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Representations of the self in the eating disorders: A comparison of anorexia nervosa, bulimia nervosa, and social phobia

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University of Hawaii, 1993
REPRESENTATIONS OF THE SELF
IN THE EATING DISORDERS:
A COMPARISON OF ANOREXIA NERVOSA,
BULIMIA NERVOSA, AND SOCIAL PHOBIA

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ABSTRACT

In an investigation of representations of the self in the eating disorders, anorexics ($n = 18$) and bulimics ($n = 15$) were compared to social phobics ($n = 16$) and normal controls ($n = 18$) on several cognitive assessment measures. The guiding proposition of the study was that eating-disordered individuals are characterized by an underlying view of the self as inadequate and vulnerable to negative evaluation by others. These general concerns are channeled into an intense focus on weight and shape in anorexia nervosa and bulimia nervosa, but persist as the core sense of self.

It was hypothesized that on measures assessing aspects of self-representation reflecting a diffuse sense of personal inadequacy and concerns about evaluation, anorexics and bulimics would appear similar to a comparison group of generalized social phobics and dissimilar to normal controls. As predicted, on a modified Stroop task eating-disordered subjects and social phobics exhibited a selective processing of stimuli reflecting inadequacy and negative evaluation, suggesting anxiety and conflict related to those issues. Normal control subjects did not evidence selective processing of such material. Anorexics, bulimics, and social phobics also reported greater expectations of interpersonal failure, stronger anticipated
negative affect associated with interpersonal failure, greater frequency of social anxiety and avoidance, and higher levels of negative aspects of perfectionism, relative to normal controls.

Eating-disordered subjects were expected to differ from both social phobics and normal controls on measures reflecting weight preoccupation. As hypothesized, anorexics and bulimics demonstrated a selective processing of body weight- and shape-related Stroop stimuli not exhibited by non-eating-disordered subjects. Additionally, they more strongly endorsed weight-related attributions for interpersonal failure and success, and weight-related explanations for social anxiety and avoidance, relative to social phobics and normal controls.

The results of the study were generally consistent with a theoretical model of the eating disorders which implicates both weight-related self-schemata and self-schemata reflecting a generalized sense of inadequacy. Implications of the findings for the treatment of anorexia nervosa and bulimia nervosa, as well as for future research in the area, are discussed.
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CHAPTER I

Introduction

Among the most distinctive cognitive features of the eating disorders are the intense focus on and preoccupation with weight and the use of weight and shape as the primary referents for both self-evaluation and expectation of evaluation by others. Such extreme representations of the self in terms of weight must develop within the context of a more general view of the self. It is proposed that the eating-disordered individual's pathological focus on weight is superimposed upon an underlying view of the self as inadequate and unacceptable, both to herself and to others.

The present research project was designed to investigate aspects of the underlying view of the self in anorexia nervosa and bulimia nervosa, and to explore the "channeling" of those more general concerns into the focus on weight and shape characteristic of the eating disorders. Before discussing the research strategy utilized in this investigation, findings bearing upon representations of the self in psychological disorders, and more specifically in the eating disorders, will be reviewed.

Representations of the Self in Psychological Disorders

There is a growing interest among researchers and clinicians with a cognitive-behavioral orientation in the
role of conceptualizations of the self in the development and maintenance of psychological disturbances. Although psychodynamic theorists have long incorporated views of the self into their accounts of both healthy and pathological functioning, cognitive-behavioral theorists have only recently begun to focus on self processes in their models of emotional disorders (Segal & Kendall, 1990). This relatively new emphasis on selfhood is being reflected in the appearance of theoretical papers addressing self-representations in specific disorders, as well as articles delineating procedures for testing these subtle psychological processes (see Special Issue of Cognitive Therapy and Research, 1990, on representations of the self in emotional disorders).

The prevailing view of the self-concept holds that it is a dynamic, multifaceted structure composed of a collection of conceptions of the self, or self-representations (e.g., Epstein, 1973; Greenwald & Pratkanis, 1984; Markus & Nurius, 1986; Markus & Wurf, 1987). Self-representations vary in a number of ways, including whether they are of positive or negative valence, actual or potential existence, and current, past, or future tense (Markus & Nurius, 1986). They also differ in degree of elaboration and complexity. While some conceptions of the self are relatively undifferentiated and lacking in
elaboration, others are quite complex in their cognitive, affective, and behavioral elaboration. Self-representations that are most developed and accessible are thought to have the greatest influence on the processing of information and on the regulation of behavior (Markus & Wurf, 1987).

The significant, highly accessible conceptions of the self are frequently referred to as self-schemata. Markus (1977) defines self-schemata as "cognitive generalizations about the self, derived from past experience, that organize and guide the processing of self-related information contained in the individual's social experiences" (p. 64). Turk and Salovey (1985) suggest that the organization and guidance functions of self-schemata are not limited only to social experiences, but may include any personally-relevant experiences.

The primary function of schemata is to facilitate the processing and retrieval of information (Fiske & Linville, 1980; Hope, Rapee, Heimberg, & Dombeck, 1990). Self-schemata give structure and meaning to experience, enabling the individual to deal more efficiently with large quantities of information about the self (Markus, Crane, Bernstein, & Siladi, 1982). Schemata are also associated with errors in information processing, however, due to selectivity in attention, encoding, representation, and
retrieval (Goldfried & Robins, 1983; Taylor & Crocker, 1981; Tversky & Kahneman, 1974). Informational selectivity is biased toward the confirmation of expectancies based on a particular dominant schema and the neglect of conflicting data (Goldfried & Robins, 1983; Nisbett & Ross, 1980). In emotional disorders characterized by prominent negative self-representations, such biases will serve to reinforce and affirm the negative view of the self, making change difficult (Turk & Salovey, 1985).

In investigating representations of the self it is important to consider the role of the other in their development and maintenance. Given the highly social nature of an individual's experience, the self-concept is necessarily tied to the perceptions of others, although it is likely that some self-representations are more inherently interpersonal than others (Markus, 1990). Symbolic interactionists, such as Cooley and Mead, have maintained that in actuality all self-knowledge results from interpersonal interactions (Markus & Wurf, 1987). Cooley (1902) coined the term the "looking-glass self" to describe the perception of oneself from the perspective of others. Mead (1934) later described the "generalized other," an incorporation of the opinions of others into the self-system. More recently, Weinreich, Doherty, and Harris (1985) have discussed the individual's metaperspective of
self, or "me as others see me." As Harter (1990) points out, the development of the ability to self-evaluate, both positively and negatively, must begin with the realization that others are evaluating the self.

Applying the schema construct more specifically to self-other interactions, Safran and his colleagues (Safran, Segal, Hill, & Whiffen, 1990) have presented the concept of the "interpersonal schema," a generalized representation of self-other relationships. An interpersonal schema involves implicit beliefs about and expectations of others (e.g., "people are uncaring and rejecting"), beliefs about the self (e.g., "I am unlovable"), and beliefs about what is required of the self to maintain relatedness (e.g., "I must be strong at all times") (Safran et al., 1990, 151-152). The notion of the interpersonal schema appears to be similar to, although more general than, Horowitz's (Horowitz, 1988; Horowitz, et al., 1984) concept of "role-relationship models." Horowitz describes a role-relationship model as an enduring schema of characteristics of the self, characteristics of the other, and intended or expected aims for interaction between the self and other. An individual is thought to have multiple role-relationship models, and in any particular social interaction the best-fitting schema will become the "working model" of the relationship. The working model facilitates interpretation
of the other's intentions and organizes decisions about how to respond in interactions (Horowitz, 1988). Both Safran's and Horowitz's models consist essentially of the view of the self, the view of the other, and expectations regarding interactions - three elements also basic to most object relations-oriented theories (Greenberg & Mitchell, 1983).

Given the apparent centrality of self-representations in the organization and adaptation of the individual, the trend towards incorporation of these constructs into the investigation of clinical disorders from a cognitive perspective is promising. Representations of the self, both generally and more specifically from the perspective of others ("me as I believe others see me"), as well as conceptions of self-other relationships, are all of interest in understanding emotional difficulties.

