A PSYCHOMETRIC COMPARISON OF BULIMICS WITH AND WITHOUT
A PRIOR HISTORY OF ANORECTIC-LIKE BEHAVIOR,
NORMALS, AND THOSE CONCERNED ABOUT WEIGHT

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Jan David Segal, B.S.
Denton, Texas
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Based on psychodynamic and object relations theories, 17 variables were proposed to be salient for those suffering from bulimia. In the present study four groups were compared: (a) bulimics with a prior history of anorectic-like behavior (FAB); (b) bulimics without a prior history of anorectic-like behavior (NAB); (c) a nonobese, nonbulimic group who evidenced excessive concerns about their weight (CAW); and (d) a normal control group (Control). Differences were predicted between both the bulimic and control groups as well as between both bulimic groups (FAB and NAB). Seventy-five women between the ages of 18 and 35 completed the Minnesota Multiphasic Personality Inventory, the Eating Disorders Inventory, and Levenson's Locus of Control Scale. Results of a multivariate analysis of covariance procedure revealed differences across the groups on 12 variables. Post hoc testing indicated that both bulimic groups differed from the control groups confirming the first hypothesis. Further, the bulimic groups were differentiated from each other in the predicted
direction on 10 of the 12 variables, lending support for the second hypothesis. Overall, the results suggest a progression of psychopathology and clinical symptomatology. In order of decreasing psychopathology were the following groups: FAB, NAB, CAW, and Control groups. Also, a discriminant analysis procedure identified 11 variables which successfully differentiated among the FAB, NAB and nonbulimic groups. It was concluded that within the syndrome of bulimia a prior history of anorectic-like behavior was related to increased psychopathology and clinical symptomatology. A clear distinction between the syndrome of bulimia and occasional instances of bulimic behavior was also indicated. Lastly, results of this study seemed to rule out excessive concerns about weight as a factor related specifically to the bulimic syndrome. Limitations and alternative explanations for the results are discussed and suggestions for further research are put forth.
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CHAPTER I

A PSYCHOMETRIC COMPARISON OF BULIMICS WITH AND WITHOUT A PRIOR HISTORY OF ANORECTIC-LIKE BEHAVIOR, NORMALS, AND THOSE CONCERNED ABOUT THEIR WEIGHT

Data regarding the prevalence of disorders of eating, most notably anorexia nervosa (AN) and bulimia, have indicated that the frequency of these disorders is increasing sharply (Halmi, Falk, & Schwartz, 1981; Schwartz, Thompson, Johnson, 1982; Stangler & Printz, 1980). Although the first published report of AN was in 1689 by Richard Morton (cited in Bruch, 1973) the dysfunctional forms of self-regulated eating behavior, both AN and bulimia, have experienced a phenomenal increase in attention only in the last decade or so. Both disorders are now accorded the status of clinical syndromes and have been included in the recent Diagnostic and Statistical Manual of Mental Disorders (DSM-III, APA, 1980). The establishment of specific diagnostic criteria (see Appendix A) has greatly facilitated research on these disorders. However, a recent review (Schwartz et al., 1982) dealing with both AN and bulimia cited strong evidence that the increase
in incidence can not be accounted for solely by better record keeping and reporting, improved diagnostic procedures, the absolute increase in the number of adolescents (post World War II baby boom), or the increased knowledge and awareness of these disorders by both lay people and professionals. Schwartz et al. concluded, "There are few who are not struck . . . by the epidemic proportions of this behavior (eating disorders) now that the surface has been scratched" (p. 25).

Briefly, the essential features of AN are an intense fear of becoming obese, a disturbance of body image, significant weight loss, a refusal to maintain a minimal normal body weight, and amenorrhea in females (DSM-III, APA, 1980). Its victims literally starve themselves, occasionally even to the point of death. On the other end of the spectrum of eating disorders is bulimia which translates literally to "ox hunger." This disorder is characterized by episodic binge eating which is accompanied by an awareness that the eating pattern is abnormal, a fear of not being able to stop eating voluntarily, and depressed mood and self deprecating thoughts following a binge. Also of importance is that the binge is usually terminated by abdominal pain, sleep, social interruption, self-induced vomiting or the use of cathartics or diuretics (DSM-III). Case reports
have revealed its victims may consume upwards of 10-20,000 calories in a single sitting only to vomit all of the contents or to take numerous laxatives to eliminate the unwanted food (Halmi et al., 1981). Both disorders occur overwhelmingly in females. Reasons for these sex differences have been elaborated elsewhere (Sterling & Segal, 1985).

**Need for the Study**

While data regarding the prevalence of bulimia has only recently been accumulated, clinical reports suggest that this disorder is more common than AN. Despite this, AN has received much more attention and study in the research literature. This may be due to the anorectic's more overt and physically alarming presentation. The anorectic's clinical picture typically involves a self-induced starvation resulting in an extremely emaciated appearance despite any and all admonishments from family and friends as to the dangers presented in her behavior. The emphasis on AN can also be explained by the fact that only in the last few years has bulimia begun to be examined as a separate entity rather than as a subgroup of AN. Research on AN was greatly facilitated with the publication of diagnostic criteria by Feighner, Robins, Guze, Woodruff, Winokur, and Munoz (1972) while similar criteria for bulimia were not formally established until DSM-III in 1980.
Until very recently bulimia had been examined only as a variable for distinguishing the subgroup of anorectics who utilized vomiting and purging as a means of weight control (unrestrainers) and contrasting this with those anorectics who used dieting as the sole means (restrainers, for example, Bhanji & Mattingly, 1981; Beumont, George, & Smart, 1976; Casper, Eckert, Halmi, Goldberg, & Davis, 1980; Halmi, 1983). Results have strongly supported the notion that bulimic patterns in AN are a poor prognostic sign. Further, while the AN subgroup with bulimic patterns has been described as more extroverted, less socially isolated and more interested and active heterosexually, their interpersonal relationships have been reported as more stressed when compared with restraining anorectics. The unrestrained group (vomitors and purgers) also have been found to exhibit a stronger appetite, show greater depression and anxiety, experience more guilt, somatic complaints and psychiatric disturbances (particularly alcohol abuse and kleptomania) and evidence poorer vocational/educational adjustment. Overall, the picture is a bleaker one for the subgroup of anorectics with bulimic symptomatology.

More current research has focused on what is thought to be a different segment of the eating disordered population (Lacey, Phil, & Psych, 1982).
Focus has shifted from those with a primary diagnosis of AN who also exhibit bulimic eating patterns to those whose primary diagnosis is identified as the syndrome of bulimia. Similarities with AN are intuitively obvious, as those with either disorder seem to employ eating behaviors to deal with psychological concerns. However, unlike AN, research on the bulimic syndrome has been slow to surface even though the consequences of bulimia are no less significant. Mitchell and Pyle (1982) noted that the variety of medical complications that result from bulimia include electrolyte abnormalities, gastric dilation, parotid gland swelling, and dental problems. These health problems make this disorder a serious one since they are chronic and have a relatively insidious onset.

Bulimia has usually been found in normal or near normal weight females (Johnson, Stuckey, Lewis, & Schwartz, 1982; Lacey et al., 1981; Pyle, Mitchell, Eckert, 1981) although for some there was a period of AN in the past. In fact, the heterogeneity with regard to the various pathways of arriving at the disorder of bulimia has been noted (Garfinkel, Moldofsky, & Garner, 1980) and there has been conflicting evidence regarding the occurrence of AN or similar behaviors in those groups whose primary diagnosis is bulimia. Russell (1979) reported that most bulimics he studied had, at
one time, exhibited either a true or cryptic form of AN while others have noted that, at most, only one half of their sample may have previously been anorectic (Mitchell & Pyle, 1982; Pyle et al., 1981). In contrast, Johnson et al., (1982) found that less than 10% of their sample had had AN or were presently diagnosable for AN. Nevertheless, it has been observed that while some bulimics are former anorectics, others have had no prior history at all of AN. As reflected by these two studies, findings regarding the proportions of bulimics who have experienced periods of anorexia in the past are markedly discrepant. The significance of these differences in prior developmental histories has not been investigated at the present time. It is unclear whether those bulimics with a prior history of anorexia represent a separate subgroup of bulimia compared to those bulimics with no such history of anorexia.

The bulimic syndrome has been variously named Bulimia Nervosa (Russell, 1979), Dysorexia (Guioria, 1967), Bulimarexia (Boskind-Lodahl, 1977), Dietary Chaos Syndrome (Palmer, 1979), Stuffers Syndrome (Kornhaber, 1970), Self Induced Vomiting (Fairburn, 1980), and Compulsive Eating Syndrome (Green & Rau, 1974). For consistency and also simplicity, the term bulimia was used throughout the paper to delineate the disorder as represented in DSM-III.
Despite the increase in eating disorders already discussed, AN is still somewhat rare in occurrence, with estimates ranging from 1 in 250 to 1 in 100 depending upon the population surveyed (Crisp, Palmer, & Kalucy, 1976). In contrast, bulimic behavior is reported to be reaching almost epidemic proportions for young women, particularly among college and university populations. For example, one study (Hawkins & Clements, 1980) found that over two-thirds of the females and nearly one half of the males reported binge eating occurrences. While the major portion surveyed would probably not be diagnosed as bulimic under existing guidelines, another study (Halmi et al., 1981) noted that in a random sample of college students 13% (87% female and 13% male) did experience all the major symptoms as outlined in DSM-III. Suffice it to say that a disorder that affects 13 out of every 100 college age people and almost one out of every five females is a disorder that definitely warrants more careful scrutiny.

The aim of this research was to focus on a heretofore neglected although sizable segment of the eating disordered population. Namely, this project examined bulimics with a primary diagnosis of the syndrome of bulimia rather than those who exhibit bulimic behavior with a primary clinical diagnosis of AN. Secondarily, this project contrasted bulimics with
and without a prior history of anorectic-like behavior. By providing an evaluation of whether certain developmental deficits and clinical symptomatology indicative of underlying psychopathology are implicated in bulimia, and are differentially involved for bulimics with and without a prior history of anorectic-like behavior, identification and treatment of those with this disorder can be facilitated.

Statement of the Problem

Progress in the study of bulimia has been made by defining the cluster of specific behaviors (such as the binge/purge cycle, depressed mood and self-deprecating thoughts following these binges, etc.) which delineate the diagnostic category of bulimia for normal weight females (Mitchell & Pyle, 1982; Pyle et al., 1981). Despite the apparent agreement regarding behavioral symptoms, clinical reports have varied with respect to the degree of psychopathology and associated clinical symptomatology present in this population. These variations indicates that this disorder is still not fully understood. To further understand this disorder, it will be important to distinguish between reports of behavioral symptoms and other personality characteristics that are often associated with this syndrome.
Psychometric data extending beyond informal clinical reports have just begun to surface concerning the population of relatively normal weight bulimic women. This initial research has been anything but conclusive. On the other hand, significant levels of depression, rumination, and impulsivity have been noted (Norman & Herzog, 1983). Bulimics have also frequently been found to exhibit fluctuating and dysphoric mood states compared to normal subjects (Johnson & Larson, 1982). Further, when bulimics were compared with restricting anorectics and bulimic anorectics, "consistent patterns of marked symptomatology, depressive traits, alienation, hostile feelings toward men and a stereotypical view of femininity" (Norman & Herzog, p. 50) were seen across all three groups. Other research, however, has not been in agreement regarding the extent of pathology in the bulimic population. A recent study conducted by Johnson et al., (1982) supported the notion that bulimics are relatively free of clinical symptoms when compared with restricting anorectics, bulimic anorectics, depressive neurotics, as well as normal controls.

These apparently conflicting results are paralleled by two theoretical viewpoints. One position is represented by behavioral theories which place little emphasis on the etiology and prior developmental history
of the disorder. The other position is one that would place emphasis on these variables in the context of underlying psychopathology which would then account for the disordered behavior. Psychodynamic theory best represents this other viewpoint.

From a behavioral viewpoint, attention is directed towards identification of a problematic behavior which is then ameliorated in some fashion. Behavioral treatments have been considered most effective when the problematic behavior to be changed is relatively well-defined and the associated symptom picture is relatively circumscribed (Beutler, 1979). Conversely, these treatments are usually less successful when these two conditions are not met. At present, many behavioral treatments have been undertaken for bulimia without a clear understanding of the overall picture of this disorder. Behavioral treatments, in and of themselves, have not been demonstrated to deal adequately with the complexity of bulimia at the present time. This complexity is indicated by the chronicity and intractibility of this disorder which has been well documented (Pyle et al., 1981; Russell, 1979). In fact, the prognosis of this disorder has been described as less favorable than AN (Russell).

The other viewpoint is reflected in psychodynamic theory which considers the eating behavior a symptom
indicating underlying psychopathology. This symptomatic behavior represents the person's attempts at dealing with subjectively perceived psychological concerns and deficits. Theory suggests that personality conflicts are reflected by the bulimic's adoption of symptomatic behavior. This implies that differentiation of a bulimic population from groups without bulimia would include more than just the specific diagnostic behaviors as represented in the DSM-III diagnosis of bulimia.

The purpose of the present study was to compare the degree of underlying psychopathology associated with bulimia to that evidenced by several control groups. Bulimics were expected to evidence psychopathology and clinical symptomatology which would differentiate them from normal nonbulimics and from those who have excessive concerns about their weight but who are also nonbulimic.

The present study tested the hypothesis that bulimia involves psychopathology and specific clinical symptomatology that differentiate this group from those who exhibit no bulimic behavior. This hypothesis is supported by psychodynamic notions that specific personality conflicts and deficits are at the core of the bulimic's difficulties and the disordered eating merely represents the person's attempts at coping with these concerns. Furthermore, it was postulated that
within the bulimic group itself there are differences based on underlying psychopathology.

It appears that not only is AN a heterogeneous disorder (with significant differences reported between restricting and bulimic anorectics) but that there is similar variability reported in the bulimic population. While bulimic behavior (not the syndrome) has been identified as a key diagnostic variable in understanding the heterogeneity seen in AN, no similar variable has yet been identified in bulimia.

As previously noted, the various pathways to the disorder of bulimia are diverse. Some bulimics report a history of anorectic-like behavior or even a period of AN while others report no such behaviors in their history. This research evaluated the salience of a past history of anorectic-like behavior for those suffering presently from the bulimic disorder in terms of psychopathology and symptomatology. If this variable does prove salient it would allow the differential diagnosis of bulimic subgroups which can then lead to more effective treatment depending on the particular symptom picture and personality structure of the two subgroups.

It was hypothesized that those bulimics with a history of anorectic-like behavior would be significantly different from those bulimics with no
evidence of such behavior in their past. The former group was expected to evidence greater severity of psychopathology and clinical symptomatology when compared with the latter group.

In sum, the purpose of the present investigation was threefold. First, an assessment was conducted of the degree of psychopathology and associated clinical symptomatology contrasting bulimics with both a group demonstrating significant weight related concerns but who are not bulimic and a normal control group. This afforded an examination of the differences that exist between these groups and provide some evidence concerning underlying psychopathology as a significant factor in bulimia. Further, the assumption was tested that bulimics with a history of anorectic-like behavior would evidence greater psychopathology and symptomatology than bulimics without such a history. This comparison was an attempt to differentiate subgroups of the bulimic population itself. Thirdly, descriptive data regarding bulimia was collected.

**Review of the Literature**

In order to understand the psychopathology and associated clinical symptomatology that is hypothesized to be involved in bulimia, several areas were reviewed. Since bulimia, like AN, is thought to involve the adoption of disordered eating patterns as a symptom
reflecting an inability to deal with psychological concerns, some of the theory regarding AN and the research evaluating it is reviewed. Theory regarding bulimia is then discussed in order to identify the specific difficulties that would be implicated in bulimia. Lastly, the limited and somewhat contradictory psychometric data on bulimia is also reviewed prior to a delineation of the specific hypotheses put forth in the present investigation.

