}$ =5
Excessive Exercising	75%/ $\bar{n}$ =9	20.7%/ $\bar{n}$ =6
Unusual Food Practices	missing	13.8%/ $\bar{n}$ =4

Table 11Lifestyle Changes Occurring During Treatment:

	<u>Frequency</u>	<u>Percent</u>	<u>Missing Cases</u>
Living Situation	<u>n</u> = 6	20.7%	1
Employment Status	<u>n</u> = 7	24.1%	1
Stable Relationship	<u>n</u> = 6	20.7%	1
Partner Participated in TX	<u>n</u> = 19	65.5%	1
Current Friends	<u>n</u> = 22	75.9%	2
No Friends Participated in TX	<u>n</u> = 25	86.2%	1
Has Support System	<u>n</u> = 25	86.2%	1

**Table 12**  
**Diagnosis in Relation to Nature of Discharge and Clinical Outcomes:**

Outcome Assessment by Major Diagnostic Category	Outcome Assessment by Major Diagnostic Category			Sample Total
	Anorexia Nervosa	Bulimia Nervosa	Bulimia Nervosa	
Poor Outcome	64.3% $\underline{n} = 9$	35.7% $\underline{n} = 5$	56.0% $\underline{n} = 14$	
Intermediate Outcome	50.0% $\underline{n} = 3$	50.0% $\underline{n} = 3$	24.0% $\underline{n} = 6$	
Good Outcome	20.0 $\underline{n} = 1$	80.0% $\underline{n} = 4$	20.0% $\underline{n} = 5$	
Missing Cases			4	

Table 13

Nature of Discharge and Clinical Outcome:

	Anorexia Nervosa	Bulimia Nervosa	Sample Total
No resistance	30.0% $\underline{n} = 3$	70.0% $\underline{n} = 7$	40.0% $\underline{n} = 10$
Resistance Present	66.7% $\underline{n} = 10$	33.3% $\underline{n} = 5$	60.0% $\underline{n} = 15$
No Follow Through	61.9% $\underline{n} = 13$	38.1% $\underline{n} = 8$	84.0% $\underline{n} = 21$
Follow Through Present	$\underline{n} = 0$	100.% $\underline{n} = 4$	16.0 $\underline{n} = 4$
Noncompliant	25.0% $\underline{n} = 2$	75.0% $\underline{n} = 6$	32.0% $\underline{n} = 8$
Compliant	64.7% $\underline{n} = 11$	35.3% $\underline{n} = 6$	68.0% $\underline{n} = 17$

Trend for AN  $\chi^2(1, \underline{N} = 25) = 3.23, p \leq .10$ Trend for AN  $\chi^2(1, \underline{N} = 25) = 3.43, p \leq .10$ Significant for AN  $\chi^2(1, \underline{N} = 25) = 5.15, p \leq .05$

**Table 14**

Level of Involvement/Commitment to Treatment Program:

	Successful Completion	Terminated w/o Tx Approval	Discharged Related to Noncompliance	Relapse Requiring more Intense TX	Emotionally Ill	Other
<u>Minimal</u>		100% n=3				
<u>Low</u>		40% n=2	40% n=2	20% n=1		
<u>Moderate</u>	85.7% n=12	7.1% n=1				7.1% n=1
<u>Maximal</u>	100% n=5					
<u>Not Define</u>						100% n=1

Significant Relationship Moderate and Maximal Level to Successful Completion-

 $\chi^2(20, N = 28) = 62.04, p \leq .001$ 

Significant Relationship Intermediate and Good Level to Successful Completion-

 $\chi^2(8, N = 28) = 20.45, p \leq .05$

**Table 15**

Level of Compliance and Type of Discharge:

	Successful Completion	Terminated w/o Tx Team Approval	Discharged Related to Non-compliance	Relapse Requiring more Intense TX	Emotionally Ill	Other
<u>Non-compliant</u>	90.9% n = 10					9.1% n = 1
<u>Compliant</u>	41.2% n = 7	35.3% n = 6	11.8% n = 2	5.9% n = 1		5.9% n = 1

Significant Relationship Successful Completion &amp; Compliance-

$$\chi^2(5, N = 28) = 10.73, p \leq .05$$



**Table 16**

Level of Compliance and Clinical Outcome:

	Poor Outcome	Intermediate Outcome	Good Outcome
<u>Non-compliant</u>	70.6% <u>n</u> = 12	17.6% <u>n</u> = 3	11.8% <u>n</u> = 2
<u>Compliant</u>	18.2% <u>n</u> = 2	36.4% <u>n</u> = 4	45.5% <u>n</u> = 5

Significant Relationship Compliance &amp; Outcome-

$$\chi^2(2, N = 28) = 7.63, p \leq .05$$

**Table 17****Follow Through with Program Expectations and Clinical Outcome:**

	Poor Outcome	Intermediate Outcome	Good Outcome
<u>No Follow Though</u>	60.9% <u>n</u> = 14	21.7% <u>n</u> = 5	17.4% <u>n</u> = 4
<u>Follow Through</u>		40.0% <u>n</u> = 2	60.0% <u>n</u> = 3

Significant Relationship Compliance &amp; Outcome-

$$\chi^2(2, N = 28) = 6.57, p \leq .05$$