In exploring conceptions of the self in psychological disorders, researchers are drawing increasingly upon principles and methods derived from cognitive science to investigate the processing of information relevant to the self and/or to areas of conflict in individuals with particular disorders. The most extensive research of this kind has been in the areas of depression and anxiety disorders. Basing their work largely on Beck's cognitive models of depression (Beck, 1967, 1976) and anxiety (Beck & Emery, 1985), several groups of investigators have been
examining the role of negative self-schemata in these disorders (see Kendall & Ingram, 1987; Mathews & MacLeod, 1987; Ruehlman, West, & Pasahow, 1985; and Segal, 1988 for reviews). Overall, the accumulated findings lend at least partial support to Beck's proposal that the self-schemata of depressed individuals consist primarily of depressive themes, such as guilt, worthlessness, self-blame, rejection, and deprivation, whereas the self-schemata of anxious individuals are organized around themes of threat and danger of a physical and/or social nature (e.g., Bradley & Mathews, 1983; Butler & Mathews, 1983; Derry & Kuiper, 1981; Greenberg, Vazquez, & Alloy, 1988; Kuiper & MacDonald, 1982, 1983; MacLeod, Mathews, & Tata, 1986; Mathews & MacLeod, 1985; Mathews, Richards, & Eysenck, 1989; Williams, Watts, MacLeod, & Mathews, 1988). A third area in which researchers are beginning to employ information processing methods is in the investigation of self-representations in the eating disorders, to which the focus of this paper now turns.

Representations of the Self in the Eating Disorders

Certainly one of the most striking cognitive features of anorexia nervosa and bulimia nervosa is the intense preoccupation with weight and shape. Self-representations involving the view of the self in terms of weight have been referred to as "weight-related self-schemata" (Garner &
Bemis, 1985; Vitousek & Hollon, 1990). This set of self-schemata incorporates information about weight into the organization and processing of information about the self. Weight-related self-schemata are not at all unique to the eating disorders - it is likely that most people possess at least somewhat differentiated knowledge structures concerning their body weight (Markus, Hamill, & Sentis, 1987). However, these schemata are thought to be extremely well-developed and prominent in eating-disordered individuals.

Although weight-related self-schemata are assumed to be the most distinctive and salient cognitive representations of the self in the eating disorders, it is important to appreciate that these structures develop within the context of pre-existing self-representations. As Markus (1990) points out:

A critical feature in understanding why some individuals with a particular self-schema show emotional disturbances while others do not, or in determining why some individuals construct particular self-representations in the first place, may well depend on some understanding of what other self-schemas are included an individual's repertoire [sic]. In other words, what does the embedding context for a particular self-schema look like? Once a schema gains hold and becomes dominant in regulating behavior, what other schemas are available in the individual's self-concept to balance it or offset it? (p. 246).

Before discussing the development of self-representations dominated by weight in anorexia and bulimia
nervosa, the "embedding context" to which Markus (1990) refers, or the underlying "core" sense of self in these disorders will be addressed. A great deal more has been written about anorexia nervosa than bulimia nervosa. An attempt will be made in the following discussion to differentiate between the two disorders where relevant; however, because of the presumed similarities between them in the phenomena of interest (Garner & Fairburn, 1988), there will be some generalization across the two conditions. It is important to bear in mind the problems associated with retrospective accounts of aspects of the self preceding the development of symptomatology. Reconstructions of pre-morbid traits or problems subsequent to the onset of a disorder must be considered speculative, and interpreted with caution.

Underlying View of the Self in the Eating Disorders

Most cognitive theorists agree that anorexia nervosa and bulimia nervosa are heterogeneous, multidetermined disorders with no singular presentation or etiology (Garfinkel & Garner, 1982, 1983; Garner & Bemis, 1982, 1985; Yager, 1982). No distinct predisposing personality type has been demonstrated for either disorder (Strober, 1986; Yager, 1982). However, there are some general descriptions in the literature of the underlying view of
the self in these disorders, based primarily on case histories and clinical impressions.

Anorexics are typically described as having poor self-concepts characterized by profound feelings of inadequacy, inferiority, and worthlessness (e.g., Bruch, 1973, 1977, 1978, 1988; Casper, 1982; Garner & Bemis, 1985; Selvini-Palazzoli, 1978). Despite often high levels of performance and achievement, they tend to be extremely dissatisfied with themselves, and frequently view themselves as failures in most areas of their lives (Garner & Bemis, 1985; Slade, 1982). They are filled with self-doubts, and feel defective, empty, and lacking in positive attributes (Bruch, 1988).

Perfectionism is often noted as a prominent characteristic of anorexics (e.g., Guidano & Liotti, 1983; Krueger, 1989; Slade, 1982). They set excessively high, unrealistic standards for themselves in an attempt to overcome through superior behavior their self-doubt and feelings of deficiency and emptiness (Bruch, 1973, 1978). As Story (1982) notes, "in all-or-none fashion, such anorexics come to believe that, 'if I am not perfect, I am nobody, and vulnerable to total chaos'" (p. 294). Bulimics, too, are often described as perfectionistic. Johnson and Connors (1987) write:
Dichotomous thinking is characteristic of the bulimic cognitive schema. The self and the world are viewed in terms of extremes; one is all good or all bad, with no middle ground...If one is not perfect, then the only other alternative is being a total failure. Extremely high expectations for performance are not tempered with realistic self-appraisal (p. 82).

The inability of eating-disordered individuals to achieve their lofty ideals and to attain self-acceptance and satisfaction results in severe self-criticism and self-devaluation. Bruch (1978) states that this "self-devaluation is the essence of the illness" (p.145), and notes:

Many anorexics express...that their whole life had been an ordeal of wanting to live up to the expectations of their families, always fearing they were not good enough in comparison with others and, therefore, disappointing failures. This dramatic dissatisfaction is a core issue in anorexia nervosa, and it precedes the concern with weight and dieting (p. 23).

Thus, from Bruch's perspective, a negative view of the self exists prior to the development of anorexia nervosa, and is the core, underlying problem. Although considerably less has been written about the view of the self of individuals with bulimia nervosa, there appears to be a similar general picture of low self-esteem, high self-expectations, and intense self-criticism accompanied by feelings of guilt and shame when those expectations are not met (Fairburn & Cooper, 1984; Johnson & Connors, 1987; Mizes, 1988).
In her early writings Bruch (1973, 1978, 1981) described an underlying sense of ineffectiveness as being one of three areas of disturbed psychological functioning in anorexia nervosa, along with body image disturbances and misinterpretations of bodily sensations. The sense of ineffectiveness is thought to be reflected in the perception of the self as helpless and lacking in control. Bruch (1981) writes that "people suffering from eating disorders experience themselves as acting only in response to demands coming from others, and as not doing anything because they want to" [emphasis in original] (p. 216). In later work Bruch (1988) discussed these three areas of disturbance more generally as representing "an expression of defective self-concept, the fear of inner emptiness or badness, as something to be concealed under all circumstances" (p. 5).

Selvini-Palazzoli (1978) refers to the view of the self as lacking control in the following description of the future anorexic:

These solitary little girls are full of fears: fear of life in general; fear of scholastic failure; fear of falling short of all sorts of expectations, and fear of doing the wrong thing. In short they have an apparently inexplicable and obscure feeling of fatal impotence, of a total lack of control over their lives (p. 68).

The anorexic's experience of a lack of control over her life may be tied to more basic autonomy and identity
issues. Bruch (1977, 1978, 1982, 1985) suggests that anorexia nervosa is related to underlying deficits in the sense of self, identity, and autonomy. She postulates that individuals who develop the disorder have not formed a sense of separateness in relation to others. Rather than viewing themselves as autonomous individuals capable of exerting control over their own lives, pre-anorexics are thought to be characterized by the lack of a sense of self as distinct from others. Failure to achieve the developmental task of the creation of an autonomous sense of self may set the stage for crisis when societal demands for increasing maturity and independence are experienced with the transitions from childhood to adolescence and adolescence to adulthood (Bemporad, Ratey, O'Driscoll, & Daehler, 1988).