AN is one of the few directly life threatening psychiatric disorders. This disorder has posed a very difficult challenge to health professionals. The patient's premorbid history has been generally free of overt psychopathology and the family usually seems fairly adequate, at least on the surface. Yet the patient remains steadfastly convinced she would become obese if she ate even the smallest amount of food and that her body is extremely large despite any objective data to the contrary.

As previously noted, the first case of AN was published by Morton in 1689. The case study format has been the primary mode of analysis due to the rarity with which this disorder has been encountered in the clinical context. These reports have predominantly dealt with descriptive facets focusing on clinical presentation, family factors, course, and retrospective accounts of
premorbid functioning with little or no employment of psychometric data.

However, with the advent of improved diagnostic criteria and the increase in prevalence of AN and bulimia, recent research has become more sophisticated in its approach. Current focus is now on the eating disorders as they are manifested on different levels (for example, intrapsychic, behavioral, interpersonal, and physiological). For example, in a recent review on the physiological aspects of eating disorders, Lippe (1983) notes that neurophysiological, endocrinological, and metabolic factors have been investigated with increasing frequency. However, she states that the data has been correlational (because of the infrequency with which this disorder has been seen it has not been possible to identify groups likely to develop AN and assess these variables premorbidly) and the role of the variables can not be assumed to be etiologically significant at the present time. Further, Kaplan and Sadock (1981) note that even when these deficiencies or abnormalities were corrected in an inpatient setting, the physiological aspects quickly resurfaced upon the patient's release. While it is agreed that physiological variables must be attended to in the treatment of AN, the search for causative factors remains active in order to better understand this chronic and seemingly intractable disorder.
Research on AN has historically been from a strict analytic perspective. This is reflective of the fact that this disorder has traditionally been the province of the medical community. The early research on the etiology of AN concentrated primarily on psychosexual explanations reflecting a neurotic disorder, such as a fear of oral impregnation (Waller, Kaufman, & Deutsch, 1940). This dynamic refers to the patient's confusing the oral and sexual urges. However, classical psychoanalytic therapy proved relatively ineffective in altering anorectic behavior (Bruch, 1973; Palazzoli, 1978; Ross, 1977). AN is still seen from a psychodynamic perspective, although not from a Freudian perspective. Recent theory defines AN as a more serious disturbance involving more primitive (earlier) developmental arrests and deviations than would be involved if it were the result of neurotic factors. This is suggestive of pathologies of the ego which would not necessarily be implicated in a neurotic disorder. A recent review (Maloney & Klykylo, 1983) notes that "advances in psychodynamic theory as related to AN are providing a scientific base for long-term, outpatient psychotherapy in this eating disorder" (p. 100).

AN and bulimia can be seen as related disorders in that both reflect a misuse of the eating function as a form of adaptation to other psychological concerns. As
psychodynamic theory has provided a valuable tool to aid in the understanding and treatment of AN, the application of these theories are just now being extended toward bulimia. To review these latest applications to a bulimic population, Bruch's original ego deficit hypothesis with anorectics is presented as well as the early developmental interactions that are hypothesized to contribute to these deficits. The existing research which supports these hypotheses and their limitations will also be discussed.

**The Ego Deficit Theory of AN**

Hilde Bruch has been the most prolific writer on the role of ego deficits in AN (1973; 1978; 1980; 1981). Her previously mentioned distinguishing features of AN are both descriptive and explanatory in providing a rich flavor for the phenomenological world of the young anorectic. Coming basically from an interpersonal stance she perceived the mother-child interaction as crucial in the child's genesis of later anorectic behavior.

Central to her theory, Bruch distinguished two types of behavior in the child. One form is those behaviors that are self-initiated while the latter form is behaviors that are in response to external stimuli. Optimal development requires that not only should behavior be exhibited that is a function of external
stimuli, but that this must be balanced by behavior that is the result of the child's responses to his own needs and tension states (Bruch, 1981). Not only must the infant be able to respond adequately to the mother, but the infant must also be able to adequately signal the mother (in a Bowlbian sense) when the infant feels he or she needs attending to in some significant manner.

Bruch made particular reference to the feeding situation which is the infant's main initial arena for interaction with significant others. The primary significant other that Bruch referred to is the primary caregiver (PCG) which is usually the mother. Within the feeding situation Bruch has delineated two levels of hunger. There is both the physiological state of nutritional depletion as well as "the psychological experience, namely, the complex, unpleasant and compelling sensation an individual feels when deprived of food which results in searching even fighting for food to relieve its torment" (Bruch, 1981, p. 214). This latter form, hunger awareness, is organized through the parent-child interactions.

Relating both the two types of behavior and the development of hunger awareness, Bruch (1981) felt that optimal feeding patterns would involve the child signalling the mother when he/she feels nutritional need. This scenario would allow the child to "develop a
definite concept of 'hunger' as distinct from other tensions or needs" (Bruch, p. 214). However, the mother of the future anorectic typically responds to cues other than the child's needs and cues. For example, she may respond to her own need to be a "good" mother and feed the child when she feels this need rather than when the child exhibits hunger signals. If this is typically the case, then the child would theoretically fail to develop a clear differentiation between hunger and other tension states. In fact, reports of the feeding histories of infants who later became anorectic have supported this speculation. The histories were noted only for their blandness as the infant reportedly accepted whatever the mother offered, whenever she offered it (Bruch, 1981). Basically, this pattern of a lack of confirmation of the child-initiated cues has been established early on and is maintained throughout childhood (Bruch, 1980). The preanorectic child is almost uniformly described as a very good child, very respectful (if not emotionally constricted), evidencing few difficulties, and providing the parents much pleasure in the child's accomplishments, usually academic successes.

The hypothesized importance of the child's ability to signal or cue the mother in response to his or her own sensations or need states has been investigated in the infant development literature. Research by Bell and
Ainsworth (1972) supported the notion that the infant's abilities to effectively cue the PCG regarding his or her own tension states was highly correlated with the infant's later development of other, more varied modes of communication. Further, the infant's ability to exert control over his or her environment (for example, by signalling the PCG) was positively related to overall competence (Finkelstein & Ramey, 1977). A positive relationship has also been demonstrated between the infant's performance on an object permanence task and maternal responsivity to the infant's signalling behaviors (Donovan & Leavitt, 1978). It seems fairly clear that, on a molar level, the infant's "learned competence" (Kennelly & Benson, 1976) has shown a relationship to his or her ability to successfully signal or cue the PCG.

In an attempt to reconstruct the early developmental difficulties, the hypothesized process is distinguished by several features. First, there is an underdeveloped "learned competence" in the preanorectic child as she (remember AN occurs predominantly in females) is unable to have satisfactory, reciprocally cueing interactions with the PCG. Therefore, the child develops little confidence in her ability to accurately identify her own tension states. This is poignantly evident in the child's inability to distinguish
physiological from psychological hunger. Theory suggests that this evolves into a situation where the child doubts the very legitimacy of her own tension states. The child learns to look to significant others rather than look inward for her own feelings and thoughts. These hypothesized interactions further define the ego deficit Bruch references. The preanorectic child is unable to maintain a sense of autonomy and self-directed initiative separate and distinct from those around her except by attempting to psychologically please and not disturb her significant others. In a word, "overcompliant" best describes the preanorectic female (Bemis, 1978; Bruch, 1973; Bruch, 1981).

Adolescence is assumed to introduce specific pressures which strain the anorectic's particular developmental adaptation and result in the overt symptoms of AN. While premorbid development had been relatively unremarkable, with adolescence and its pulls toward separation from family in order to follow one's peer group (Blos, 1967) combined with the flood of new, different, and confusing bodily sensations of the normal adolescent female at menarche the potential for disturbance is substantial. For the adolescent, however, with a relatively weak sense of self as is the case with the preanorectic female, the potential for
psychological disorganization is overwhelming. Bruch (1980) concludes that the young adolescent "is ill-prepared for the new demands of adolescence and withdraws to her own body as the only realm where she can exercise control and dominance" (p. 170). The cessation of menses and slowing of the hip and breast enlargement associated with AN are seen as the anorectic's attempt to delay maturation and progression into areas she feels intrapsychically ill-prepared to deal with. Theory proposes that the introduction of symptomatic behavior (AN) serves various important functions for the anorectic female. In an attempt to gain control over herself and her body, she paradoxically reinforces the very dependence on her family that she is trying to escape. The attempts at separation and individuation are unsuccessful. Further, the behavior serves to release the adolescent's anger at her parents by disrupting the previously smooth running family unit (Bruch, 1981).

Object Relations Theory of AN

Bruch's interpersonal transactions mesh well with the psychodynamic descriptions of the intrapsychic world of the anorectic provided by Masterson (1978) and Sugarman, Quinlan, and Devinis (1981). These descriptions are from an object relations perspective and facilitate the understanding of the anorectic's
pathology in light of their developmental character structure by providing a more in-depth discussion of the developmental arrests which Bruch suggests are at the core of anorectic pathology. Extensive knowledge not only in the areas of object relations theory but also ego development and cognitive development would be necessary to fully explore the vicissitudes of development of AN as it proceeds intrapsychically. Such a task would be large indeed! Although brief portions of these theories are presented these are not to be construed as providing the reader with full knowledge in these areas.

A brief overview of object relations is necessary at this point. Whereas Freud posited sex and aggression as the two major drives, here we see derivatives in two related drives. A press for support, closeness, and warmth is contrasted with an aggressive counterpart that serves to propel the individual toward separation and growth. Progress through the first few years and later throughout life involves both drives operating simultaneously in order to allow the individual to mature as a separate, unique person. Early development takes the child through the first three years with the phases of autism, symbiosis and separation-individuation. This last phase has four subphases: differentiation, practicing, rapprochement, and
separation-individuation proper (Mahler, Pine, & Bergman, 1975). This last phase, which will have important ramifications for the anorectic, begins roughly in the middle of the second year. To have reached a state of stable object relations one must successfully proceed through these stages without any major developmental arrests. This would result in the individual achieving a sense of stable object constancy and object relatedness. This refers to the individual's ability to keep a mental image of the object (PCG) as stable and permanent, independent of the need state of the organism (Horner, 1979). The success one experiences in negotiating these stages is dependent on the PCG-infant matrix. Parenting must be stable, consistent, supportive, and available but yet not seen as intrusive or threatening. Only in this fashion can the developing child perceive the freedom to individuate as well as perceive the availability of support should he or she need or want it. This balance is delicate although the human infant is thought to be relatively robust with respect to minor deviations from this balance.

According to Sugarman et al., (1981) developmental arrest for the anorectic is thought to occur somewhere in the transition from the differentiation to practicing subphases. The success of this transition assumes the
child has acquired a rudimentary skill at evocative object constancy. This reflects the ability to acquire a sense of the object internally without the object being there physically. Masterson (1978) relates this failure to acquire this developmental skill as a function of the child's perception of the wavering availability of the support of the PCG (libidinal availability). The child perceives the PCG as offering support and approval (maternal supplies) for passive, non-individuative behaviors. The affect the child experiences is a feeling of being gratified (or fed) when she behaves in such a fashion. For example, the mother may have a neurotic investment in being a good mother and may experience the normal practicing behaviors that a child exhibits as a threat to her competence as a mother as well as a rejection of her. On the other hand, the child has a perception of the PCG as angry, hostile, critical, and withdrawing of libidinal supplies when she displays attempts toward her own separation and individuation. As a result the child is left with a feeling of anger and frustration and a view of herself as being bad, inadequate, and helpless (Masterson) when she attempts to separate and grow. The child is left with two sets of self and object perceptions that she is unable to integrate. She perceives the PCG as providing support and libidinal
availability if she behaves in a certain manner (passive) in which case she is "good." If she attempts to individuate, however, she is left without adequate support. Any attempts at individuation are met with a perception of the PCG as withdrawing. This is said to result in a profound abandonment depression. In fact, significant levels of depression are commonly seen in anorectics (Herzog, 1983; Rollins & Piazza, 1981; Russell, 1979; Sours, 1969). The young child is certainly placed in a tenuous bind. The defense mechanism of splitting is employed by the child to keep these discrepant views of her self (good and bad part self) and object (rewarding and frustrating part object) apart. In this way the preanorectic operates at a level of significant compromise. Behave good, albeit compliantly, and she can temporarily ward off this abandonment depression. These fears of being abandoned are reawakened whenever the individual feels a press (internal or external) to individuate.

Now we can combine this intrapsychic explanation with Bruch's interpersonal descriptions. Bruch's paralyzing sense of ineffectiveness is the result of the precarious situation the individual finds herself in. The anorectic cannot individuate from the PCG but must be passive and compliant to receive support. Any attempt at mastery or individuation are seen as
threatening to the PCG which results in profound abandonment depression (Masterson, 1978; Sugarman et al., 1981). The "unrelenting no" is the anorectic's expression of anger at an object she regards as providing supplies conditionally (Masterson). What starts out as a tendency to rely on external cues rather than trust her own needs and feelings eventually reaches a point where she has no real sense of what her own needs and feelings are as well as doubting their very legitimacy. Again, this is the ego deficit Bruch refers to. This results in an extreme lack of autonomy and initiative. This is further indicated by the anorectic's suppressing of individuative desires in order to maintain libidinal supplies.

As described by Masterson, an anorectic with such an ego deficit would have an underlying borderline character structure which is consonant with Bruch's notions. This borderline structure refers to arrests in the developmental sequence and not necessarily to the descriptive diagnosis in DSM-III. This would be reflected in unstable boundaries as a consequence of the individual not having acquired a stable and mature sense of object constancy. As previously described, the behavioral correlates of this in the anorectic would be the lack of autonomy and self-directed initiative. This picture of the anorectic as basically having a
borderline character structure is thought to be qualitatively different from a person with neurotic conflicts which has been in accord with the traditional views of AN.

**Research on the Ego Deficit Hypothesis in AN**

Research efforts have recently examined the ego deficit hypothesis with an appreciable amount of success within certain limits. The Rorschach has been used most often to assess borderline pathology (Kwawer, Lerner, Lerner, & Sugarman, 1980). Strober and Goldenberg (1981) first examined the ego deficit hypothesis noting the anorectic group evidenced greater difficulty in maintaining internal/external boundaries when compared with a matched group of depressed adolescent females. This finding was supported by Sugarman et al., (1981), who examined developmental ego boundaries and level of object relatedness in a group of anorectics and compared them with groups diagnosed for other psychiatric disturbances. They found that the anorectics "evidenced greater fusion of separate ideas or percepts in thinking reflective of a breakdown in self-object boundaries" (p. 544). In conclusion, they argued for a view of AN that involves more profound developmental disturbances rather than psychosexual and neurotic factors.

Others have also researched the theme that AN is reflective of more primitive forms of pathology. Small
and his colleagues compared AN subjects to a matched group of schizophrenics (Small et al., 1981; Small, Teagno, Madero, Gross, & Ebert, 1982). First, in comparing the mean MMPI profiles of these two groups they found a remarkable similarity (D = .83) with scales 2, 4, 6, 7, 8 at or near T = 70 for both groups although the order varied slightly. In addition, none of the subscales differed significantly between groups. They interpreted the similarity of the two mean profiles as indicative of pathology for the anorectics more serious than a neurotic disturbance. Later, they compared the same two groups with the Rorschach and Wechsler scales. The anorectics showed greater emotional and cognitive capacities as well as greater organizational abilities compared to the schizophrenic group. However, the anorectics did evidence the stereotypical pattern of performance associated with borderline pathology, exhibiting adequate performance on the structured test (Wechsler scales) but performance indicating marked personality disturbance on the unstructured test (Rorschach). This pattern, characterized by the appearance of adequate functioning with severe underlying disorganization corresponds with the descriptions of the anorectic's behavior in situations that are stressful and lacking structure. The anorectic appears to be doing well on the surface, at least
academically speaking, but she evidences extreme immaturity and maladjustment when stressful, unstructured conflicts arise (for example, separation issues surrounding adolescence).