Closely linked to eating-disordered individuals' sense of self as inadequate and ineffective is the belief that other people view them in the same negative way (Casper, 1982; Casper, Offer, & Ostrov, 1981; Crisp, 1980). Anorexics have an underlying fear that they are not good enough in comparison to others (Garfinkel, 1981). They expect others to judge them in the same harshly critical manner that they judge themselves, and to find them to be defective and inferior (Bruch, 1978, 1979, 1982, 1988). They fear the censure and rejection of others, and attempt

The exaggerated need for approval may be manifested most clearly in an excessive compliance with the expectations and demands of others (Bruch, 1977; Rampling, 1978; Selvini-Palazzoli, 1978; Strober, 1980, 1986). Story (1976) describes the anorexic's "canvassing and soliciting of others for an acceptable mode of self-expression" (p. 187), and Lerner (1986) points out that anorexics and bulimics reveal "a marked tendency towards compliance and accommodation in interpersonal relationships. Like chameleons, they quickly and accurately attune to the expectations of others and mold themselves, their behavior, and feelings accordingly" (p. 41).

A number of studies on the psychological adjustment and interpersonal relationships of anorexics and bulimics touch indirectly on the underlying view of the self of individuals with eating disorder symptomatology. For example, using a repertory grid procedure, Mottram (1985) identified self-alienation, social isolation, and obsessionality in a group of anorexics. Casper et al. (1981) determined that, compared to normal controls, adolescent anorexics were more likely to have a negative self-image characterized by conflicts related to social
relationships and sexuality. They expressed a desire for contact with others, but reported that they had difficulty making friends and felt disapproved of and rejected by others. Although they tended to express an interest in having a boyfriend, anorexic subjects viewed themselves as sexually inadequate, and were frightened by and denied sexual thoughts. Mood disturbances were also characteristic of the anorexic subjects - loneliness, sadness, and shame were the most commonly endorsed affects among the patient group. In addition to these areas of maladjustment, late adolescent subjects (ages 16 to 19) also displayed significant disturbances in impulse control, body- and self-image, and general psychopathology, in comparison to normal control subjects.

Standard measures of personality, such as the Minnesota Multiphasic Personality Inventory (MMPI) and the Eysenck Personality Inventory (EPI), have been used to evaluate the psychological functioning of eating-disordered patients. Although several studies utilizing the MMPI have reported no clinically significant scale elevations (T-scores greater than 70) for bulimics, restricting anorexics (anorexics who do not binge-eat, or who do so infrequently), or bulimic anorexics (individuals meeting diagnostic criteria for anorexia nervosa who exhibit episodes of binge-eating) (Dykens & Garrard, 1986; Leon,
Lucas, Colligan, Ferdinande, & Kamp, 1985), the majority have found significant psychopathology among eating-disordered individuals (e.g., Casper, Eckert, Halmi, Goldberg, & Davis, 1980; Hatsukami, Owen, Pyle, & Mitchell, 1982; Norman & Herzog, 1983; Piran, Lerner, Garfinkel, Kennedy, & Brouillette, 1988; Pyle, Mitchell, & Eckert, 1981; Strober, 1983; Williamson, Kelley, Davis, Ruggiero, & Blouin, 1985). When normal-weight bulimics have been compared to bulimic and restricting anorexics, the former two groups have generally exhibited greater symptomatology than restricters. Elevations on scales 2 (Depression), 4 (Psychopathic Deviance), 7 (Psychasthenia), and 8 (Schizophrenia) have commonly been found, indicating features of depression, withdrawal, feelings of alienation, anxiety, poor concentration, and poor impulse control.

Studies employing the EPI have found both anorexics and bulimics to be more neurotic and less extraverted than normal controls (Fairburn & Cooper, 1984; Smart, Beumont, & George, 1976; Stonehill & Crisp, 1977). When compared to other psychiatrically-hospitalized adolescent subject groups, anorexic adolescents displayed lower levels of neuroticism and extraversion than personality- or conduct-disordered patients, but did not differ significantly from a depressed patient group on those dimensions (Strober, 1980). Several studies have demonstrated, however, that
following weight restoration, anorexics' neuroticism scores decrease and extraversion scores increase (Gomez & Dally, 1980; Stonehill & Crisp, 1977; Strober, 1980). This finding illustrates the problems presented by the interpretation of data derived from measures administered during the active phase of illness. Certain characteristics commonly seen in acute anorexia nervosa, such as introversion, obsessionality, and depressive symptoms, may be transient features associated with starvation pathology (Bruch, 1978; Strober, 1980). Poor nutritional status in bulimia nervosa may also affect psychological functioning. Thus, suggestions of stable psychopathology based on patient presentation during acute illness must be interpreted with caution.

Garner, Olmsted, and Polivy (1983a) developed the Eating Disorder Inventory (EDI) to assess psychological characteristics related to anorexia nervosa and bulimia. Among the eight subscales comprising the instrument is the Ineffectiveness scale, designed to tap features associated with Bruch's (1973, 1978) notion that feelings of ineffectiveness represent a fundamental disturbance in anorexia nervosa. Feelings of inadequacy, worthlessness, and lack of control over one's life are assessed. Anorexics (Garner, Olmsted, & Polivy, 1983b) and bulimics (Ordman & Kirschenbaum, 1986) have been found to score
significantly higher on the Ineffectiveness subscale compared to normal control subjects. When bulimic anorexics were compared to restricting anorexics, the former group scored significantly higher on this subscale than the latter (Garner & Olmsted, 1984). Differences between anorexics and non-eating-disordered psychiatric outpatients in scores obtained on the Ineffectiveness subscale have been found to be nonsignificant, however, suggesting that the psychological characteristics measured by the subscale are not specific to the eating disorders (Cooper, Cooper, & Fairburn, 1985; Hurley, Palmer, & Stretch, 1990).

In comparison to normal control subjects, individuals with eating disorder symptomatology have been found to be more obsessional (Mottram, 1985; Ordman & Kirschenbaum, 1986; Smart et al., 1976; Strober, 1980; Weiss & Ebert, 1983), higher in self-expectations (Katzman & Wolchick, 1984; Mizes, 1988), more self-critical (Fremouw & Heyneman, 1983; Lehman & Rodin, 1989; Ruderman, 1986), lower in self-esteem (Dykkens & Gerrard, 1986; Lacey, Coker, & Birtchnell, 1986; Weiss & Ebert, 1983), and higher in need for approval (Katzman & Wolchick, 1984; Mizes, 1988; Ruderman, 1986; Strober, 1980). Such characteristics have been discussed by various authors as aspects of perfectionism (e.g., Burns, 1980; Hamachek, 1978; Pacht, 1984), and indeed
anorexics and bulimics do score higher than normal control subjects on both the Perfectionism subscale of the EDI and on other measures of perfectionism (Garner et al., 1983a; Garner, Olmsted, Polivy, & Garfinkel, 1984; Halmi, Goldberg, Eckert, Casper, & Davis, 1977; Hedblom, Hubbard, & Andersen, 1981; Mottram, 1985; Ordman & Kirschenbaum, 1986; Ruderman, 1986; Thompson, Berg, & Shatford, 1987). However, the perfectionism scales that have been most in use to date have been limited in their range of assessment of the various dimensions of perfectionism. The EDI Perfectionism subscale, for example, is heavily weighted on items tapping the setting of excessively high standards for oneself and a history of lofty parental expectations. There is evidence that the most central component of perfectionism is an overconcern with making mistakes, rather than high personal standard setting (Frost, Marten, Lahart, & Rosenblate, 1990).

Problems in the interpersonal relationships of eating-disordered individuals are well-documented in the literature. Both anorexics and bulimics have been found to be less well-adjusted socially than normal controls, with problems in the areas of work, social and leisure activities, and family relationships (Herzog, Keller, Lavori, & Ott, 1987; Herzog, Pepose, Norman, & Rigotti, 1985; Johnson & Berndt, 1983; Mitchell, Hatsukami, Eckert,
& Pyle, 1985; Norman & Herzog, 1984; Thompson & Schwartz, 1982). In a study comparing the scores of bulimic patients on the Social Adjustment Scale to those of other patient groups, bulimics were found to have better social adjustment than acutely depressed women, but poorer social adjustment than either schizophrenic or alcoholic patients (Johnson & Berndt, 1983; Norman & Herzog, 1984).

Anorexics have consistently been found to be socially isolated, introverted, and withdrawn (Beumont, 1977; Casper et al., 1980; Dally, 1969; Engel, Fuchs, Meier, & Deneke, 1988; Haimes & Katz, 1988; Leon et al., 1985; Leon, Lucas, Ferdinand, Mangelsdorf, & Colligan, 1987; Piran et al., 1988; Smart et al., 1976; Strober, 1981, 1986). They have few friends, and lead very restricted social lives (Garfinkel, 1981; Thompson & Schwartz, 1982). When in social situations, they tend to feel anxious and inadequate (Leon et al., 1985, 1987). Studies examining the sexual adjustment of eating-disordered individuals have found that restricting anorexics tend to have negative attitudes about sexuality and to be inhibited in their sexual lives (Haimes & Katz, 1988; Leon et al., 1988). They report less past and current sexual activity than do non-eating-disordered subjects, bulimics, or bulimic anorexics (when a distinction is made between restricting
and bulimic anorexics) (Abraham & Beumont, 1982; Beumont, 1977; Coovert, Kinder, & Thompson, 1989).

Although bulimics (and bulimic anorexics) have generally been found to be more outgoing, socially involved, and sexually active than (restricting) anorexics (Casper et al., 1980; Fairburn, 1982; Fairburn, Cooper, & Cooper, 1986; Garfinkel, 1981; Garfinkel & Garner, 1984; Wagner, Halmi, & Maguire, 1987), some authors do describe bulimics as socially withdrawn, avoidant, and isolative (e.g., Johnson & Connors, 1987; Johnson & Larson, 1982; Johnson & Pure, 1986; VanBuren & Williamson, 1988). On self-report measures they exhibit high interpersonal sensitivity (Kent & Clopton, 1988; Ordman & Kirshenbaum, 1986; Weiss & Ebert, 1983) and fear of negative evaluation (Segal & Figley, 1985). It may be that bulimics have strong fears of criticism and rejection, but attempt to mask those fears by being sociable and pleasing others (Segal & Figley, 1985), whereas anorexics are more likely to deal with similar fears through withdrawal and self-isolation.

The findings of significant social anxiety and avoidance among anorexics, and to a lesser extent bulimics, suggest that in addition to an eating disorder diagnosis, some eating-disordered individuals may qualify for a diagnosis of social phobia and/or avoidant
personality disorder. Both anorexics and bulimics have been found to score in the high range on the Social Phobia subscale of the Fear Questionnaire (Bemis, 1986). In a study on personality disorders in anorexics (Piran et al., 1988), 60% of restricting anorexics were diagnosed as having avoidant personality disorder. This was the most commonly diagnosed personality disorder among this group. Among the bulimic anorexic group 16% were diagnosed with avoidant personality disorder.

Based on scores on a self-report measure, Crisp and his colleagues (Hsu & Crisp, 1980; Pillay & Crisp, 1977; Stonehill & Crisp, 1977) reported that their sample of anorexics was not socially phobic during the acute stage of illness or immediately following restoration of weight. Social phobia was apparent at an initial follow-up an average of 4.5 years following treatment, but was no longer present at a final follow-up conducted two years later. The researchers maintained that anorexia nervosa functions as an avoidance of adolescent conflicts. Pre-illness social fears are irrelevant during the active phase of the disorder as the individual is focused solely on her "weight phobia," but reappear once the "defence against the maturational demands of adolescence...no longer operates" (Stonehill & Crisp, 1977, p. 192). It is difficult to draw conclusions about social phobia in anorexia nervosa from
these studies because no diagnostic interview was used in the assessment of social phobia and no psychopathological comparison groups were included in the follow-up studies.

No studies are known to have reported rates of social phobia among eating-disordered subjects based on diagnostic interviews, but the frequent reports of social anxiety and avoidance suggest that the rates may be higher than among the general population. It may be the case, however, that the avoidance behavior frequently observed relates less to a fear of negative evaluation by others than it does to other factors. Social withdrawal is a known concomitant of starvation (Keys, Brozek, Henschel, Mickelsen, & Taylor, 1950), and in anorexics can be assumed to be caused at least partially by that process. In addition, because social situations so frequently involve the presence of food and its consumption, social isolation may be connected to fears of overeating. Attempts to clarify the motivation for interpersonal avoidance in the eating disorders may be useful. Clarification may be facilitated by comparing eating-disordered individuals' explanations for social avoidance to those of non-eating-disordered social phobics.

Symptomatology of social phobia. Social phobia is the least-studied of the anxiety disorders (Heimberg, 1989), and was not included in the diagnostic nomenclature until the publication of DSM-III (American Psychiatric
The central characteristic of social phobia is a fear of negative evaluation by others (Liebowitz, Gorman, Fyer, & Klein, 1985; Turner & Beidel, 1989; Turner, Beidel, Dancu, & Keys, 1986). Thus, there is a significant cognitive component to the disorder (Butler, 1989). Other features of social phobia include anxiety when in the feared situation and, frequently, avoidance of the situation. Social phobia is estimated to affect approximately 2% of the general population (Robins et al., 1984).

Social phobia may be circumscribed (limited to one situation - e.g., fear of writing in public) or pervasive, (e.g., a general fear of saying something foolish or being unable to answer questions) (American Psychiatric Association, 1987). In the latter case the social phobia is classified as "generalized type". According to DSM-III-R, most circumscribed social phobias are rare, whereas generalized social phobias and public speaking phobias are fairly common. Turner et al. (1986) found that only 10% of the social phobics they studied reported distress in just one type of social situation. The mean number of situations causing significant distress was 2.5, and the mean number of situations avoided was 1.9. The most common situation producing distress and avoidance was public speaking, with 81% of the sample reporting distress
and 71% reporting avoidance. Informal speaking situations, such as cocktail parties and talking with co-workers, were stressful to 76% and avoided by 57% of the subjects. High percentages of subjects reported significant impairment in occupational, academic, and/or social functioning as a result of their social anxiety.

Generalized social phobia has not been clearly differentiated from avoidant personality disorder. Whereas in DSM-III (American Psychiatric Association, 1980) a diagnosis of social phobia could not be given if the individual was diagnosable as having avoidant personality disorder, that restriction no longer exists in DSM-III-R. Both diagnoses may be made, and as Turner and Beidel (1989) point out, one would be unlikely to have an avoidant personality disorder without also being socially phobic. Like social phobia, avoidant personality disorder involves fear of negative evaluation, social avoidance, and impairment in occupational or social functioning. However, avoidant personality disorder appears to be more severe and pervasive than social phobia (Barlow, 1988; Marks, 1985; Turner & Beidel, 1989). In a study comparing the two disorders, Turner et al. (1986) identified greater interpersonal distress and poorer social skills in individuals diagnosed as avoidant personality compared to social phobics. Heimberg, Hope, Dodge, and Becker (cited
in Barlow, 1988) reported similar findings in their comparison of individuals with a circumscribed public speaking phobia to patients with severe generalized social phobia who feared and avoided all or most social situations. The generalized social phobia diagnosis in this study overlapped a great deal with avoidant personality disorder. In a recent study 22% of social phobics were diagnosed as meeting DSM-III-R criteria for avoidant personality disorder, and an additional 53% displayed subthreshold features (Turner, Beidel, Borden, Stanley, & Jacob, 1991).