Lastly, support for the ego deficit hypothesis comes from Wingate and Christie (1978) who utilized Barron's Ego Strength Scale (ESS, Barron, 1953). This scale is the most widely used standardized measure of ego strength presently available (Last, 1980). Originally this scale was designed to predict response of neurotic patients to psychodynamically oriented psychotherapy (Barron, 1953). Since researchers have not come to a firm decision on what forms of therapy work, it is not surprising that research is mixed with respect to Barron's claims (Graham, 1973; Harmon, 1980). However, this scale is widely recognized as a measure of adaptability and resourcefulness (Duckworth, 1979; Graham, 1977). Further, the ESS is well suited for measuring differences at the lower end of human functioning (ego deficits) rather than for discriminating between those at the upper level (ego strength; Horio, 1973). Research with the ESS has found negative relationships with dependency (Nacev, 1980), degree of psychopathology (Clayton & Graham, 1979; DeLoach, 1977), conformity (Martin, Blair, and Bottoms, 1979; Martin, Blair, Rudolph, & Morrissey, 1982), and
dogmatism (Martin, Stokes, & Ayers, 1978). Positive relationships have been established with internal locus of control (Artwohl, 1979; Shepel, 1977), a belief in self adequacy (Harmon, 1980), psychosocial adaptation to cancer (Worden & Sobel, 1978), and reported health experiences (McKinstry, 1978). Thus, there is support for the construct validity of the ESS as representing personal resourcefulness and adaptability.

Wingate and Christie (1978) compared a group of anorectics and a matched group of normals using the ESS as well as a measure of body image. They found that anorectics indeed demonstrated lower levels of ego strength. There were also indications that this was related to disturbances in body image.

While research seems to strongly support the notion that AN involves a disturbance more serious than a neurotic disorder, certain limitations to this research should be mentioned. First, psychodynamic constructs are often complex and hypothesize processes which are difficult to test. These constructs are not stated in operational terms, thus the implications derived from research often involve a large degree of inference. Typically, constructs such as "ego" or "ego strength" are seen as referring to an ability to function and cope resourcefully, with the theory merely elaborating the different levels of functioning. With this caution in
mind, research supports the view that anorectics
evidence ego deficits in independent functioning
compared to other groups. Further, the notion of
boundary disturbances and unstable object relatedness
are also extremely difficult to measure. These are best
assessed by extremely sensitive instruments which yield
idiographic data. Given the limits of using the
Rorschach as a research instrument, research has
indicated that anorectics manifest boundary disturbances
in accordance with psychodynamic theory.

A major criticism is that psychodynamic theories are
primarily retrospective speculations which are extremely
difficult to validate. Given the highly complex and
abstract nature of psychodynamic theory and the current
level of research technology available, this criticism
is difficult to refute. Nevertheless, these theories
are often relied upon by clinicians for their
explanatory and diagnostic value in conceptualizing the
development of these deficits in anorectics.

Considering its clinical utility, the theories should
not be totally disregarded. Rather, an attempt should
be made to validate these hypotheses within the limits
of acceptable research practices which has been done in
an anorectic group. The focus now turns toward
assessing developmental deficits thought to underlie
bulimia.
Psychodynamic Explanations of Bulimia

Recent theory (Sugarman & Kurash, 1982) suggests that bulimia is a form of adaptation to psychological concerns, although this is thought to be somewhat different than what is postulated to occur in AN. Whereas anorectics are postulated as using the body as a persecutory object (Palazzoli, 1974) the bulimic is thought to use the body more as a transitional object. These differences will be explained to better comprehend the bulimic's form of adaptation. In AN the body's postulated role is that of a persecutory object, something which is feared and must be controlled. Possibly because of the fear of differentiation (from the mother) as a result of the early transactions delineated previously, the child internalizes the mother image into her body. However, because of the child's perception of the tenuousness of the availability of libidinal supplies from the PCG as well as her (PCG) disapproving of the child's individuation, this internalized image is seen as threatening. The image is perceived as something that must be controlled. The body is "seen as a persecutory object which must be controlled totally less it devour or smother the patient" (Sugarman & Kurash, 1982, p. 58).

In bulimia, the body has been identified as a transitional object not as a persecutory object as in AN
(Sugarman & Kurash, 1982). Again, arrest is assumed to occur in the transition from the differentiation to practicing subphases which also indicates more primitive developmental delays than those involved in a neurotic disturbance. The bulimic's own body is used as a transitional object with which to help evoke images of the object. The next steps developmentally speaking would have been (had there been no major developmental arrest) (a) To utilize external objects to evoke images of the object; (b) To be able to evoke an image of the object without needing an external object; and (c) To have this evocative object constancy independent of the need state of the organism. The bulimic is viewed as caught at a developmental level in which she must use her own body as her mode of dealing with separation conflicts. Theory suggests she gorges to reenact her wish for a symbiotic reunion with the PCG, but, later vomits to separate and even repudiate the PCG. This conflict is unveiled in this statement from a bulimic patient in treatment:

I think about her holding me, lovingly. Then suddenly, her grip tightens and I can't move. . . She used to tell me I would get hurt if I let my body go. . . I start to feel stuffed and fat, fat like my mother. . . I would rather kill myself than be like her and that's when I throw up, when I become my mother (Sugarman & Kurash, p. 50).
Poignantly evident are the boundary difficulties and separation conflicts, both wanting the closeness, support, and warmth, but yet feeling overwhelmed and fearing engulfment by an object that is not permissive of her individuation. Behaviorally, this is manifested as a lowered tolerance for frustration at her perceived ineffectiveness in modulating these conflicts as well as at her inability to handle these concerns without relying on the symptomatic disordered eating process.

Such is the dilemma played out every time the bulimic binges and purges. This aggressive component has been referred to elsewhere (Guioria, 1967; Nogami & Yobana, 1977). By using the body and the action of the eating sequence, the bulimic can reexperience the closeness with the PCG. Afterwards, this fear of losing control and possible boundary loss to the PCG (engulfment) results in purging the object (Sugarman & Kurash, 1982). This need to use the body as a transitional object in order to reexperience the object theoretically reflects underlying developmental deficits and psychopathology.

Based on these theoretical speculations, the clinical presentation of the bulimic is along these lines. The ambivalent PCG-child interactions would leave the child with tenuous feelings of her competence regarding selfdirected autonomy. This results in a
pervasive sense of ineffectiveness much like the anorectic. The bulimic is said to feel inadequate in her ability to carry a stable mental representation of the object on her own. The eating sequence is required to re-experience the object and to alleviate her inadequacy and incompleteness (resulting from fears of abandonment). A low tolerance for frustration and, thus, a potential to regress (employ the symptomatic eating behavior) under stressful situations would be implicated. Eating or swallowing the object, psychodynamically speaking, is an aggressive act. As such, aggression reflecting disturbed familial interactions would not be unlikely. Further, the bulimic's difficulties in maintaining stable self-object boundaries may be manifested in several ways: a lowered perceived ability to cope on her own reflecting this perceived ineffectiveness; greater feelings of being bound by other's feelings and desires (more external locus of control); and a basic inability to identify and label one's own emotions independent from significant others. Several clinical symptoms are also expected to be salient for the bulimic. The low tolerance for frustration and the potential to regress in order to re-experience the object might manifest itself in occasionally impulsive behavior. The perceived threat of abandonment should manifest itself in higher levels
of depression and feelings of alienation. Anxiety, worry, and rumination are thought to be an indicator of the bulimic's recognition of her perceived shortcomings in dealing with her conflicts.

If bulimic symptomatology does indeed function in the manner postulated, it can be expected that subjects engaging in bulimic behavior will exhibit greater psychopathology and associated clinical symptomatology that will serve to identify this group from normal subjects and subjects with significant concerns about their weight but who do not engage in bulimic behavior. The purpose of this investigation was to provide a preliminary assessment of this psychopathology thought to underlie bulimia.

Research on Bulimia

Diagnostically speaking, much heterogeneity has been reported in the bulimic population. Pyle et al., (1981) tested 30 bulimics with the MMPI and noted clinical elevations on 4 scales. The symptom picture included significant levels of depression (2); impulsivity (4); anxiety, distress, and compulsivity (7); and feelings of alienation (8). Another study, (Johnson & Larson, 1982) utilized an innovative time sampling procedure and found that bulimics experienced significantly more dysphoric and fluctuating moods in comparison to a normal control group. Rost, Neuhaus,
and Florin (1982) found that bulimics exhibited a sense of helplessness when compared to a normal control group.

Not all research is in agreement in noting these dynamics and symptoms. Utilizing the Eating Disorders Inventory (EDI; Garner, Olmstead, & Polivy, 1983) bulimics were found to be similar to anorectics on seven of the eight scales of that instrument. Johnson et al., (1982) conducted the largest psychometric analysis (\(N = 316\)) on bulimia. They compared a bulimic group, a normal control group, and three clinical groups (bulimic anorectics, restricting anorectics, and depressed neurotics). The latter three clinical groups demonstrated clinical elevations on all five scales of the Hopkin's Symptom Checklist. The bulimic group, however, was remarkably similar to the normal control group demonstrating only minor elevations on two scales (depression and interpersonal sensitivity) while actually scoring lower on the somatic scale than the normal control group. The authors concluded that the bulimic group was relatively free of clinical symptomatology.

**Operational Definitions of the Variables**

In sum, from the theory, clinical reports, and initial psychodiagnostic data, several dynamics reflecting greater underlying psychopathology and associated clinical symptomatology were predicted to
differentiate bulimics from nonbulimics. The postulated boundary difficulties and deficits in self-directed autonomy were measured in several ways. The bulimic's problems in understanding and dealing with her emotions were measured by the Interoceptive Awareness scale of the EDI which has been found to be a valid measure of the degree of "confidence in recognizing and accurately identifying emotions and sensations of hunger and satiety" (Garner et al., 1983, p. 18). A perceived lack of control over one's autonomy and generalized feelings of inadequacy were measured by the Ineffectiveness Scale of the EDI and the Levenson Locus of Control Scale (Levenson, 1974, LLOC). This latter instrument breaks down locus of control into three independent dimensions: Denial of Internal Control (I); Control by Powerful Others (P); and Control by Chance (C). These subscales afforded a more in depth look at the dimensions of the hypothesized lack of control. The MMPI was used to measure the symptomatology associated with bulimia. In general, it was expected that bulimics would experience overall elevations on several scales indicative of clinical symptomatology. In addition, where subscales have been reliably identified (Harris & Lingoes, 1955) more precise predictions were made in order to more accurately delineate the nature of the bulimics' difficulties. The bulimics were predicted to have
elevations on Scale 2 (Depression) with elevations on subscales reflecting Subjective Depression (D1) and Brooding (D5). Scale 4 (Psychopathic Deviate) was also expected to be elevated reflecting the bulimic's low tolerance for frustration and impulsivity. Specific subscale elevations predicted were Familial Discord (Pd1) and Self Alienation (Pd4B). Significant elevations were expected on Scale 7 (Psychasthenia) which measures compulsivity in behavior, rumination, anxiety, and lowered self-esteem. No specific subscales have been reliably identified for this scale. Lastly, bulimics' were expected to demonstrate elevations on Scale 8 (Schizophrenia) reflecting their feelings of alienation and confusion as to their own identity, as the likely consequences of the postulated fear of object loss. Specific subscales that should be significantly elevated were Emotional Alienation (SclB) and a lack of Ego Mastery in both Conative Functioning (Sc2B) and in Defective Inhibition (Sc2C).

Although no theoretical explanations have been postulated to explain the significance of AN or anorectic-like behavior in the bulimic population hypotheses were drawn from developmental theory. It was expected that the group of bulimics with a history of anorectic-like behaviors would evidence even greater levels of underlying psychopathology in terms of the
dynamics and clinical symptomatology just mentioned. This would be expected as a manifestation of more severe developmental deficits, reflecting the anorectic child's need to employ symptomatic behavior earlier in adolescence. Also, the fact that the child has needed to employ not one but two different forms of attempts to gain psychological control (stopping eating as well as gorging and then purging the unwanted object) further indicate these deficits.

Hypotheses of the Study

In the present study four groups were compared: a bulimic group with a prior history of anorectic-like behavior; a bulimic group with no such history; a group that is nonobese and nonbulimic but evidence substantial concerns about weight; and lastly, a group of normal subjects. Generally, both bulimic groups were expected to manifest psychopathology and associated clinical symptomatology which would differentiate them from the other two groups. Secondly, bulimics that report a prior history of anorectic-like behavior were expected to evidence psychopathology and associated clinical symptomatology which would differentiate them from bulimics who report no prior history of anorectic-like behavior.

Specifically, from the review of clinical theory and previous research the following hypotheses were set forth.
Hypothesis #1. Both bulimic groups were expected to manifest higher elevations than the concerned about weight group and control group on the following indices: Interoceptive Awareness and Ineffectiveness Scales (EDI), Powerful Others and Chance Scales (LLOC); Depression, Subjective Depression, Brooding, Psychopathic Deviate, Familial Discord, Self Alienation, Psychasthenia, Schizophrenia, Emotional Alienation, Conative Functioning, and, Defective Inhibition Scales (MMPI); and lower scores on the following measures: Ego Strength Scale (MMPI), and Internal Control Scale (LLOC).

Hypothesis #2. Bulimics with a prior history of anorectic-like behavior were expected to be differentiated from those bulimics with no such history of anorectic-like behavior on these 17 measures indicating the presence of more extreme psychopathology and associated clinical symptomatology.
CHAPTER II

METHOD

Subjects

This study employed 75 subjects, divided into four groups. These groups included (a) bulimics with a prior history of anorectic-like behavior (formerly anorectic bulimics, FAB, n = 18); (b) bulimics with no prior history of anorectic-like behavior (never anorectic bulimics, NAB, n = 18); (c) those individuals with significant concerns about their weight who do not fulfill the criteria for bulimia (concerned about weight, CAW, n = 19) and (d) a nonbulimic group (Control, n = 20).

All subjects met several initial requirements. All subjects were female between the ages of 18 and 35. Their current weight was within a desirable range (20%) for their height and build.

Subjects for both bulimic groups were involved in ongoing, regularly scheduled meetings of support, self help, treatment groups, or individual treatment. These treatment facilities were located at or near urban centers of at least moderate size in Texas, Oklahoma,
and Connecticut. All subjects in both two bulimic groups were diagnosable for bulimia at the time of testing.

Subjects for the CAW group were involved in ongoing, regularly scheduled meetings of Weight Watchers, Inc. The Control group subjects were solicited by the researchers because of their relative similarity with the bulimic groups (e.g., age, weight, socioeconomic status, and education). Subjects in the CAW and Control groups did not meet the criteria for bulimia nor were they involved in any formal psychological treatment for an emotional disorder at the time of testing. All subjects from the CAW and Control groups came from the North Texas area.