The few studies on psychological characteristics of social phobics suggest that the underlying view of the self in generalized social phobia may be similar to that of individuals with eating disorder symptomatology in certain respects. Van Zuuren (1987) identified characteristics of introversion, social anxiety, social inadequacy, and low self-esteem in socially phobic women. Socially phobic men resembled the women in these characteristics, but had the additional attribute of general inadequacy. Low self-esteem has also been associated with shyness, a construct similar to that of social anxiety (Heimberg, Dodge, & Becker, 1987; Leary, 1986). Correlations in excess of -.50 between self-esteem and shyness have been reported, although the relationship is stronger for social as opposed
to nonsocial aspects of the self (Briggs, Cheek, & Jones, 1986).

In reporting his observations of a sample of severely socially anxious patients, Nichols (1974) noted the following characteristics: a sense of the self as less competent than others, increased sensitivity to and fear of disapproval and criticism, heightened awareness and fear of scrutiny by others, and a tendency to unrealistically perceive disapproval and criticism from others. All of these characteristics would appear to be consistent with the view of the self in eating disorders described earlier. Due to the paucity of research that has been conducted on social phobia, it is unclear whether representations of the self incorporate a more general sense of inadequacy in addition to social inadequacy, as is suggested in anorexia and bulimia nervosa. Nevertheless, because there appears to be some overlap in interpersonal concerns and behavior between the two types of disorders, social phobics seem to be an appropriate comparison group to employ in examining self-representations in anorexia nervosa and bulimia nervosa. Similarities between the disorders in the underlying view of the self are anticipated. However, the channeling of the negative view of the self into intense concerns about weight and shape, to be discussed in the
following section, are expected to discriminate between the disorders by being more pronounced in the eating disorders.

To summarize the discussion of the underlying view of the self in anorexia nervosa and bulimia nervosa, the findings of the studies referred to earlier are consistent with the hypothesis that individuals with these disorders possess a pre-existing core sense of the self as inadequate, ineffective, and vulnerable to negative evaluation by others. In response to this self-view, eating-disordered individuals seek to obtain the approval and acceptance of others (and of themselves) by setting high standards for their behavior and striving for perfection. Perceived failure results in self-punitiveness and the expectation of disapproval and rejection by others. It is against such a backdrop that the more specific, weight-related self-representations develop.

**Channeling of the Negative View of the Self into a Focus on Weight and Shape in the Eating Disorders**

The underlying view of the self as inadequate and vulnerable to negative evaluation is hypothesized to exist prior to the onset of the eating disorder, and may resemble to varying degrees the negative sense of self of non-eating-disordered socially anxious or depressed individuals. With the development of the eating disorder the negative underlying view of the self is hypothesized to
remain; however, the response to that view becomes increasingly narrowed. The high self-expectations and perfectionism of the anorexic or bulimic become "channeled" into a focus on dieting and slimming. Evaluation of the self and the expectation of evaluation by others become based predominantly on weight and shape. This is not to suggest that the individual no longer exhibits the more general perfectionism and approval-seeking that characterized her pre-illness behavior - she may continue to set stringent standards for herself in other areas of her life. However, her weight becomes the central and most intense focus of attention, and she develops the increasingly elaborated weight-related self-schemata (Garner & Bemis, 1985; Vitousek & Hollon, 1990) referred to earlier. These cognitive structures come to dominate the eating-disordered individual's view and appraisal of herself. The more general feelings of inadequacy and self-disapproval become channeled into dissatisfaction with weight and shape. This process and its manifestations will be considered in greater detail following discussion of contributory sociocultural and situational factors.

Sociocultural context. Any comprehensive etiological formulation of the eating disorders must consider sociocultural factors - not only the impact of the current
culture's views on body weight and shape, particularly as applied to women, but also aspects of female socialization and conditioning in contemporary American society. Although reviews of cultural variables influencing the development and maintenance of anorexia nervosa and bulimia nervosa routinely implicate societal attitudes related to thinness and obesity, they do not always place such discussion within the context of the experience of being female in western society. Understanding of the effect of cultural pressures for slimness may be facilitated when viewed against such a backdrop.

In mainstream American culture the socialization of girls tends to differ from that of boys in important ways (Jordan, Surrey, & Kaplan, 1991; Miller, 1991). Whereas boys are typically taught to be dominant, competitive, and autonomous, and to be aware of and use their power over others to meet their own needs, girls are traditionally trained to please and meet the needs of others, even when it means disregarding their own needs, and to base their self-worth on the approval and acceptance of others (Gilligan, 1990; Miller, 1986, 1991; Orbach, 1985). Girls and women learn to place a much greater emphasis on the importance of experiencing the "self-in-relation" (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991) - of maintaining an emotional connectedness to others - than do boys and men.
They often strive to conform to the standards and expectations of important people in their lives at great cost to themselves, rather than risk losing approval and emotional relatedness. As Surrey (1991) points out:

Pleasing others or giving to others may become more important than learning to listen to oneself. The loss of the inner voice, of the awareness of one's own needs, desires, or interests in the effort to respond to external expectations is a crucial issue in understanding basic aspects of women's psychological development [emphasis in original]. The push toward rigid and chronic dieting, as well as the emphasis on meeting culturally defined standards, may be an important factor in this critical loss of a basic sense of self. (p. 244)

In this culture male-socialized traits, including self-reliance, competitiveness, and "power over" rather than "power to" (French, 1985) are rewarded and valued. Those attributes which females are typically conditioned to develop, such as cooperation, empathy, and other-directedness, are socially reinforced, but are often devalued (Jack, 1991; Miller, 1986). Although they are extremely valuable psychological qualities, they may be interpreted as weaknesses on the basis of prevailing cultural norms that emphasize the merits of independence and self-sufficiency (Kaplan, 1991).

Another form in which women may experience devaluation is through objectification, or the treatment of individuals as objects (Miller, 1986). For women in American society this may involve being treated as sexual objects whose
bodies should be contoured in accordance with current cultural preferences. This is not a new phenomenon - as Orbach (1985) notes, "at various stages in history and in different societies, woman's body has had to conform to the local culture's idea of what constitutes sexual attractiveness" (p. 87).

The present cultural obsession with extreme thinness stands in sharp contrast to more typical ideals of female shape that have existed throughout history and in many other cultures in which roundness and plumpness are admired and considered desirable (Garfinkel and Garner, 1982). To say that contemporary society overvalues thinness does not do justice to the intensity of affect associated with this bodily characteristic. Slimness and low body weight in women have become pervasive cues of physical attractiveness in this culture (Garner, Garfinkel, & Olmsted, 1983). Thinness is glorified and idealized, and is equated not only with beauty, but with such desired characteristics as youth, success, self-control, and personal happiness (Garfinkel & Garner, 1982; Garner, Rockert, Olmsted, Johnson, & Coscina, 1985; Schwartz, Thompson, & Johnson, 1983). The attainment of a slender shape is a much-valued accomplishment that commands admiration and respect, even when carried to an extreme. In one study over 50% of a small sample of friends and
relatives of anorexics reported that they admired the patients' appearances and envied their self-control over food intake (Branch & Eurman, 1980).

The media and other cultural outlets contribute greatly to the societal preoccupation with thin body shape. Magazine articles extol the virtues of a slender physique and offer tips on dieting and weight loss, advertisements portray thinness as both mandatory and the norm, and television series present slim, physically attractive characters as role models. The fashion industry pushes "little-girl" clothing designed to fit only underweight customers, conveying the message that the average woman should have the body shape required to wear such outfits. Cosmetic surgery, including the newly-developed fat-sucking procedure of liposuction, is heavily marketed and has become almost commonplace. The overwhelming majority of these cultural statements about thinness are targeted at women, who are constantly informed by a variety of sources that their value as individuals is dependent upon achieving and maintaining that idealized body form. As Schlundt and Johnson (1990) note, "The individual who is bombarded with information telling her that she is too fat and that she needs to follow the latest diet eventually incorporates these values into her personal value system....the greater
the cultural emphasis on thinness, the greater the likelihood that this will become a central value" (p. 156).

Along with society's idealization of thinness there exists a strong bias against and lack of acceptance of obesity. Wooley and Wooley (1979) have documented evidence of intense prejudice and discrimination against fat individuals. Obese people are stereotyped by the dominant culture as lazy, unintelligent, sloppy, unsuccessful, and unhappy, as well as personally responsible for their condition due to a lack of self-control (Wooley & Wooley, 1982). As with the cultural emphasis on thinness, the prejudice against fat is much more heavily directed at females than males (Schlundt & Johnson, 1990; Wooley & Wooley, 1979).

While the socially-preferred body shape for women has become slimmer over the last 25 or 30 years, women's actual weights have increased during that time period, presumably due to better nutrition (Garner, Garfinkel, Schwartz, & Thompson, 1980; Wiseman, Gray, Mosimann, & Ahrens, 1992). This discrepancy suggests that, for most women, the weight required to achieve a culturally-idealized figure may be lower than that which is normal or healthy for their bodies (Garfinkel & Garner, 1982; Johnson & Connors, 1987). The prevalence of dieting by women attests to this conflict. A Nielson survey completed in 1978 revealed that 56% of all
American women between the ages of 25 and 54 were dieting, and 50 to 75% considered themselves to be overweight (cited in Surrey, 1991). A national survey conducted by Glamour magazine found that 41% of the 33,000 women polled were moderately or extremely unhappy with their bodies. Eighty percent indicated that they felt they had to be slim to be attractive to men (Boskind-White & White, 1986). Such high rates as these suggest that body weight dissatisfaction and dieting by women should be considered to be cultural norms (Surrey, 1991). The fact that the overwhelming majority of dieters, obese or non-obese, will regain the weight they lose as a function of their bodies' physiologically-determined "set points," or regulated weights (Garner et al., 1985; see Keesey, 1980, for a discussion of set point theory), predicts repeated failure experiences with weight reduction.

In summary, in a number of ways the current social milieu promotes a normative female preoccupation and dissatisfaction with body weight and shape. The pervasive cultural obsession with and idealization of thinness is targeted primarily at women, who, as a group, are socialized from an early age to please and maintain connection with others. They are likely to incorporate mainstream society's values about the importance of thinness into their own belief systems, and their sense of
self-worth is apt to be affected by the degree to which they are able to conform to prevailing societal expectations. Although virtually all Western women are exposed to the unrealistic demands for slimness, most do not develop clinically-diagnosable eating disorders. It is not surprising, however, that many young females with an underlying fragile sense of self come to focus so desperately on meeting cultural standards for physical attractiveness, particularly since this is one of the characteristics of women that is most consistently attended to and rewarded by society.

Stressful situational factors. The onset of an eating disorder is often preceded by one or more stressors that may take a variety forms (Casper & Davis, 1977; Garner & Bemis, 1982; Slade, 1982; Vitousek & Ewald, in press). Difficulties may be directly related to sociocultural factors discussed above. Weight gain and an increase in body fat relative to overall body mass are normal occurrences during female puberty and adolescence. These bodily changes, occurring at an age characterized by heightened attunement to societal standards of attractiveness and increased pressure for peer group conformity, make the pre-teen and early teen years a critical period for the development of a preoccupation with body weight. Prior to the onset of an eating disorder
weight or shape is often made a focus of negative attention in some way. This may take the form of an off-handed comment about chubbiness made by a peer or family member, or be a more direct blow, such as being told that one must lose 20 pounds in order to be able to join a cheerleading squad. The drawing of attention to a developing female figure may be traumatic for a self-conscious and insecure young girl.

The transition from childhood to adolescence may be extremely stressful in other ways for youngsters ill-prepared to deal with the greater social complexities and demands encountered at this age. During this period interpersonal success for females becomes based less on characteristics attainable through effort, such as helpfulness, politeness, neatness, and nonaggressiveness, and more on attributes not achievable through motivation alone, such as intelligence, sociability, and attractiveness (Strauman, Vookles, Berenstein, Chaiken, & Higgins, 1991). The increased importance of more complex personal characteristics over which the individual has less control may be experienced as perplexing and overwhelming.

Other types of stressors, such as parental divorce, a change in schools, or strife in a friendship may also occur prior to the development of an eating disorder. Academic or interpersonal failure experiences are common precursors,
as well (Slade, 1982). In late adolescence or early adulthood the process of leaving home to attend college or of completing college and being faced with taking on adult responsibilities in the "real world" may precipitate a crisis. Regardless of the form stressful situational factors take, the common effect appears to be a further diminishment of self-esteem and reinforcement of the poor self-concept.

Within the context of the sociocultural conditions described above - particularly the barrage of societal messages regarding the importance of thinness - plus, in many cases, the recent occurrence of additional stressors, the first observable step in the process of channeling the negative view of the self into a focus on weight and shape is typically the initiation of dieting. The individual may resolve to slim down substantially, or may simply intend to curtail further pubertal weight gain. Dieting may be undertaken at the suggestion of a parent to reduce intake, in response to observing friends diet, or following the unplanned loss of several pounds during an illness.

Whatever the circumstances, when weight loss occurs as a result of dieting the individual begins to experience concrete, observable success - as Slade (1982) expresses, "successful behaviour in the context of perceived failure in all other areas of functioning" (p. 173). The highly
reinforcing nature of weight loss is comprehensible when viewed from this standpoint. For a young girl or woman plagued with self-doubts and feelings of inadequacy, it is powerful and exhilarating to experience feelings of control and competence in this one area of her life. The ready feedback from the scale as to her progress or lack thereof is reassuringly straightforward. She may feel confused and overwhelmed by her own and others' expectations in other domains, but with weight reduction the rules are clear-cut, the required behavior concrete and uncomplicated. Noticeable weight loss is, of course, also rewarded by positive attention from others as the individual's appearance increasingly resembles that of the cultural ideal. Slade (1982) stresses, however, that the potent reinforcing effects of dieting are context dependent: For most individuals who diet the positive reinforcement of weight loss is not sufficiently powerful to lead to the development of an eating disorder. It is only within the context of the individual's general unhappiness with life and the self that dieting may evolve into anorexia or bulimia nervosa.

Along with the positive reinforcement associated with weight loss, the process also provides negative reinforcement (Garner & Bemis, 1982, 1985; Slade, 1982). Through successful dieting and/or purging methods, such as
vomiting and laxative use, the individual avoids weight gain and "fat." Additionally, through what becomes a total preoccupation with slimming, she evades confrontation of the original psychological problems. A number of writers concur that an eating disorder functions, at least in part, as a displacement or avoidance of conflictual issues related to the underlying view of the self and to interpersonal relationships (e.g., Bruch, 1978; Casper, 1982, 1983; Casper et al., 1981; Josephson, 1985; Keck & Fiebert, 1986; Lawrence, 1979; Pillay & Crisp, 1977; Rampling, 1985). Slade (1982) explains that "the eating problem is viewed not as the primary disorder but rather as a secondary adaptation to a more general set of psychological problems" (p. 167). Casper et al. (1981) state: "The pride and satisfaction derived from achieving slimness seems to enhance the self-esteem sufficiently to hold any other psychologic problem in abeyance" (p. 656).

As discussed earlier, the general feelings of inadequacy and incompetence that are postulated to characterize the underlying view of the self of pre-anorexics and bulimics are accompanied by a sense of powerlessness and lack of control. By channeling the diffuse feelings of discontent with herself and her life onto her weight and shape, the individual achieves a sense that control is finally within her grasp. Lawrence (1979)
views anorexia nervosa as a misdirection of control toward the self, rather than toward relationships with others:

Controlling weight is used...as a substitute for controlling the real issues in their lives over which they have no control....The real issues about power and control lie between the woman and the outside world. She feels unable to tackle them at that level and makes control into an entirely internal problem, looking to self-control as a substitute of effective control of self, which requires interaction with other people (pp. 94, 99).