Instrumentation

Minnesota Multiphasic Personality Inventory. The MMPI was originally developed by Hathaway and McKinley in 1940. It is an empirically derived instrument which provides an objective measure of abnormal behavior. The MMPI has been noted as the most widely used and researched objective personality inventory currently available today (Greene, 1980). Subjects were given Form R of the MMPI which contains 566 items to be answered either true or false. As in standard clinical usage of the MMPI, K corrected scores were used in the statistical analysis.
Harris Lingoes Subscales. These scales were originally developed in 1960 out of a recognition of the method by which the clinical scales of the MMPI were derived. Namely, items were selected for inclusion within each clinical scale on the basis of their ability to discriminate among various clinical groups. No attention was paid to item content. The Harris Lingoes Subscales were developed on the basis of grouping those items which were thought to reflect a single common attitude or trait within each clinical scale. Specific subscales were developed for six of the ten clinical scales. Although this was done subjectively on a conceptual basis, the value of such content subscales to further delineate the meaning of the overall T score on a clinical scale into various more meaningful subparts has been recognized (Cohler, Weiss, & Grunebaum, 1974).

Barron's Ego Strength Scale. The ESS is a research scale derived from the MMPI and was originally developed by Barron (1953) to differentiate between those neurotic patients who would more likely profit from psychodynamically oriented psychotherapy than others. The items were selected on the basis of their ability to differentiate those who were described by senior member clinicians as having improved in treatment from case note data ($r = .91$) from those who did not do well in therapy. Using this procedure 68 items were selected
which deal with physical functioning, moral posture, personal adequacy and ability to cope, attitudes towards religion, and phobias and anxieties (Graham, 1977). Test-retest (three months) and odd-even reliabilities are .72 and .76 respectively. The items for this scale are contained within the full 566 item MMPI. In terms of construct validity, as mentioned previously, research with the ESS has indicated that it does differentiate between various levels of pathology. Further, positive correlations with measures of healthier functioning and negative correlations with indices of poor functioning have been demonstrated. Thus, the ESS was selected as a valid measure of personality integration and personal resourcefulness which are both characteristics of a person with high ego strength.

**Eating Disorders Inventory.** Developed in 1983 (Garner, Olmstead, & Polivy) to assess psychological and behavioral traits in AN and bulimia, this instrument (see Appendix B) is composed of 64 items with eight subscales. The subscales are drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears. The authors note that the first three subscales assess attitudes and/or behaviors relating to eating and body shape while the remaining five subscales . . . measure traits
which have been identified by clinicians and theorists as fundamental aspects of the psychopathology of AN (p. 29).

Scores are the sum of the subject's responses on a six-point, forced choice scale reflecting frequency (never to always). Although a newly developed instrument, data on the reliability and validity of the EDI support its usage. Reliability coefficients of internal consistency (Cronbach's Alpha) were primarily in the .80's (range $r = .65 - .90$) for all eight scales. As a diagnostic instrument, the EDI was successful in differentiating AN from a normal control group. Other evidence of convergent and discriminant validity of the EDI was established in comparisons with other referent groups and other standardized tests. The reader is referred to Garner, Olmstead, & Polivy for a more complete discussion.

**Binge Scale Questionnaire.** This scale was developed as a brief screening instrument by Hawkins and Clement (1980, see Appendix C). It consists of nine multiple choice items that sum to yield a quantitative measure of the severity of binge eating. Measures of internal consistency (Cronbach's Alpha) and test-retest reliability are adequate ($r = .68$ and $.88$ respectively). Factor analytic studies indicate two factors which are concern and guilt over these binges and duration and
satiety feelings associated with binge eating tendencies (Hawkins & Clement). For criterion related validity this instrument was correlated with an existing instrument assessing dietary concern ($r = .58$).

**Marlowe-Crowne Social Desirability Scale.** The MCSDS was originally developed as a measure of social desirability which has been widely used for the purpose of assessing differences in response set between groups (see Appendix E). The measure consists of thirty-three items (after ruling out items that seemed pathologically relevant in content) which were found to differentiate between high and low scorers in the original sample in terms of social desirability. Reliability data are sufficient with $r = .89$ and $.88$ for test-retest and internal consistency (KR-20) respectively. A recent major review (Evans, 1982) fully supports its use in research settings.

**Levenson's Locus of Control Scale.** This scale (see Appendix F) is an adaptation of Rotter's original IE Scale (1966). It contains 24 items and utilizes a 6-point Likert scale. Subsequent factor analytic work (Lindbloom & Faw, 1982) has supported Levenson's three independent dimensions: internal (I), powerful others (P), and chance (C). Measures of reliability are adequate for the three dimensions ($K-R = .64-.78$ and test-retest at one week = $.64-.78$).
Design of the Study

This was a non-experimental study utilizing a correlational design. To control for different sources of error variance, several variables were used to select subjects and also included as covariates. Only subjects between 18 and 35 years of age were included. The age restriction was an attempt to keep the sample a more homogeneous one, thereby controlling for other explanations for the occurrence of bulimia such as hormonal changes that may be associated with menopause. As most bulimics are typically at or near normal weight, subjects from the two other groups were excluded if they were presently over 20% of their ideal weight (according to the Metropolitan Life Insurance Company Table and Standards for Ideal Weight). Information pertaining to the subjects' educational level and socioeconomic status was also collected, and these variables served as covariates along with age and weight (see Appendix F). Lastly, to assess for the possibility of differential tendency between groups to respond in a socially desirable fashion, the MCSDS scores were also used as a covariate.

Since the bulimic sample was involved in treatment while the control groups were not this presented a confounding variable. However, since access to the clinical samples was via various treatment settings or
self help groups it was impractical to rule out this confound, particularly since most bulimics apparently only "come out" and admit this disorder when involved in some type of therapeutic treatment. As such, and also due to the chronic and seemingly intractible nature of this disorder, subjects in the two bulimic groups were allowed to participate if they had been or were presently involved in treatment as long as they still fulfilled the DSM-III criteria for bulimia.

Seventeen dependent variables were included in the present study. Including the instruments they came from, these variables were: interoceptive awareness and ineffectiveness, (EDI); depression, subjective depression, brooding, psychopathic deviate, familial discord, conative functioning, psychasthenia, defective inhibition, ego strength, self alienation, schizophrenia, and emotional alienation (MMPI); internal control, powerful others, and chance (LLOC).

A one-way multivariate analysis of covariance procedure (MANCOVA) was used to test hypotheses one and two. Specifically, this procedure was used to test the significance of the differences between the four groups on the 17 dependent variables. This procedure was a more conservative one (compared to an ANOVA procedure) with respect to the family-wise error rate as it "takes the correlations among the dependent variables into
account" (Kerlinger & Pedhauzer, 1973, p. 352). Given the relatively large number of dependent variables being analyzed (17) this procedure was the preferred one. The four demographic variables and the MCSDS scores served as the covariates. Wilk's lambda was used as the specific MANCOVA statistic. Computation of univariate ANCOVA's were then made in the case of a significant MANCOVA. Lastly, for those variables found to be significantly different across groups, post hoc testing was performed using the adjusted means. Newman-Keuls was used as the specific post-hoc statistic as it offers a very reasonable compromise between family-wise error rate and power (Winer, 1981). To further identify which of the 17 variables best differentiated among the groups, a discriminant analysis was employed. The step-wise method (based on the overall multivariate F) was used to select the variables for inclusion in the discriminant function.

**Procedure**

The bulimic subjects were included on the basis of a self-assessment of their eating behaviors. As a check, an assessment of the bulimic symptoms was made using items from the EDI and the BSQ which reflect the DSM-III criteria (see Appendix G for specific questions). To insure that the disorder was currently problematic the subjects were required to report binging
at least once per week followed usually, if not always, by some sort of purgative behavior (e.g., vomiting or laxative abuse). Although 45 completed packets were received from subjects admitting to problems with bulimia, only 36 subjects met the DSM-III criteria. Most subjects that were rejected were either former bulimics or present anorectics also having problems with bulimia. Further division of the 36 bulimic subjects into the two subgroups of bulimia was made on the basis of their reporting a prior intentional weight loss of at least 15% from ideal body weight at one time that could not be accounted for by other physical reasons (according to the Metropolitan Life Insurance Company Table Standards for Ideal Weight). This yielded an even split between the two subgroups of bulimia (FAB, n = 18 and NAB, n = 18). For the CAW group eight subjects were excluded for various reasons such as not meeting the criteria for age, deviance from normal weight, present involvement in psychological treatment, or missing data). Only one control group subject was excluded from the study and this was because the person was involved in weekly psychotherapy.

With the exception of those bulimics that were in individual treatment who were given the research packet by their therapists, all other bulimics were given the packet by a researcher at the close of regularly
scheduled meetings of self help, support, or treatment groups. Subjects in the CAW group were given the packets at the end of their regularly scheduled meeting of Weight Watchers. Subjects in the control group were given the packet as the subjects became available.

All subjects were told that this was a study of personality correlates and eating behavior. Subjects were told that their responses would be kept confidential, and they could withdraw at any time should they so desire. Should they desire to participate they were then asked to sign the informed consent form (see Appendix H) and were then given the MCSDS, EDI, LLOC, BSQ, and the MMPI in that order. Some subjects received the instruments in a stamped manila envelop with the investigator's address so that the packet could be completed at home and returned by mail. Other subjects were told to seal the envelope and return it to their group leader who would then forward them to the researchers. This procedure was necessary due to the length of the test battery itself (approximately three hours). All subjects were then thanked for their participation and told that they could receive a copy of the project's main objectives and findings when compiled if they so indicated. Further, subjects in the two bulimic groups were told that if they signed a release of information form a copy of their individual findings
would be sent to their individual or group therapists for use in their treatment which was a frequent prerequisite by some agencies before allowing access to these groups.
CHAPTER III

RESULTS

Initially, the homogeneity of the subject sample was considered. When the numbers of bulimic subjects were broken down into the two subgroups and, further, into the three geographical locations, the resulting numbers were quite small. However, a preliminary MANCOVA procedure was performed to compare subjects from the three geographic locations on the 17 dependent variables. This analysis revealed nonsignificant differences across the 3 different locations ($F(2, 24) = 0.78, p > .05$). As such, the subjects were combined across geographical areas for all further analyses.

Demographic data describing the four groups of subjects is reported in Table 1. One-way ANOVA's to test the significance of the differences between the four groups on the five covariates are presented in Table 2 (see Appendix I). Briefly, subjects in the CAW group were significantly older, reported belonging to a higher SES group, and deviated from their normal weight to a much greater degree than the other three groups who were similar on these three variables. There were no
differences on educational level achieved or on MCSDS scores between the four groups. As a validity check, the level of concern about weight across the four groups was compared. The CAW group was found to be similar to the two bulimic groups and all three groups scored higher than the Control group on concerns about their weight, \( F(3, 71) = 28.824, p < .001 \).

**Appendix I**

**Table 1**

Demographic Data Across All Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (in years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAB</td>
<td>25.83</td>
<td>5.22</td>
<td></td>
</tr>
<tr>
<td>NAB</td>
<td>26.17</td>
<td>4.46</td>
<td></td>
</tr>
<tr>
<td>CAW</td>
<td>29.74</td>
<td>4.20</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>23.05</td>
<td>4.76</td>
<td></td>
</tr>
<tr>
<td><strong>Deviation from normal weight (in percentages)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAB</td>
<td>1.17</td>
<td>11.20</td>
<td></td>
</tr>
<tr>
<td>NAB</td>
<td>-1.33</td>
<td>9.43</td>
<td></td>
</tr>
<tr>
<td>CAW</td>
<td>17.42</td>
<td>14.11</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>-5.45</td>
<td>9.50</td>
<td></td>
</tr>
<tr>
<td><strong>Education (in total years of formal education)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAB</td>
<td>13.94</td>
<td>1.67</td>
<td></td>
</tr>
<tr>
<td>NAB</td>
<td>16.00</td>
<td>2.13</td>
<td></td>
</tr>
<tr>
<td>CAW</td>
<td>14.32</td>
<td>2.31</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>13.80</td>
<td>1.80</td>
<td></td>
</tr>
</tbody>
</table>
In addition to these demographic variables, data concerning involvement in psychological treatment was collected. Since all the subjects in the two bulimic groups were recruited as a result of their participation in some sort of ongoing treatment for their eating disorder, the percentages for involvement in treatment were 100 percent for both groups. The average length of time in present treatment was 6.67 months for the FAB group and 3.85 months for the NAB group (SD's = 4.36 and 4.56 respectively). None of the subjects in the other two groups reported presently being in treatment for an emotional disorder. Only one subject in each of these two groups reported previously being in therapy. However, in the bulimic groups many reported substantial time in past therapies (FAB: \( n = 12, M = 19.13 \) months, SD = 21.429 and NAB: \( n = 9, M = 12.86 \) months, SD = 13.95). Data from the BSQ and EDI which was used to assess bulimic symptomatology for all four groups is summarized in Table 3 (see Appendix J).
As a test of hypotheses one and two, a one-way MANCOVA procedure was used to compare the four groups on the 17 dependent variables. This analysis revealed a significant effect across the four groups ($F(3,71) = 2.77, p < .001$). Means, adjusted means, and standard deviations for the 17 dependent variables are presented in Table 4 (see Appendix K). Since the overall MANCOVA was found to be significant, subsequent univariate ANCOVA's were then computed (Table 5). These revealed that 12 of the 17 variables reached significance at or beyond the .05 level. Results of the multiple post hoc testing using Newman-Keuls ($p = .05$) across all possible comparisons for the 15 significant variables are summarized in Table 6. These results can be described with the following three statements.

1. Both bulimic groups differed from both nonbulimic groups on all 12 significant variables.

2. The FAB group differed from the NAB group on 10 of the 12 significant variables.

3. The CAW group differed from the Control group on four of the 12 significant variables.

Next, a discriminant analysis procedure was employed to examine which of these variables best predicted group membership among the groups. One of the major purposes of the present investigation was to
Table 5
Univariate Analyses of Covariance of the Dependent Variables Across All Groups

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean Square</th>
<th>F (3,66)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interoceptive Awareness</td>
<td>550.620</td>
<td>24.162*</td>
</tr>
<tr>
<td>Error</td>
<td>22.789</td>
<td></td>
</tr>
<tr>
<td>Ineffectiveness</td>
<td>548.318</td>
<td>24.165*</td>
</tr>
<tr>
<td>Error</td>
<td>22.691</td>
<td></td>
</tr>
<tr>
<td>Internal Control</td>
<td>35.176</td>
<td>2.112</td>
</tr>
<tr>
<td>Error</td>
<td>16.653</td>
<td></td>
</tr>
<tr>
<td>Powerful Others</td>
<td>29.414</td>
<td>0.926</td>
</tr>
<tr>
<td>Error</td>
<td>31.754</td>
<td></td>
</tr>
<tr>
<td>Chance</td>
<td>9.257</td>
<td>0.425</td>
</tr>
<tr>
<td>Error</td>
<td>21.757</td>
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</tr>
<tr>
<td>Ego Strength</td>
<td>826.785</td>
<td>9.926*</td>
</tr>
<tr>
<td>Error</td>
<td>83.298</td>
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<tr>
<td>Depression (2)</td>
<td>1683.284</td>
<td>13.383*</td>
</tr>
<tr>
<td>Error</td>
<td>125.775</td>
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</tr>
<tr>
<td>Subjective Depression</td>
<td>1590.262</td>
<td>12.472*</td>
</tr>
<tr>
<td>Error</td>
<td>124.802</td>
<td></td>
</tr>
<tr>
<td>Brooding</td>
<td>1301.801</td>
<td>11.831*</td>
</tr>
<tr>
<td>Error</td>
<td>110.029</td>
<td></td>
</tr>
<tr>
<td>Psychopathic Deviate (4)</td>
<td>1672.694</td>
<td>16.807*</td>
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<tr>
<td>Error</td>
<td>99.526</td>
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<tr>
<td>Familial Discord</td>
<td>265.804</td>
<td>1.531</td>
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<tr>
<td>Error</td>
<td>173.616</td>
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</tr>
<tr>
<td>Self Alienation</td>
<td>1689.314</td>
<td>26.962*</td>
</tr>
<tr>
<td>Error</td>
<td>62.655</td>
<td></td>
</tr>
<tr>
<td>Psychasthenia (7)</td>
<td>1957.955</td>
<td>27.058*</td>
</tr>
<tr>
<td>Error</td>
<td>72.362</td>
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</tr>
<tr>
<td>Schizophrenia (8)</td>
<td>1240.548</td>
<td>9.489*</td>
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<tr>
<td>Error</td>
<td>130.729</td>
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</table>
Table 5—Continued

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean Square</th>
<th>F (3,66)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Alienation</td>
<td>1541.079</td>
<td>14.149*</td>
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<tr>
<td>Error</td>
<td>108.962</td>
<td></td>
</tr>
<tr>
<td>Conative Functioning</td>
<td>1389.079</td>
<td>10.913*</td>
</tr>
<tr>
<td>Error</td>
<td>127.289</td>
<td></td>
</tr>
<tr>
<td>Defective Inhibition</td>
<td>315.541</td>
<td>2.43</td>
</tr>
<tr>
<td>Error</td>
<td>129.857</td>
<td></td>
</tr>
</tbody>
</table>

Note. * indicates p < .001.

Table 6
Summary of Post Hoc Testing of the Dependent Variables Across All Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>FAB</th>
<th>NAB</th>
<th>CAW</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interoceptive Awareness</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Ineffectiveness</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Ego Strength</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>****</td>
</tr>
<tr>
<td>Depression (2)</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Subjective Depression</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Brooding</td>
<td>*</td>
<td>*</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Psychopathic Deviate (4)</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>****</td>
</tr>
<tr>
<td>Self Alienation</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>****</td>
</tr>
<tr>
<td>Psychasthenia (7)</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Schizophrenia (8)</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Emotional Alienation</td>
<td>*</td>
<td>**</td>
<td>***</td>
<td>****</td>
</tr>
</tbody>
</table>
Table 6—Continued

<table>
<thead>
<tr>
<th>Source</th>
<th>FAB</th>
<th>NAB</th>
<th>CAW</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conative Functioning</td>
<td>*</td>
<td>*</td>
<td>**</td>
<td>**</td>
</tr>
</tbody>
</table>

Note. Those groups with different number of asterisks for each variable were significantly different (p < .05) using Newman-Keuls.

assess which of the variables best differentiated among bulimics with and without a prior history of anorectic-like behavior and nonbulimics. Also, the CAW and Control groups were not predicted to differ on an apriori basis and they differed on only four of the seventeen dependent variables examined. With these considerations in mind, the two nonbulimic groups were combined for the following analysis. The step-wise method (based on the overall multivariate $F$) was used as the criterion by which the independent variables were selected for inclusion in the discriminant function among the three groups. Table 7 presents Wilk's lambda (U-statistic) and the Univariate $F$ Ratios for each of the dependent variables before being entered into the discriminant analysis (see Appendix L). Results of the step-wise method for selecting the independent variables in the discriminant function are summarized in Table 8.
Eleven variables were selected in the discriminant function which accounted for 94.71% of the variance of the scores between the three groups. Also, this discriminant function resulted in 86.67% of the subjects' actual group membership being correctly identified (Table 9, see Appendix M). The weightings for each of the 11 variables is presented in Table 10 (see Appendix N).

Table 8
Stepwise Discriminant Analysis Summary Table

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>Wilk's lambda</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Psychasthenia (7)</td>
<td>0.428*</td>
</tr>
<tr>
<td>2</td>
<td>Interoceptive Awareness</td>
<td>0.341*</td>
</tr>
<tr>
<td>3</td>
<td>Self Alienation</td>
<td>0.307*</td>
</tr>
<tr>
<td>4</td>
<td>Power</td>
<td>0.273*</td>
</tr>
<tr>
<td>5</td>
<td>Schizophrenia (8)</td>
<td>0.253*</td>
</tr>
<tr>
<td>6</td>
<td>Brooding</td>
<td>0.239*</td>
</tr>
<tr>
<td>7</td>
<td>Internal Control</td>
<td>0.228*</td>
</tr>
<tr>
<td>8</td>
<td>Psychopathic Deviate (4)</td>
<td>0.218*</td>
</tr>
<tr>
<td>9</td>
<td>Ego Strength</td>
<td>0.209*</td>
</tr>
<tr>
<td>10</td>
<td>Emotional Alienation</td>
<td>0.201*</td>
</tr>
<tr>
<td>11</td>
<td>Familial Discord</td>
<td>0.193*</td>
</tr>
</tbody>
</table>

Note: *indicates p < .001.
CHAPTER IV

DISCUSSION

In the following section, the major results as well as a number of relevant issues will be explored. The major findings, their bearing on the research hypotheses, and the contribution of this project to the understanding of bulimia are presented. Next, the implications of these findings for the previously elaborated psychodynamic and object relations theories as discussed in terms of a conceptual framework regarding the development of the syndrome bulimia are discussed. Alternative explanations and limitations of these results are then reviewed. Recommendations for future research are put forth. Lastly, a brief summary of the major findings concludes this section.

Results of the univariate ANCOVA procedures indicated that 12 of the 17 dependent variables were significantly different among the four groups. Post hoc testing revealed that all 12 variables did differentiate both bulimic groups from both nonbulimic groups. Thus, there is support for the first hypothesis which held that both bulimic groups would manifest greater
underlying psychopathology and clinical symptomatology than the CAW and Control groups. Further, 10 of these 12 variables also differentiated the two bulimic groups, with the FAB group evidencing greater psychopathology and clinical symptomatology than the NAB group. As such, there is support for the second hypothesis that bulimics with a prior history of anorectic-like behavior would show a higher level of psychopathology and associated clinical symptomatology than those bulimics with no such history.

A second statistical approach also yielded support for both research hypotheses. After combining the CAW and Control groups, a discriminant analysis procedure was employed to see which variables best differentiated the three groups. Based on this procedure 11 of the 17 original variables were selected in the discriminant function. This function correctly identified 86.67% of the "grouped" cases in this study and accounted for 94.71% of the variance of the scores between these three groups. This procedure indicates that these three groups can be reliably discriminated with a fairly low percentage of error based on these 11 variables.

Given the findings that statistical differences exist between bulimics and nonbulimics as well as among bulimics themselves in terms of a prior history of anorectic-like behavior, the content of these
differences warrant examination. The major findings from the MANCOVA procedure are discussed first followed by the findings from the discriminant analysis procedure.

The results of the MANCOVA procedure indicated that compared to the two nonbulimic groups there was substantial evidence of boundary difficulties and deficits in self-directed autonomy for both bulimic groups. The lack of control over their autonomy was further reflected by deficits in personal resourcefulness and adaptability as well as generalized feelings of ineffectiveness. Both bulimic groups admitted substantial deficits in comprehending and dealing with their own emotions. As measured by the MMPI, the following clinical symptoms were found to be generally associated with bulimia when compared with nonbulimics: significant levels of depression, a lowered tolerance for frustration, a sense of rebelliousness and resentfulness as well as a potential for acting out these feelings, compulsivity in behavior as well as rumination and anxiety, lowered self esteem, and lastly, a sense of alienation, confusion, and questions about their identity. These significant findings can be summarized with the statement that a sense of estrangement from self and one's internal processes best differentiates both bulimic groups from the nonbulimic groups.
Contrary to the research hypotheses, there were no significant differences between bulimics and nonbulimics on five variables. First, there were no differences on any of the three dimensions of locus of control. Also, there were no differences in the level of reported discord within the family or in the feeling of having control over one's impulses.

Post hoc testing also revealed significant differences between the two bulimic groups on 10 of the 12 significant dependent variables. The FAB exceeded the NAB group on all 10 variables. The two variables which were not found to be different among the two bulimic groups were brooding and conative functioning. This finding indicates that the bulimic groups were similar in their levels of depressive rumination and feelings of lacking in psychological resources to effect change in their own existence. The 10 variables which were significantly different between the two groups indicate that the previous description of the differences between bulimics and nonbulimics holds true for the comparison of the two bulimic groups. Namely, the FAB group evidenced even greater estrangement from themselves and their internal processes when compared with the NAB group.

Also of importance, there were differences between the two nonbulimic groups on four variables. Post hoc
testing revealed higher levels of resentfulness and rebelliousness, alienation from both self and others, and lowered personal resourcefulness and adaptability for the CAW group.

When all these findings were taken together, a progression of underlying psychopathology and associated clinical symptomatology was found. Those bulimics who reported a history of anorectic-like behavior evidenced the most psychopathology and clinical symptomatology. In comparison, bulimics with no such history showed similar but lesser elevations on all of the variables which differentiated the two bulimic groups. On the other end of the spectrum, those subjects with concerns about weight who were not bulimic experienced some difficulties, while the nonclinical and nonbulimic group evidenced the least difficulties in these areas.

Results of the second statistical procedure, a discriminant analysis, indicated that 11 variables did differentiate among FAB, NAB, and nonbulimics. Variables included in the discriminant function are selected with respect to their ability to discriminate among the groups in question. The earlier a variable is selected the better the ability to discriminate between the groups. Examination of the variables selected for inclusion reveal that four of the first five variables can be related conceptually. These variables all relate
to some internal difficulties which can be described as deficits in understanding oneself and one's thought processes, and a propensity to ruminate and to worry over such matters. Clearly, the variables relating to struggles for internal understanding and control seem to be most salient in discriminating among these groups.

A comparison of the results from the two statistical procedures indicated that 8 of the 11 variables chosen in the discriminant function were among those found to be significant in the previous analysis. The exceptions were the variables control by powerful others, internal control, and familial discord. On the other hand, four variables previously found to be significant in the MANCOVA procedure were not identified in the discriminant function (those variables were ineffectiveness, depression, subjective depression, and conative functioning). In examining the variables that did differentiate the three groups, the description from the first statistical analysis again seems accurate, with a few modifications. First, there is less emphasis on feelings of depression and personal ineffectiveness. Second, the factors of internal control and control by powerful others were found to be important in discriminating between these three groups. Lastly, the variable familial discord was also found to be a helpful discriminator among the groups.
Several factors may account for these discrepancies between the MANCOVA (and subsequent testing) and the discriminant analysis procedure. First, the fact that the CAW and Control groups were combined in the latter procedure may account for part of these differences. Since there were significant differences between these two groups on only 4 of the 17 variables it is unlikely that this is the primary reason for these discrepancies. Another more likely factor involves a comparison of the statistical procedures. While both procedures take into account the interrelationships between the variables, the MANCOVA procedure also takes into account the preexisting differences between the groups on the covariates. The discriminant analysis does not take such preexisting differences into account. On the other hand, subsequent testing after the MANCOVA relies on univariate ANCOVA's. These univariate ANCOVA'S do not take the interrelationships between the dependent variables into account. Finally, three of the four variables which were significant from the univariate ANCOVA's (after the MANCOVA was found to be significant) but were not included in the discriminant analysis revealed these may have been eliminated because of overlap caused by use of the Harris-Lingoes subscales along with the clinical scales from which they are derived. These considerations may account for the
discrepancies between these two procedures. Therefore, while the discriminant analysis procedure does, in fact, streamline the variables that best differentiate the FAB, NAB, and nonbulimic groups the reader is reminded that the preexisting differences as assessed by the covariates are not taken into account.

Contributions of this Study to the Understanding of Bulimia

The findings of this study have several important contributions and implications for the understanding of bulimia. First, this study garnered psychological test data on 36 presently active bulimic subjects. This is a fairly large number particularly since bulimia has only recently gained its clinical identity with the publication of DSM-III (1980). Only within the last several years has the literature begun to see reports utilizing information other than case study material.

The results of the present study seem to clarify the contradictory findings in previous psychometric comparisons involving bulimic groups. The present results are in accord with the findings of Norman and Lewis (1983) who found that bulimia involves substantial amounts of underlying psychopathology and associated clinical symptomatology. Contradictory results came mainly from a study by Johnson et al., (1982) who concluded that their sample was relatively symptom free
using the Hopkin's Symptom Checklist as well as the EDI. However, a review of their procedure suggests that the selection criteria used may account for the differences in their findings with this and other research. Their criteria were much less restrictive than those employed in the present study. For instance, their subjects had only to have had one episode of binge eating within the last 180 days, a very liberal definition. Also, they made no requirement for the purgative aspect of the cycle. Thus, substantial levels of underlying psychopathology and associated clinical symptomatology are indicated only for those bulimics who report going through the binge/purge cycle at least once per week. This research supports the clear distinction between the syndrome of bulimia and merely episodic bulimic behavior. In other words, the syndrome of bulimia does involve significant levels of psychopathology and clinical symptomatology while occasional instances of bulimic behavior and overeating may be seen in the relative absence of such factors.

The finding that differences on ten of the variables were significant and in the predicted direction for bulimics with and without a prior history of anorectic-like behavior is certainly very impressive and indicates that the syndrome of bulimia is a heterogeneous one with at least two subgroups. The
results of the study support the view that the heterogeneity is related to a previous history of anorectic-like behavior. Bulimics with such a prior history were found to evidence even greater levels of underlying psychopathology and associated clinical symptomatology than bulimics with no such history. This finding parallels the finding that those anorectics who also evidence bulimic behavior exhibited even greater psychopathology, clinical symptomatology, and have a poorer prognosis when compared with anorectics who do not engage in bulimic behaviors. The significance of this finding will be explored in the context of the psychodynamic and object relations theories.

The design of the study also afforded a consideration of the effects of extreme concerns about weight. Both bulimic groups were similar to the CAW group and all three groups exceeded the Control group on concerns about their weight. However, both bulimic groups were found generally to exceed the CAW group and Control group in terms of the underlying psychopathology and associated clinical symptomatology on the measures used in this study. It seems that significant concerns about weight may cause some distress (as indicated by elevations on four variables) yet this factor alone does not account for the high degree of psychopathology and associated clinical symptomatology manifested by both bulimic groups.
The results also have implications for those in clinical settings. The MMPI is a widely used instrument in treatment settings, providing information relevant to diagnosis, goals and prospects for treatment. For clinical purposes, a scale is considered "clinically elevated" when it differs from the mean (T = 50) by two or more standard deviations (SD = 10). This usually refers to a T score of 70 or greater. Examination of these findings revealed that all four clinical scales used in this study (2,4,7,8) were clinically elevated (T greater than 70) for the FAB group but not for the NAB group. For the NAB group they fell generally between T scores of 65 and 68 for these clinical scales. Of the seven Harris-Lingoes subscales examined, only Self Alienation was clinically elevated and this again was only for the FAB group. Overall, the FAB group's MMPI profile revealed significant elevations on all 4 clinical scales examined while the NAB approached but did not exceed this level on any of these four scales.

The findings from the Ego Strength Scale will also aid those clinicians who rely on the MMPI. Those people with T scores in the 45 - 60 range are considered to have relatively normal ego strength which indicates they are likely to possess adequate capability and personal resourcefulness (Duckworth & Duckworth, 1975). Those persons with a T score below 45 are considered to have
low ego strength and are described as less capable in dealing with daily problems and stressors. Also, these deficits are not considered to be situational but rather a long term pattern (Duckworth & Duckworth). Roughly speaking, the lower the score the less the ego strength and vice versa. Results indicate that the FAB group was the only group with a mean score below this normal range. However, the NAB group mean was at the lower end of this range while the two nonbulimic groups were at the upper end of this range. Post hoc testing indicated significant differences between all four groups, again supporting the view of a progression of personal resourcefulness and capability. Namely, the more a person needs to employ symptomatic eating behavior to deal with psychological deficits, the less capable and resourceful they are considered to be.

These instruments, particularly the MMPI and the EDI do help to discriminate the severity of bulimic concerns based on prior history. This information may be useful for making subsequent decisions regarding diagnosis and treatment.