As dieting and other weight reduction methods continue, the individual's focus of attention narrows more intensively onto her weight and shape. Her thoughts, feelings, and actions follow increasingly from the central eating-disordered belief that all of her unhappiness stems from her body size, and that losing weight and becoming thin will be the solution to her troubles (Garner & Bemis, 1982; Selvini-Palazzoli, 1978; Vitousek & Ewald, in press). The extreme concerns about and concentrated focus on body shape and weight are principal features of both bulimia nervosa and anorexia nervosa (Fairburn & Cooper, 1984; Fairburn & Garner, 1988; Garner & Fairburn, 1988; Hadigan & Walsh, 1991). Well-elaborated weight-related self-schemata (Garner & Bemis, 1985; Vitousek & Hollon, 1990), described earlier, increasingly influence the individual's perceptions, thoughts, feelings, and behavior as they develop, functioning to sustain symptomatology relatively automatically (Vitousek & Ewald, in press).
Anorexics and bulimics tend to evaluate their self-worth predominantly on the basis of their weight and shape. Weight loss and slimming become their primary measures of achievement and competence (Fairburn et al., 1986; Garner & Bemis, 1985). Longstanding generalized feelings of inadequacy and worthlessness are channeled into dissatisfaction with body size and weight; failure experiences or other emotional distress unrelated to body shape or eating may trigger feelings of fatness (Casper, 1982; Krueger, 1989; Striegel-Moore, McAvay, & Rodin, 1986). As Bruch (1988) describes having explained to an anorexic patient: "You think 'fat' means the same as 'not good enough.' And that's what you fear, that you are not as good as you think you should be...you call 'fat' everything you are dissatisfied with" (p. 52).

Anorexics and bulimics are also likely to interpret interpersonal stimuli in terms of weight and shape. Individuals with whom they have contact are automatically categorized by body size as thinner or heavier than themselves. Previously global expectations of negative evaluation by others become more centered upon body size and shape as the primary referents for approval or disapproval. Other people are assumed to use the eating-disordered individual's weight as the basis for evaluating
her. Acceptability is believed to be contingent upon successful weight control.

Through narrowing the focus of personal discontent onto their body weight and shape, individuals with anorexia or bulimia nervosa may avoid problems and pain that otherwise seem overwhelming and unresolvable. Cognitive theory suggests that a single-minded concentration on dieting and weight loss may serve to simplify the bewildering array of personal and environmental stimuli, and to establish a sense of order and control (Vitousek & Hollon, 1990). Intimidating interpersonal demands, expectations, and conflicts may be evaded through social withdrawal, or become less meaningful in comparison to the unrivaled importance of weight (Slade, 1982). Perceived criticism and rejection by others may be less devastating when believed to be directed at one specific aspect of the self, over which one has the potential for control, rather than at a globally-flawed self. In a variety of ways, the individual's life becomes less complicated and confusing. As Casper (1982) observes of anorexia nervosa, once the disorder has developed, the "inner tumult by and large subsides. Patients feel in charge, more adequate, less dissatisfied with themselves....Slimming down is a solution to their misery....In a concrete way, they are in control and have differentiated themselves" (p. 435).
Although the eating disorder may function, with varying degrees of success, to camouflage and facilitate avoidance of confrontation with the underlying psychological problems, it does not resolve those problems. "Since the psychologic goals - a sense of identity, personal initiative, emotional equilibrium, and confidence in relationships - are the true motivation and cannot be attained even with exquisite thinness" (Casper, 1982, p. 438), the core sense of self as deficient and reprehensible remains painfully intact beneath the structure of the hypervalent weight-related self-representations.

In summary, it is suggested that the core self-representations of eating-disordered individuals are characterized by a general sense of inadequacy and inferiority, and by expectations of negative evaluation and rejection by others. These self-representations precede the development of the eating disorder, and may be similar in structure to the self-representations of non-eating-disordered socially anxious individuals. Once the eating disorder develops, the more general feelings of unhappiness become channeled into a focus on discontent with perceived fatness (Casper, 1982, 1983; Garner & Bemis, 1982, 1985; Rampling, 1985; Selvini-Palazzoli, 1978; Vitousek & Hollon, 1990). A set of self-representations form in which body shape and weight become the primary referents for self-
evaluation and expectation of evaluation by others. However, although with the full development of the eating disorder these weight-related self-schemata (Vitousek & Hollon, 1990) come to prevail as the most salient set of self-representations, the underlying view of the self as inadequate and vulnerable to negative evaluation is hypothesized to persist as the core sense of self. The present study was concerned with 1) examining aspects of the underlying view of the self in anorexia nervosa and bulimia nervosa, 2) exploring the channeling of hypothesized self-representations of inadequacy and worthlessness into a focus on concerns about weight and shape, and 3) using an appropriate psychopathological comparison group, social phobics, in the investigation of 1) and 2) above.

A Cognitive-Processing Approach as a Research Strategy

The findings of studies discussed earlier are consistent with an underlying view of the self in the eating disorders as inadequate and vulnerable to negative evaluation. However, the majority of these studies have utilized only self-report measures, which are subject to bias and distortion on the part of the subject. Intentional denial or distortion of information is thought to be particularly common with anorexic subjects, who are motivated to protect their ego-syntonic disorder (Garner &
Bemis, 1982; Vitousek, Daly, & Heiser, 1991; Vitousek & Hollon, 1990). Methods derived from cognitive science may help to reduce the potential bias and vulnerability to demand characteristics inherent in self-report measures.

Several investigations of eating disorder phenomena have employed assessment techniques that are less dependent upon self-report and less transparent in their purpose. For example, a series of studies using the repertory grid test have documented the tendency of anorexics to construe themselves in terms of body weight (Button, 1983; Crisp & Fransella, 1972; Fransella & Button, 1983; Fransella & Crisp, 1979). Recently, cognitive processing paradigms have been used to examine the processing of material related to weight and food. Utilizing a dichotic listening task, Schotte, McNally, and Turner (1990) demonstrated that bulimics displayed an increased perceptual sensitivity and physiological reactivity to information relevant to concerns about body weight and shape. In an investigation of the intrusiveness of schematic content into ambiguous material, Vitousek, Ewald, Mew, and Manke (1992) found anorexics and bulimics to be more likely than normal control subjects to select the weight or food meaning of homophones and homographs. King, Polivy, and Herman (1991), assessing memory for schematic material, determined that anorexics, as well as obese
patients and normal restrained eaters, recalled more weight- and food-related information presented in a descriptive passage about another individual than did subjects who were unrestrained eaters. Similar methods utilizing information processing paradigms may be useful in the investigation of the underlying view of the self in the eating disorders, as well as in the continued exploration of the channeling of a negative view of the self into a focus on weight and shape.

One of the procedures derived from cognitive science which is increasingly being used to investigate the automatic processing of information is the Stroop color-word test (Stroop, 1935). The original Stroop procedure requires subjects to name the ink color in which words are printed, ignoring the word content. Color-naming latencies are significantly increased if the words themselves are color names that are incongruent with the color of the ink in which they are printed. This effect has been explained in terms of interference through response competition, in which the more developed reading response dominates and interferes with the color-naming response (Dyer, 1973).

Klein (1964) was the first to extend the use of the Stroop procedure to the naming of colors in which words other than color words are printed. He found that
interference in color-naming occurs with attention-getting, or "attensive", words in comparison to neutral words. Since that time the Stroop paradigm has been used to examine various aspects of information processing. In recent years the method has been applied to the study of cognitive processing in depression, anxiety disorders, and eating disorders. The general finding has been that theoretically conflictual words - for example, spider-related words for spider phobics (Watts, McKenna, Sharrock, & Trezise, 1986) - produce greater color-naming latencies than non-conflictual words. Latencies for the former type of material are typically compared to latencies for neutral control words. The Stroop paradigm is less vulnerable than self-report measures to distortion or denial of concerns because performance can only be distorted deliberately by slowing color-naming latencies. Intentional slowing on "target" material would indicate a concern related to its content. It would be highly unlikely that subjects would realize they could "fake good" by slowing their color-naming of neutral control material.