In sum, several conclusions can be drawn from the results of this study. First, within the syndrome of bulimia two subgroups were identified. Namely, bulimics with a prior history of anorectic-like behavior were differentiated from bulimics with no such history. This
differentiation in terms of history was, in fact, related to differences in psychopathology and clinical symptomatology. Second, the research suggests a clear distinction between the syndrome of bulimia and occasional instances of bulimic behavior. Lastly, this study seemed to rule out merely excessive concerns about weight as a possible factor related to the high degree of psychopathology and clinical symptomatology manifested by both bulimic groups.

**Theoretical Implications**

The results can be considered in light of the previously discussed psychodynamic and object relations theories, in terms of the hypothesized infant-primary care giver (PCG) interactions. First, findings in accord with these theories are presented. This will then be followed by a presentation of those findings that were not in accord with the theories along with possible explanations for these findings.

Relative to the nonbulimics, the bulimics admitted to an inability to identify their own internal cues, particularly as they relate to hunger and satiety. On a general level, the bulimics also admitted to difficulty identifying, understanding, and exerting adaptive control over their emotions. The bulimics indicated they feel profoundly inadequate and ineffective in terms of their own internal sense of control. These findings
are all in accord with the hypothesis that the bulimics' early infant-PCG interactions were said to be insufficient in fostering the development of the infant's sense of "learned competence." These findings further indicate that the bulimics admitted to higher levels of sadness and depression, which is consistent with theory which states that the infant has experienced, at best, inconsistent success in signalling the PCG. The hypothesized perceived lack of consistency in PCG availability is also reflected in a lowered tolerance for frustration and later feelings of rebelliousness and resentfulness. The feelings of anxiety and worry can be expected as a manifestation of the perceived tenuousness of the infant-PCG relationship. Simply stated, she is less adaptable to the demands of day to day living, a conclusion which is also noted in these findings. Thus, the bulimic pattern is one of relative inflexibility, whereby the bulimic seems to use the disordered pattern of eating as the prime mechanism to deal with psychological conflicts.

In sum, the results of this study support the theoretical view that bulimics seem to feel alienated from their own internal sensors and coping abilities. Results of this study indicate that 10 variables were significantly different among bulimics with and without a prior history of anorectic-like behavior. It
is important to note that these differences were based on intensity or magnitude and did not reveal a different clinical picture. These differences revealed a greater sense of estrangement from self and one's internal processes for bulimics with compared to without a prior history of anorectic-like behavior. These findings have implications for personality development. It seems that those who are bulimic but who also employed anorectic-like behavior earlier in adolescence exhibit greater underlying psychopathology and associated clinical symptomatology when compared with bulimics with no history of such behavior. Psychodynamic theory may posit that the earlier the need to employ symptomatic and disordered eating behavior, the greater the predicted deficits in ego functioning. While formal theorizing on this facet has not yet been undertaken it may be that the differences between the two bulimic groups requires some integration of the hypothesized conflict in the anorectic (the body as the transitional object) within the hypothesized conflict of the bulimic (the body as the persecutory object).

As previously stated, there have been initial attempts at path analysis for the course of anorexia nervosa (e.g., Russell, 1979, Slade, 1982) but no such attempt has yet been made for bulimia. Clearly there seems to be overlap between these two disorders but this
interrelatedness is not well understood. As the syndrome of bulimia is a relatively new entity, future research on the course of this disorder should help to understood where bulimia may fit in the larger context of the eating disorders spectrum. It is possible that those bulimics that exhibited a prior history of anorectic-like behavior may represent a more "borderline" level of character development whereas those bulimics with no such history may be thought to possess a more "neurotic" or less severe level of "borderline" character development. The bulimics without a prior anorectic past would then represent a less serious type of emotional disorder and these different subgroups may possibly be amenable to different forms of psychological treatment. The results of this research indicate that bulimia is certainly a heterogeneous syndrome and the presence of a prior history of anorectic-like behavior was related to greater psychopathology and clinical symptomatology. Additional research is clearly needed to better understand the various ramifications of these findings.

Five of the 17 variables did not differentiate among the four groups. Three of these variables represented the three dimensions of locus of control from the LIES. These results indicate that bulimia does not seem to involve differences in locus of control. In
contrast, the discriminant analysis did indicate that denial of internal control and control by powerful others were among the 11 variables that were selected in the discriminant function. As previously stated, though, the results of this statistical procedure must be considered with the caution that this procedure did not take into account the preexisting differences as measured by the covariates.

In any case, the theoretical inference that locus of control varies between bulimics and nonbulimics seems tenuous at best. Psychodynamic theory might expect a person with perceived deficits in autonomy and competency and also exhibiting clinical symptomatology as demonstrated by this study to attribute these to either her own lack of control, more powerful others, or to chance factors. However, results of this study failed to demonstrate any differences in attributional style. It is unclear then exactly how the bulimic understands the cause of her perceived deficits and clinical symptomatology. Perhaps much of the anxiety and obsessive rumination reflects the bulimics attempts to find such an explanation. At present though, psychodynamic and object relations theories are unable to account for these nonfindings.

Two other variables were not significant in comparing bulimics and nonbulimics. The first,
defective inhibition, is somewhat surprising since the disordered eating can be thought of as a type of impulsive behavior. Elevations on this Harris-Lingoes subscale typically indicate the person is reporting not having adequate control of one's impulses and, further, that impulse and the feeling associated with it are often disassociated (Harris & Lingoes, 1955). It may be that what this subscale taps is more general impulsiveness while the bulimic's impulsiveness is much more circumscribed that is, they act out impulsively only in the area of disordered eating. In other areas the bulimic would exhibit more constricted behavior. If this conceptualization is accurate then the bulimic would be someone who is relatively constricted interpersonally but who acts out her psychological difficulties impulsively only through the secretive and disordered patterns of eating.

The last variable, family discord, also failed to reach significance. It was predicted that the difficulties in the infant-PCG interactions would be manifested by discord within the family. Several explanations may account for the lack of significance. First, on an intrapsychic level the bulimic may not be able to admit to the presence of such difficulties because of the sense of object loss that this brings up for her. She acts then to deny conflict while a more
objective assessment of the family may indicate that indeed conflict may be present. Second, on a family systems level the family rule may preclude the revealing of any such conflict within the family. Of course, it is also possible that conflict may not really exist and the bulimic's difficulties may be thought of as solely a conflict of her own internal struggles independent of any family conflict. This seems unlikely and one is reminded that while the anorectic family initially seems stable and surprisingly conflict free on the outside, once the surface is scratched conflict is rampant (Bruch, 1978). Future research with families of bulimics will help to find out whether a similar dynamic occurs also in the family of the bulimic.

In sum, the findings of the present investigation are in accord with the thrust of extrapolations from psychodynamic and object relations theories. Namely, that bulimia involves boundary difficulties and deficits in self-directed autonomy. The findings of this study did not support hypothesized differences based on locus of control, defective inhibition, or in familial discord. Also, these deficits were generally more severe if the bulimic had exhibited a prior history of anorectic-like behavior earlier in their development.
Limitations of the Study

An inherent weakness in any psychometric analysis where self report is relied upon is the possibility of response set. Although the tendency to respond in a socially desirable manner was assessed and statistically controlled the question arises about other possible response sets. For example, perhaps the bulimic groups have felt compelled to justify their presence in psychological treatment by admitting to a wide variety of clinical symptoms. Given the bulimic's need to deny emotional difficulties (Herzog, 1982) and to be seen as achieving (Boskind-Lodahl, 1975) this seems unlikely.

Another criticism involves the use of the discriminant analysis procedure. Like any regression analysis, a discriminant analysis procedure capitalizes on chance variation within the sample analyzed. Thus, this function should be applied to a new sample to test how well it differentiates among future groups. This type of cross validation procedure is optimal for increased confidence in the discriminant function generated in this study.

From a psychometric standpoint, there is some difficulty combining the five covariates in this study. Four of the five were assessed with an interval scaling method while socioeconomic status relied on a ratio scaling procedure. To be consistent, a interval based
method of assessing this variable, such as income, may have been more appropriate.

Another weakness is that all the data relied on the individual's ability to make a self assessment. This is particularly important for the two bulimic groups as the results revealed that they admitted deficits in assessing internal states such as hunger and satiety. The question then arises as to how accurate their assessment of themselves would be in other areas? This is not an easy criticism to resolve except by limiting the results to say that the bulimics reported admitting to more feelings of ineffectiveness, more difficulty with feelings of competency, etc. It would be interesting to compare these self perceptions with other, more objective forms of data, for example, clinicians' ratings, responses to specific tasks to assess competency and tolerance for frustration, and so forth. This might reveal whether bulimics, in fact, are more ineffective or, perhaps, that they are reasonably competent but that their expectations for competency are unreasonable.

An additional criticism is having the bulimics assess their own height, weight, body frame, past anorectic-like behavior, present bulimic behavior, and so forth. Accordingly, several restrictions of the findings must be made. Obviously the data is limited to
those bulimics who report engaging in the binge/purge cycle at least once per week. Given the secretiveness of this syndrome (Herzog, 1982) these results are also best limited to those bulimics who are in treatment but whose bulimia is still problematic. In addition, while more accurate measures are possible on the objective data (e.g., getting physical measurements for the weight and build) others pose special difficulties. For instance, the topic of body image disturbance among anorectic groups is a well researched phenomenon (Klesges, 1984) and this has yielded inconsistent and equivocal results. Whether a similar deficit exists in a bulimic group is another area for future research and is past the scope of this project. Nevertheless, these findings are also limited to those who report past anorectic-like behavior as defined by a prior, intentional weight loss of at least 15% below normal body weight. The validity of this last aspect is certainly not easy to verify and likely represents the most suspect aspect of this research.

A possible limitation of the present study is that the bulimic subjects came from different geographical locations (southwest and northeast). However, a MANCOVA procedure did not find any significant differences due to geographic location. Also, given the vastly greater mobility of present day society and the specific trend
to migrate from the cities in the north to the areas in the Sunbelt, such as Texas, it is quite possible that many of the residents in the Sunbelt today are recent immigrants from other parts of the U.S. Also, it is likely that the salient factor is not geographical location but such variables as age, SES, educational level, response set, and so forth, whose effects were controlled for in the research design. Lastly, although done before the discovery of bulimia, a review of research with the MMPI (Dahlstrom, Welsch, & Dahlstrom, 1975) concluded that various forms of psychopathology in different geographical locations in the U.S. differed little in kind or form.

All the bulimics were involved in some sort of supportive or therapeutic treatment at the time they filled out the research instruments, while none of the control subjects were involved in therapy. Thus, it is not possible to be certain that the factor of participation in treatment did not account for the differences between the bulimic groups and control groups. This adds another potential confound to consider. The variability in length of treatment was not included in the analysis. However, it is well to point out that all bulimic subjects did meet the criteria for present difficulty regardless of length of participation in treatment. In other words, the
disordered patterns of eating were still an issue at the time of testing. Further, while it is possible that length of time in treatment may have had an effect, it is more likely that the key factor is effectiveness and not mere length of treatment. The variability of effectiveness of different treatment modalities lies outside the domain of this paper.

All in all, assuming that these self reports were fairly indicative of their clinical status, could other factors have accounted for the presence of these clinical symptoms and other indices of psychopathology? It is doubtful that a weight problem itself accounts for these findings for two reasons. First, bulimics generally are usually at or near normal weight. Second, the CAW group, which was significantly heavier than the other three groups, still was relatively similar to the Control group (only four of the 17 variables were significantly different) indicating a relative absence of underlying psychopathology and associated clinical symptomatology when compared with the bulimic groups.

One must next ask whether the disordered eating pattern itself could account for all these symptoms and indices of pathology, that is, are these the result of the disordered patterns of eating and not the other way around? As this study is correlational in nature the answer is yes it is possible. Only a cohort sequential
study comparing a group previously identified as high risk for developing bulimia with a normal group thought to be low risk for developing bulimia can even begin to address this possibility. Also, the fact that much of the theory deals with speculations regarding internal representations about interactional patterns limits the likelihood of assessing these notions at present with any degree of substantial validity. This should not be considered necessarily a criticism of psychodynamic, object relations theory but, rather, a reflection of the complexity of early human development the theories hope to address and the relative difficulty of validly assessing these factors with current research methodology. However, the fact that psychodynamic theory has remained popular over the years and has also flourished recently with the incorporation of the object relations literature is undoubtedly a tribute to the clinical utility of these theories. As such, these theoretical speculations will continue to remain popular in assisting conceptualizations of clinical phenomenon as the sophistication of research methodology advances to be able to more accurately assess these notions.

Suggestions for Future Research

The results of the present research support both research hypotheses. Bulimics were found to evidence underlying psychopathology and associated clinical
symptomatology when compared with: (a) a group significantly concerned about their weight but who do not engage in bulimic behaviors and (b) a nonbulimic, nonclinical sample. Further, bulimics with a prior history of anorectic-like behavior manifested even more psychopathology and associated clinical symptomatology when compared with bulimics with no such history.

As the object relations literature suggests, the issues that the bulimic is expected to be struggling with would likely represent a "borderline" level of personality formation. The type of research instruments used in the present study may lack the sensitivity to assess differences in this type of character pathology. The hallmark performance of a person manifesting borderline character formation on psychological testing is relatively intact performance on more objective measures of personality but quite impaired performance on unstructured tests of personality (Kwawer, Lerner, Lerner, Sugarman, 1980). It is quite possible that a comparison of these two groups with unstructured tasks (e.g., the Rorschach) as well as more structured tests might be better suited to more fully elaborate on these hypothesized differences. These tests are generally considered to be less suited to more nomothetic usage and usually not considered in more rigorous research projects. Hopefully recent advances with these types of
instruments (e.g., the refinement of the Exner System, Exner, 1973) will increase the suitability of these instruments for inclusion in research while compromising little in terms of their idiographic power.

Another fruitful area of inquiry is why in the population of those with eating disorders, some remain anorectic, others become bulimic, and still others never develop anorexia nervosa but instead become bulimic. A preliminary theoretical investigation of the various pathways of those with an eating disorder has been attempted but this did not consider the heretofore postulated subgroups of bulimia.

The results of the present study have implications for those in psychotherapeutic treatment for bulimia. First, a consult with a psychiatrist for anti-depressant medication may be appropriate for those bulimics with a prior history of anorectic-like behavior due to the increased depressive symptomatology found in this subgroup. Also, bulimics without such a history and with apparently less pathology than the former group may be considered as more suitable candidates for group therapy. In other words, those bulimics with a prior history of anorectic-like behavior may need more indepth support and attention that is more generally available via individual treatment.
Lastly, much of object relations theory involves speculation as to the internalization of past interactional phenomenon within the family which are very difficult to validly address. Future research should begin to look at present interactional patterns within the families of bulimics. Research utilizing instruments designed to examine interactional patterns (e.g., FIRO-B, Ryan, 1977) both for the bulimic as well as for her family would facilitate the understanding of how the bulimic operates within the context of the family. Also, much of the conceptualizations within the psychodynamic and object relations theories implicate the role of the PCG (usually the mother). Attention should also be directed toward the role of the non-PCG (usually the father). It is possible that the key factor may not be a maladaptive patterning with the PCG but the relative inability (or unwillingness) of the non-PCG to ameliorate these difficulties. It may be that much of the overt hostility and frustration directed toward the mother (PCG) seen in the treatment of the bulimic and not the father (non-PCG) is because the mother may be seen as better able to tolerate this onslaught. On the other hand, the bulimic may see the father as less able to tolerate the direct expression of such conflicts within the family. In any event, the role of the non-PCG must be examined further,
particularly as it is usually vividly evident that one area of difficulty for the bulimic is that of heterosexual relationships (Roy-Bryne, Brener, & Yaeger, 1984).

**Summary**

The results of this study support both research hypotheses. Various indices of underlying psychopathology and associated clinical symptomatology, as predicted from psychodynamic and object relations theories, were found to be significantly different for the bulimic groups when compared with weight concerned and normal control groups. Bulimics with and without a prior history of anorectic-like behavior were further differentiated by many of these same variables. A progression of psychopathology and associated clinical symptomatology was revealed. In order of decreasing psychopathology and clinical symptomatology were bulimics with a prior history of anorectic-like behavior who were followed by those bulimics with no such history who were then followed by those concerned about their weight, and finally, by nonclinical, nonbulimic subjects. While caution must be exercised in considering these results as a validation of these theories, the results were found to be generally consistent with extrapolations from psychodynamic and object relations theories regarding the development of bulimia.
Appendix A

DSM-III Diagnostic Criteria

**Anorexia Nervosa**

A. Intense fear of becoming obese, which does not diminish as weight loss progresses.

B. Disturbance of body image, e.g., claiming to "feel fat" even when emaciated.

C. Weight loss of at least 25% of original body weight or, if under eighteen years of age, weight loss from original body weight plus projected weight gain from growth charts, may be combined to make the 25%.

D. Refusal to maintain body weight over a minimal normal weight for age and height.

E. No known physical illness that would account for the weight loss.

**Bulimia**

A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time, usually less than two hours).

B. At least three of the following:

1. consumption of high caloric, easily ingested food during a binge
2. inconspicuous eating during a binge
3. termination of such eating episodes by abdominal pain, social interruption, or self induced vomiting
4. repeated attempts to lose weight by severely restrictive diets, self induced vomiting, or the use of cathartics or diuretics
5. frequent weight fluctuations greater than ten pounds due to alternating binges and fasts.

C. Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily.

D. Depressed mood and self-deprecating thoughts following eating binges.

E. The bulimic episodes are not due to Anorexia Nervosa or any other physical disorder.
Appendix B
Eating Disorders Inventory

Name: ____________________________ Date: ____________________________
Age: ____________________________

Present Weight: ____________ Height: ____________ Sex: ____________

Highest Past Weight (excluding pregnancy) ____________ lbs.
   How long ago ____________________________ mos.
   How long did you weigh this? ____________________________ mos.

Have you ever felt you were anorectic (intentional dieting below normal weight while still feeling you were fat)? Please explain.

_________________________________________________________________________________
_________________________________________________________________________________

Were you ever diagnosed or treated by a psychologist or other mental health worker for Anorexia Nervosa? Please explain.

_________________________________________________________________________________
_________________________________________________________________________________

Lowest Past Adult Weight: ____________________________ lbs.
   How long did you weigh this? ____________________________ mos.

What Do You Consider Your Ideal Weight To Be? ____________ lbs.

Do You Have a Small, Medium, or Large Body Frame? (please circle)

Age at Which Weight Problem Began (if any) ____________

Father's Occupation: ____________________________

Mother's Occupation: ____________________________
Appendix B--Continued

Instructions:
This is a scale which measures a variety of attitudes, feelings, and behaviors. Some of the items relate to food and eating. Others ask you about your feelings about yourself THERE ARE NO RIGHT OR WRONG ANSWERS SO TRY VERY HARD TO BE COMPLETELY HONEST IN YOUR ANSWERS. RESULTS ARE COMPLETELY CONFIDENTIAL. Read each question carefully and place an (X) under the column which best applies to you.

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

49. If I gain a pound, I worry that I will keep gaining.

50. I feel that I am a worthwhile person.

51. When I am upset, I don't know if I am sad, frightened, or angry.

52. I feel that I must do things perfectly or not do them at all.

53. I have thought of trying to vomit in order to lose weight.

54. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).

56. I feel empty inside (emotionally).

57. I can talk about personal matters.

58. The best years of your life are when you become an adult.

59. I think my buttocks are too large.

60. I have feelings I can't quite identify.

61. I eat or drink in secrecy.

62. I think that my hips are just the right size.

63. I have extremely high goals.

64. When I am upset, I worry that I will start eating.
Appendix C

Binge Scale Questionnaire

1. How often do you binge eat (rapid consumption of a large amount of food in a short period of time?)
   a. seldom  
   b. once or twice a month  
   c. almost every week  
   d. almost every day.

2. What is the average length of a binge eating episode?
   a. less than 15 minutes  
   b. 15 minutes to one hour  
   c. one hour to two hours  
   d. more than four hours.

3. Which of the following statements best applies to your binge eating?
   a. I eat until I have had enough to satisfy me,  
   b. I eat until my stomach feels full.  
   c. I eat until my stomach is painfully full.  
   d. I eat until I can't possibly eat any more.

4. Do you ever vomit after a binge?
   a. never  
   b. sometimes  
   c. usually  
   d. always.

5. Do you ever use laxatives or other cathartics or go directly to bed following a binge?
   a. never  
   b. sometimes  
   c. usually  
   d. always

6. Which of the following best applies to your eating behavior when binge eating?
   a. I eat more slowly than usual.
   b. I eat about the same as I usually do.
   c. I eat very rapidly.

7. How much are you concerned about your binge eating?
   a. not bothered at all  
   b. bothers me a little  
   c. moderately concerned  
   d. a major concern

8. Which best describes your feelings during a binge?
   a. not bothered at all  
   b. I feel that I have some control.  
   c. I feel completely out of control

9. Which of the following describes your feelings after a binge?
   a. I feel fairly neutral, not too concerned.
   b. I am moderately upset.
   c. I hate myself.

10. Which most accurately describes your feelings after a binge?
    a. not depressed at all  
    b. mildly depressed  
    c. moderately depressed  
    d. very depressed.
Appendix D

Marlowe Crowne Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

1. Before voting I thoroughly investigate the qualifications of all the candidates.
   TRUE   FALSE

2. I never hesitate to go out of my way to help someone in trouble.
   TRUE   FALSE

3. It is sometimes hard for me to go on with my work if I am not encouraged.
   TRUE   FALSE

4. I have never intensely disliked someone.
   TRUE   FALSE

5. On occasions I have had doubts about my ability to succeed in life.
   TRUE   FALSE

6. I sometimes feel resentful when I don't get my way.
   TRUE   FALSE

7. I am always careful about my manner of dress.
   TRUE   FALSE

8. My table manners at home are about as good when I eat out in a restaurant.
   TRUE   FALSE

9. If I could get into a movie without paying and be sure I was not seen I'd probably do it.
   TRUE   FALSE

10. On a few occasions, I have given up because doing something because I thought too little of my abilities.
    TRUE   FALSE

11. I like to gossip at times.
    TRUE   FALSE

12. There have been times when I felt like rebelling against people in authority even when I knew they were right.
    TRUE   FALSE

13. No matter who I am talking to, I am always a good listener.
    TRUE   FALSE

14. I can remember "playing sick" to get out of something.
    TRUE   FALSE

15. There have been occasions when I took advantage of someone.
    TRUE   FALSE

16. I am always willing to admit it when I make a mistake.
    TRUE   FALSE

17. I always try to practice what I preach.
    TRUE   FALSE
Appendix D--Continued

18. I don't find it particularly difficult to get along with loud mouthed obnoxious people.
   TRUE   FALSE

19. I sometimes try to get even rather than forgive and forget.
   TRUE   FALSE

20. When I don't know something I don't at all mind admitting it.
   TRUE   FALSE

21. I am always courteous, even to people who are disagreeable.
   TRUE   FALSE

22. At times I have really insisted on having things my own way.
   TRUE   FALSE

23. There have been occasions when I have felt like smashing things.
   TRUE   FALSE

24. I would never think of letting anyone else be punished for my wrongdoings.
   TRUE   FALSE

25. I never resent being asked to return a favor.
   TRUE   FALSE

26. I have never been irked when people expressed ideas very different from my own.
   TRUE   FALSE

27. I never make a long trip without checking the safety of my car.
   TRUE   FALSE

28. There have been times when I have been quite jealous of the good fortune of others.
   TRUE   FALSE

29. I have almost never felt the urge to tell someone off.
   TRUE   FALSE

30. I am sometimes irritated by people who ask favors of me.
   TRUE   FALSE

31. I have never felt that I was punished without cause.
   TRUE   FALSE

32. I sometimes think when people have a misfortune they only got what they deserved.
   TRUE   FALSE

33. I have never deliberately said something that hurt someone's feelings.
   TRUE   FALSE
Appendix E

Levenson's Locus of Control Scale

Instructions: Answer these questions as they apply to you.

1. Whether or not I get to be a leader depends mostly on my ability.
2. To a great extent my life is controlled by accidental happenings.
3. I feel like what happens in my life is mostly determined by powerful people.
4. Whether or not I get into a car accident is mostly a matter of luck.
5. When I make plans, I am almost certain to make them work.
6. Often there is no chance of protecting my personal interest from bad luck happenings.
7. When I get what I want, it is usually because I am lucky.
8. Although I might have good ability, I will not be given leadership without appealing to those in power.
9. How many friends I have depends on how nice a person I am.
10. I have often found that what is going to happen will happen.
11. My life is chiefly controlled by powerful others.
12. Whether or not I get into a car accident is mostly a matter of luck.
Appendix E--Continued

13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.

14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

15. Getting what I want requires pleasing those people above me.

16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.

17. If important people were to decide they didn't like me, I probably wouldn't make many friends.

18. I can pretty much determine what will happen in my life.

19. I am usually able to protect my personal interests.

20. Whether or not I get into a car accident depends mostly on the other driver.

21. When I get what I want, it's usually because I have worked hard for it.

22. In order to have my plans work, I make sure they fit in with the desires of people who have power over me.

23. My life is determined by my own actions.

24. It's chiefly a matter of fate whether or not I a few friends or many friends.
Appendix F

Background Data Sheet

Instructions: Please circle the appropriate response.

1. How concerned are you about your weight?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>extremely concerned</td>
<td>not concerned at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Circle the last year of formal education you have completed.

<table>
<thead>
<tr>
<th>high school</th>
<th>undergraduate</th>
<th>graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>freshman</td>
<td>masters</td>
</tr>
<tr>
<td>10</td>
<td>sophomore</td>
<td>doctorate</td>
</tr>
<tr>
<td>11</td>
<td>junior</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>senior</td>
<td></td>
</tr>
</tbody>
</table>

3. Mark the category which best reflects your socioeconomic background.

- lower
- lower middle
- middle
- upper middle
- upper

4. Have you ever received psychological treatment for an emotional disorder? YES NO

If YES please list length of treatment.

5. Are you presently involved in psychological treatment for an emotional disorder? YES NO

If YES, how long have you been in treatment?

If YES, please indicate frequency of appointments.

- monthly
- bimonthly
- weekly
- other (please list)
Appendix G

Method of Determining Presence of Bulimia

1. Presence of binge eating
   BSQ, question #1 (response c or d)

2. Evidence of purging
   BSQ, question #4 (response c or d), or
   BSQ, question #5 (response c or d)

3. Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily
   EDI, question #28 (check often, usually, or always)
   BSQ, question #7 (response c or d)

4. Presence of self deprecating thoughts, depressed mood following a binge
   BSQ, question #9 (response b or c), or
   BSQ, question #10 (response c or d)

5. Rule out presence of AN through a determination of normal weight for height and build
   EDI face sheet
Appendix H
Informed Consent

August 8, 1983

Dear Participant:

This packet contains several questionnaires as part of my doctoral dissertation. The questionnaires deal with personality characteristics and eating behaviors. All responses will be kept confidential. The total time needed to fill out these questionnaires will be approximately three hours. Please answer each question carefully but try not to dwell on any one question. After completing the questionnaires, please return them in the stamped envelope provided unless other arrangements have been made. If you desire a copy of the overall results and major aims of the research project after the completion of the study, please print your address below:

_________________________

_________________________

_________________________

Your participation is greatly appreciated.

Thank you,

Jan David Segal
Principal Investigator

Note: If you are in some form of psychological treatment for an eating disorder and would like a copy of your individual test results furnished to your counselor or therapist, please circle the appropriate response, sign your name, and leave an address with which to send the results.

_____Yes       _____No

_________________________

name

address to send results
Appendix I

Table 2

Analyses of Variance of Covariates Across All Groups

<table>
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<tr>
<th>Source</th>
<th>Mean Square</th>
<th>F (3,71)</th>
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</thead>
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<td>Age</td>
<td>146.149</td>
<td>6.77**</td>
</tr>
<tr>
<td>Error CAW* FAB** NAB** Control**</td>
<td>21.57</td>
<td></td>
</tr>
<tr>
<td>Deviance from normal weight</td>
<td>1925.813</td>
<td>15.29**</td>
</tr>
<tr>
<td>Error CAW* FAB** NAB** Control**</td>
<td>125.95</td>
<td></td>
</tr>
<tr>
<td>Education</td>
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<td>0.278</td>
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<tr>
<td>Error</td>
<td>3.96</td>
<td></td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>1.524</td>
<td>3.11*</td>
</tr>
<tr>
<td>Error CAW* FAB** NAB** Control**</td>
<td>0.49</td>
<td></td>
</tr>
<tr>
<td>Social Desirability</td>
<td>31.569</td>
<td>0.8193</td>
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<tr>
<td>Error</td>
<td>38.532</td>
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</tr>
</tbody>
</table>

Note. All groups with different numbers of asterisks were found to be significantly different using Newman-Keuls (p < .05), * indicates p < .05, ** indicates p < .001.
Appendix J

Table 3

Descriptive Data of Binge Behavior Across All Groups

<table>
<thead>
<tr>
<th>Question</th>
<th>FAB</th>
<th>NAB</th>
<th>CAW</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Frequency of binge behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>seldom</td>
<td>00%</td>
<td>00%</td>
<td>47%</td>
<td>75%</td>
</tr>
<tr>
<td>once or twice a month</td>
<td>00%</td>
<td>00%</td>
<td>32%</td>
<td>20%</td>
</tr>
<tr>
<td>almost every week</td>
<td>56%</td>
<td>61%</td>
<td>21%</td>
<td>05%</td>
</tr>
<tr>
<td>almost every day</td>
<td>44%</td>
<td>39%</td>
<td>00%</td>
<td>00%</td>
</tr>
<tr>
<td>2. Length of binge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than 15 minutes</td>
<td>17%</td>
<td>06%</td>
<td>42%</td>
<td>75%</td>
</tr>
<tr>
<td>15 to 60 minutes</td>
<td>39%</td>
<td>67%</td>
<td>32%</td>
<td>20%</td>
</tr>
<tr>
<td>one to two hours</td>
<td>39%</td>
<td>11%</td>
<td>21%</td>
<td>05%</td>
</tr>
<tr>
<td>more than four hours</td>
<td>06%</td>
<td>17%</td>
<td>05%</td>
<td>00%</td>
</tr>
<tr>
<td>3. Cues to end eating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>until satisfied</td>
<td>17%</td>
<td>06%</td>
<td>47%</td>
<td>65%</td>
</tr>
<tr>
<td>stomach feels full</td>
<td>11%</td>
<td>11%</td>
<td>37%</td>
<td>35%</td>
</tr>
<tr>
<td>stomach painfully full</td>
<td>33%</td>
<td>50%</td>
<td>11%</td>
<td>00%</td>
</tr>
<tr>
<td>can't possibly eat more</td>
<td>39%</td>
<td>33%</td>
<td>05%</td>
<td>00%</td>
</tr>
<tr>
<td>4. Vomit afterwards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>never</td>
<td>11%</td>
<td>17%</td>
<td>100%</td>
<td>90%</td>
</tr>
<tr>
<td>sometimes</td>
<td>06%</td>
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<td>00%</td>
<td>10%</td>
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<tr>
<td>usually</td>
<td>78%</td>
<td>33%</td>
<td>00%</td>
<td>00%</td>
</tr>
<tr>
<td>always</td>
<td>06%</td>
<td>44%</td>
<td>00%</td>
<td>00%</td>
</tr>
<tr>
<td>5. Laxative or cathartic abuse or sleep</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>afterwards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>never</td>
<td>39%</td>
<td>44%</td>
<td>74%</td>
<td>85%</td>
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<tr>
<td>sometimes</td>
<td>39%</td>
<td>39%</td>
<td>26%</td>
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<tr>
<td>usually</td>
<td>17%</td>
<td>11%</td>
<td>00%</td>
<td>00%</td>
</tr>
<tr>
<td>always</td>
<td>06%</td>
<td>06%</td>
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<td>00%</td>
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### Appendix J—Continued

<table>
<thead>
<tr>
<th>Question</th>
<th>FAB</th>
<th>NAB</th>
<th>CAW</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6. Eating behavior during a binge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>slower than usual</td>
<td>00%</td>
<td>00%</td>
<td>00%</td>
<td>00%</td>
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<tr>
<td>about the same</td>
<td>11%</td>
<td>11%</td>
<td>32%</td>
<td>75%</td>
</tr>
<tr>
<td>very rapidly</td>
<td>89%</td>
<td>89%</td>
<td>68%</td>
<td>25%</td>
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<tr>
<td><strong>7. Concern about binge eating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not bothered at all</td>
<td>00%</td>
<td>00%</td>
<td>00%</td>
<td>70%</td>
</tr>
<tr>
<td>bothered a little</td>
<td>00%</td>
<td>06%</td>
<td>00%</td>
<td>25%</td>
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<tr>
<td>moderately concerned</td>
<td>00%</td>
<td>06%</td>
<td>32%</td>
<td>00%</td>
</tr>
<tr>
<td>a major concern</td>
<td>100%</td>
<td>88%</td>
<td>68%</td>
<td>05%</td>
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<tr>
<td><strong>8. Feelings during a binge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not bothered at all</td>
<td>06%</td>
<td>06%</td>
<td>11%</td>
<td>45%</td>
</tr>
<tr>
<td>feel some control</td>
<td>11%</td>
<td>17%</td>
<td>53%</td>
<td>55%</td>
</tr>
<tr>
<td>feel no control at all</td>
<td>83%</td>
<td>78%</td>
<td>37%</td>
<td>00%</td>
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<tr>
<td><strong>9. Feelings after a binge</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>neutral/unconcerned</td>
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<td>11%</td>
<td>16%</td>
<td>70%</td>
</tr>
<tr>
<td>moderately upset</td>
<td>11%</td>
<td>28%</td>
<td>47%</td>
<td>30%</td>
</tr>
<tr>
<td>hate myself</td>
<td>88%</td>
<td>61%</td>
<td>37%</td>
<td>00%</td>
</tr>
<tr>
<td><strong>10. Feelings after a binge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not depressed</td>
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<td>00%</td>
<td>05%</td>
<td>55%</td>
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<tr>
<td>mildly depressed</td>
<td>06%</td>
<td>06%</td>
<td>26%</td>
<td>30%</td>
</tr>
<tr>
<td>moderately depressed</td>
<td>39%</td>
<td>50%</td>
<td>42%</td>
<td>15%</td>
</tr>
<tr>
<td>very depressed</td>
<td>56%</td>
<td>44%</td>
<td>26%</td>
<td>00%</td>
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</table>

**Note.** FAB, n = 18; NAB, n = 18; CAW, n = 19; Control, n = 20.
## Appendix K

### Table 4

Means and Standard Deviations Across Groups on All Dependent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Adjusted Mean</th>
<th>Standard Deviation</th>
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<tr>
<td><strong>Interoceptive Awareness</strong></td>
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<tr>
<td>FAB</td>
<td>13.94</td>
<td>20.95</td>
<td>5.80</td>
</tr>
<tr>
<td>NAB</td>
<td>9.22</td>
<td>11.88</td>
<td>7.17</td>
</tr>
<tr>
<td>CAW</td>
<td>2.11</td>
<td>-1.58</td>
<td>2.11</td>
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<tr>
<td>Control</td>
<td>1.75</td>
<td>-3.64</td>
<td>1.77</td>
</tr>
<tr>
<td><strong>Ineffectiveness</strong></td>
<td></td>
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<tr>
<td>FAB</td>
<td>14.17</td>
<td>21.39</td>
<td>7.51</td>
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<td>NAB</td>
<td>8.72</td>
<td>11.21</td>
<td>6.28</td>
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<td>CAW</td>
<td>1.58</td>
<td>-2.39</td>
<td>2.71</td>
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<tr>
<td>Control</td>
<td>0.65</td>
<td>-4.31</td>
<td>1.09</td>
</tr>
<tr>
<td><strong>Internal Control</strong></td>
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<tr>
<td>FAB</td>
<td>30.00</td>
<td>27.92</td>
<td>3.27</td>
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<tr>
<td>NAB</td>
<td>32.83</td>
<td>32.59</td>
<td>5.94</td>
</tr>
<tr>
<td>CAW</td>
<td>34.26</td>
<td>35.89</td>
<td>3.72</td>
</tr>
<tr>
<td>Control</td>
<td>34.00</td>
<td>34.54</td>
<td>4.44</td>
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<td><strong>Powerful Others</strong></td>
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<td></td>
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<tr>
<td>FAB</td>
<td>24.56</td>
<td>23.79</td>
<td>8.09</td>
</tr>
<tr>
<td>NAB</td>
<td>25.89</td>
<td>27.12</td>
<td>5.72</td>
</tr>
<tr>
<td>CAW</td>
<td>23.11</td>
<td>24.44</td>
<td>4.50</td>
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<tr>
<td>Control</td>
<td>23.40</td>
<td>21.72</td>
<td>4.33</td>
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<tr>
<td><strong>Chance</strong></td>
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<tr>
<td>FAB</td>
<td>22.61</td>
<td>22.99</td>
<td>6.12</td>
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<td>23.17</td>
<td>23.88</td>
<td>3.59</td>
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<td>20.98</td>
<td>5.10</td>
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<td>Control</td>
<td>21.85</td>
<td>20.88</td>
<td>3.59</td>
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<td><strong>Ego Strength</strong></td>
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<td>39.67</td>
<td>31.22</td>
<td>9.00</td>
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<td>NAB</td>
<td>46.00</td>
<td>43.15</td>
<td>9.44</td>
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<tr>
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<td>52.53</td>
<td>55.35</td>
<td>7.93</td>
</tr>
<tr>
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<td>56.35</td>
<td>63.84</td>
<td>10.51</td>
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### Appendix K—Continued

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<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Adjusted Mean</th>
<th>Standard Deviation</th>
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<tbody>
<tr>
<td><strong>Depression (2)</strong></td>
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<td>74.61</td>
<td>86.26</td>
<td>10.15</td>
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<td>67.72</td>
<td>73.75</td>
<td>12.62</td>
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<td>54.47</td>
<td>46.73</td>
<td>12.34</td>
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<td>Control</td>
<td>51.50</td>
<td>42.95</td>
<td>10.02</td>
</tr>
<tr>
<td><strong>Subjective Depression</strong></td>
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</tr>
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<td>FAB</td>
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<td>80.00</td>
<td>11.04</td>
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<td>69.92</td>
<td>14.72</td>
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<td>CAW</td>
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<td>43.07</td>
<td>11.96</td>
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<tr>
<td>Control</td>
<td>46.35</td>
<td>37.05</td>
<td>8.36</td>
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<tr>
<td><strong>Brooding</strong></td>
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<td>73.50</td>
<td>11.70</td>
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<td>63.33</td>
<td>71.12</td>
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<td>CAW</td>
<td>49.16</td>
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<td>9.61</td>
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<td>Control</td>
<td>45.80</td>
<td>37.96</td>
<td>8.76</td>
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<td><strong>Psychopathic Deviate (4)</strong></td>
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<tr>
<td>FAB</td>
<td>76.72</td>
<td>89.15</td>
<td>12.00</td>
</tr>
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<td>NAB</td>
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<tr>
<td>CAW</td>
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<td>51.45</td>
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<td>Control</td>
<td>53.00</td>
<td>43.48</td>
<td>5.86</td>
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<td><strong>Familial Discord</strong></td>
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<td>FAB</td>
<td>67.78</td>
<td>73.12</td>
<td>15.69</td>
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<tr>
<td>NAB</td>
<td>61.89</td>
<td>63.39</td>
<td>14.93</td>
</tr>
<tr>
<td>CAW</td>
<td>56.00</td>
<td>51.22</td>
<td>13.78</td>
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<td>Control</td>
<td>58.50</td>
<td>56.59</td>
<td>9.20</td>
</tr>
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<td><strong>Self Alienation</strong></td>
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<td>FAB</td>
<td>71.67</td>
<td>82.56</td>
<td>11.26</td>
</tr>
<tr>
<td>NAB</td>
<td>64.89</td>
<td>70.88</td>
<td>9.81</td>
</tr>
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<td>51.84</td>
<td>46.87</td>
<td>7.32</td>
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<td>37.14</td>
<td>6.36</td>
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<td><strong>Psychasthenia (7)</strong></td>
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<td>90.07</td>
<td>9.61</td>
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<td>53.84</td>
<td>44.44</td>
<td>9.31</td>
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<td>6.86</td>
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<td>Standard Deviation</td>
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<td>--------</td>
<td>---------------</td>
<td>--------------------</td>
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<tr>
<td><strong>Schizophrenia (8)</strong></td>
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<td></td>
</tr>
<tr>
<td>FAB</td>
<td>76.78</td>
<td>87.88</td>
<td>11.80</td>
</tr>
<tr>
<td>NAB</td>
<td>67.22</td>
<td>71.22</td>
<td>16.14</td>
</tr>
<tr>
<td>CAW</td>
<td>55.16</td>
<td>46.16</td>
<td>8.77</td>
</tr>
<tr>
<td>Control</td>
<td>56.90</td>
<td>51.85</td>
<td>13.43</td>
</tr>
<tr>
<td><strong>Emotional Alienation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAB</td>
<td>61.39</td>
<td>73.25</td>
<td>12.55</td>
</tr>
<tr>
<td>NAB</td>
<td>52.44</td>
<td>57.65</td>
<td>14.11</td>
</tr>
<tr>
<td>CAW</td>
<td>40.47</td>
<td>27.74</td>
<td>9.34</td>
</tr>
<tr>
<td>Control</td>
<td>40.90</td>
<td>37.62</td>
<td>9.69</td>
</tr>
<tr>
<td><strong>Conative Functioning</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAB</td>
<td>68.06</td>
<td>77.66</td>
<td>9.75</td>
</tr>
<tr>
<td>NAB</td>
<td>63.67</td>
<td>70.52</td>
<td>13.28</td>
</tr>
<tr>
<td>CAW</td>
<td>48.53</td>
<td>40.77</td>
<td>13.99</td>
</tr>
<tr>
<td>Control</td>
<td>48.35</td>
<td>40.91</td>
<td>8.93</td>
</tr>
<tr>
<td><strong>Defective Inhibition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAB</td>
<td>62.17</td>
<td>67.23</td>
<td>11.57</td>
</tr>
<tr>
<td>NAB</td>
<td>58.44</td>
<td>60.28</td>
<td>12.85</td>
</tr>
<tr>
<td>CAW</td>
<td>49.84</td>
<td>44.50</td>
<td>9.31</td>
</tr>
<tr>
<td>Control</td>
<td>53.50</td>
<td>51.46</td>
<td>12.42</td>
</tr>
</tbody>
</table>

*Note. FAB, n = 18; NAB, n = 18; CAW, n = 19; Control, n = 20.*
Appendix L

Table 7

Wilk's Lambda (U-statistic) and Univariate F Ratios for the Discriminant Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Wilk's lambda</th>
<th>F (2, 72)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interoceptive Awareness</td>
<td>0.449</td>
<td>44.24***</td>
</tr>
<tr>
<td>Ineffectiveness</td>
<td>0.441</td>
<td>45.59***</td>
</tr>
<tr>
<td>Internal Control</td>
<td>0.870</td>
<td>5.363**</td>
</tr>
<tr>
<td>Powerful Others</td>
<td>0.964</td>
<td>1.328</td>
</tr>
<tr>
<td>Chance</td>
<td>0.974</td>
<td>0.9722</td>
</tr>
<tr>
<td>Ego Strength</td>
<td>0.679</td>
<td>17.07***</td>
</tr>
<tr>
<td>Depression (2)</td>
<td>0.581</td>
<td>25.99***</td>
</tr>
<tr>
<td>Subjective Depression</td>
<td>0.589</td>
<td>25.11***</td>
</tr>
<tr>
<td>Brooding</td>
<td>0.618</td>
<td>22.30***</td>
</tr>
<tr>
<td>Psychopathic Deviate (4)</td>
<td>0.544</td>
<td>30.21***</td>
</tr>
<tr>
<td>Familial Discord</td>
<td>0.904</td>
<td>3.806*</td>
</tr>
<tr>
<td>Self Alienation</td>
<td>0.437</td>
<td>46.40***</td>
</tr>
<tr>
<td>Psychasthenia (7)</td>
<td>0.428</td>
<td>48.11***</td>
</tr>
<tr>
<td>Schizophrenia (8)</td>
<td>0.676</td>
<td>17.27***</td>
</tr>
<tr>
<td>Emotional Alienation</td>
<td>0.625</td>
<td>21.59***</td>
</tr>
<tr>
<td>Conative Functioning</td>
<td>0.622</td>
<td>21.85***</td>
</tr>
<tr>
<td>Defective Inhibition</td>
<td>0.866</td>
<td>5.583**</td>
</tr>
</tbody>
</table>

Note. * indicates \( p < .05 \), ** indicates \( p < .01 \), *** indicates \( p < .001 \).
Appendix M

Table 9

Percent of Correctly Classified Subjects with Discriminant Function According to Group Membership

<table>
<thead>
<tr>
<th>Actual Group</th>
<th>N</th>
<th>FAB</th>
<th></th>
<th>NAB</th>
<th></th>
<th>Control</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FAB</td>
<td>18</td>
<td>14</td>
<td>77.8%</td>
<td>4</td>
<td>22.2%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>NAB</td>
<td>18</td>
<td>1</td>
<td>5.6%</td>
<td>15</td>
<td>83.3%</td>
<td>2</td>
<td>11.1%</td>
</tr>
<tr>
<td>Control</td>
<td>39</td>
<td>0</td>
<td>0.0%</td>
<td>3</td>
<td>7.7%</td>
<td>36</td>
<td>92.3%</td>
</tr>
</tbody>
</table>
Appendix N

Table 10

Weightings for the Variables in the Discriminant Function

<table>
<thead>
<tr>
<th>Variable</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychasthenia</td>
<td>0.56125</td>
</tr>
<tr>
<td>Interoceptive Awareness</td>
<td>0.64076</td>
</tr>
<tr>
<td>Self Alienation</td>
<td>0.54293</td>
</tr>
<tr>
<td>Powerful Others</td>
<td>-0.34391</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>-0.59684</td>
</tr>
<tr>
<td>Brooding</td>
<td>-0.28030</td>
</tr>
<tr>
<td>Internal Control</td>
<td>-0.04507</td>
</tr>
<tr>
<td>Psychopathic Deviate</td>
<td>0.41329</td>
</tr>
<tr>
<td>Ego Strength</td>
<td>0.10629</td>
</tr>
<tr>
<td>Emotional Alienation</td>
<td>0.38885</td>
</tr>
<tr>
<td>Familial Discord</td>
<td>-0.27178</td>
</tr>
</tbody>
</table>
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