Several studies have utilized the Stroop technique to investigate the processing of weight- and food-related information by individuals with eating disorders. Using bulimic and normal control subjects, Fairburn, Cooper, Cooper, McKenna, and Anastasiades (1991) measured color-
naming latencies for a combination of food and body shape words compared to neutral control words. They found that bulimics had significantly slower latencies for the target words compared to controls. When Channon, Hemsley, and de Silva (1988) presented separate sets of food- and shape-related words to anorexics and normal controls, anorexics produced significantly slower latencies for food, but not shape, words compared to controls. However, when, in a later study, they administered the Stroop task to normal subjects following a 24-hour fasting period, they found fasting subjects to also be slower at color-naming food-related words than non-fasting control subjects, suggesting that hunger may be the most parsimonious explanation for the Stroop effect obtained with food-content words (Channon & Hayward, 1990).

Ben-Tovim, Walker, Fok, and Yap (1989) found significant differences in Stroop response times between anorexics and normal controls and between bulimics and normals controls for food stimuli. Bulimics were significantly slower in color-naming shape words, as well, and anorexics showed a like trend. When these authors compared eating-disordered subjects to weight-preoccupied, non-eating-disordered adolescents, both anorexic and bulimic patients showed longer color-naming latencies for
shape words as well as food words (Ben-Tovim & Walker, 1991).

The findings of Ben-Tovim and his colleagues support the concept that eating-disordered individuals' concerns are channeled into a focus on weight-related information. However, no studies have utilized the Stroop task to examine the processing of weight-related information by individuals with an eating disorder in comparison to individuals with another emotional disorder. Such a comparison would be useful in establishing the specificity of selective processing of this type of information to the eating disorders as distinct from emotional disorders in general.

The Stroop paradigm has also not been used to examine the processing of information relevant to the underlying view of the self in anorexia nervosa and bulimia nervosa, although the method has been applied in a similar capacity to the study of depression and anxiety disorders. On a modified version of the Stroop task, both mildly depressed students and depressed psychiatric inpatients were found to have significantly longer color-naming latencies for depressed-content words than for neutral or manic-content words. Nondepressed controls showed no significant differences in latencies for the three types of words (Gotlib & Cane, 1987; Gotlib & McCann, 1984). The authors
interpreted the findings as supporting Beck's (1976) concept of a negative schema in depression, and as providing evidence of an increased accessibility for negative constructs in depressed individuals.

Several groups of investigators have used the Stroop test to investigate information processing in anxiety-disordered subjects. Mathews and MacLeod (1985) employed the Stroop technique to examine the selective processing of danger-related cues in generally anxious outpatients. They reported that anxious subjects, but not normal controls, had longer color-naming latencies for threat words than for non-threat words. Additionally, when anxious subjects were divided into two groups based upon whether they reported worrying more about physical dangers or social dangers, only those subjects with concerns about physical dangers showed longer latencies for physical threat words. All of the anxious subjects had longer latencies for social threat words. The authors suggested that the specificity apparent in the fact that only physically anxious subjects displayed longer latencies on physical threat words goes against an explanation of the findings as attributable only to anxious mood state.

In a replication of the Mathews and MacLeod (1985) study, Mogg, Mathews, and Weinman (1989) found selective interference only for worry-congruent threat in both
anxiety groups. In other words, subjects with predominantly physical concerns showed longer color-naming latencies for physical, but not social, threat words. Likewise, subjects with predominantly social fears showed a trend toward longer latencies for social threat words, but not for physical threat words. The small sample size of the socially anxious group was suggested by the authors as an explanation for the lack of significance with the social threat words.

In other Stroop studies using threat-related words, interference effects have been demonstrated for patients diagnosed with panic disorder, compared to normal controls (Ehlers, Margraf, Davies, & Roth, 1988; McNally, Riemann, & Kim, 1990). Two studies have also utilized the Stroop task to examine content-specific information processing in posttraumatic stress disorder (PTSD). Vietnam combat veterans with PTSD were found to be slower in color-naming combat-related words compared to words with neutral, positive, or obsessive-compulsive disorder content. In contrast, veterans without PTSD evidenced no such slowing (McNally, Kaspi, Riemann, & Zeitlin, 1990). Similarly, rape victims with PTSD showed longer response latencies for rape-related words than for general threat or neutral words, whereas non-PTSD victims and nontraumatized controls
did not differ in their latencies across word types (Foa, Feske, Murdock, Kozak, & McCarthy, 1991).

The Stroop paradigm has recently been applied to the investigation of the processing of social threat cues in social phobia (Hope et al., 1990). Color-naming latencies for social and physical threat words were compared to those of neutral words for both social phobics and panic-disordered individuals. Social threat words were chosen "which evoked self-descriptive constructs (e.g., inadequate, inferior) or which described social phobics' expectations for their performance in social interactions (e.g., criticized, failure)" (p. 181). Social phobics were found to have longer latencies for social threat words than neutral words. There were no differences in latencies for panickers between social threat and control words. On the other hand, panickers, but not social phobics, had longer latencies for physical threat words compared to control words. The authors concluded that their findings support the hypothesis that social phobics have self-schemata which facilitate the processing of cues related to social evaluative concerns.

In the Hope et al. (1990) study the two domains from which words were taken ("self-descriptive constructs" and "expectations for their performance in social interactions" [p. 181]) were combined in the development of
the stimulus card. The first domain would appear to relate to a general underlying view of the self, and the second more specifically to interpersonal evaluation. It would be interesting to attempt to distinguish between these two domains. Such a distinction may help to address the question posed earlier as to whether social phobics are characterized by a general view of the self as inadequate (as is hypothesized with eating-disordered individuals), or whether the negative self-view is more specific to an expectation of negative evaluation by others.

The Stroop interference effect has been construed in a number of different ways, including as a measure of selective processing (Channon et al., 1988; Fairburn et al., 1991), a manifestation of anxiety, preoccupation, or mood state (Watts et al., 1986), a quantitative measure of psychopathology (Ben-Tovim & Walker, 1991; Ben-Tovim et al., 1989), evidence of construct or schema accessibility (Gotlib & Cane, 1987; Gotlib & McCann, 1984), and support for the existence of specific schemata that facilitate the processing of schema-related cues (Hope et al., 1990). Segal (1988) has argued against interpreting interference effects on the Stroop task as it has been used in the studies cited above as evidence of organized cognitive structures or schemata. However, the application of the Stroop paradigm to an investigation of the underlying view
of the self in the eating disorders may, at the least, indicate whether anorexics and bulimics selectively process information reflecting inadequacy and negative evaluation. Evidence of selective processing would suggest, at a minimum, the existence of anxiety or conflict surrounding the targeted domain, and may be used to confirm self-report data, yielding information obtained in a less transparent manner to contribute to an understanding of self-representations in the eating disorders.

**Additional Methods of Cognitive Assessment**

Although potentially susceptible to intentional or inadvertent distortion of responses by subjects, methods designed to assess cognitive constructs through self-report may nevertheless be profitably applied to the investigation of self-representations in the eating disorders. Deliberate distortion or withholding of information may be decreased by employing disinhibiting instructional sets, separating research from the therapeutic context, and assuring confidentiality (Vitousek et al., 1991).

One such approach to examining the underlying view of the self is the assessment of expectancies for success or failure in interpersonal situations. Safran et al. (1990) have suggested that interpersonal schemata may be studied through the use of questionnaires tapping expectations about interpersonal responses. They cited two unpublished
studies in which they found that subjects who were classified as highly symptomatic on the SCL-90 were more likely than low symptomatic subjects to anticipate negative responses in interpersonal situations. Beck and Emery (1985) have argued that a significant source of threat leading to social anxiety is increased expectation of negative evaluation. Consistent with this view, Lucock and Salkovskis (1988) reported that social phobics rated the probability of the occurrence of negative social events as higher than did normal controls, and rated the probability of the occurrence of both positive social events and positive nonsocial events as lower than did controls.

In another study shy subjects were found to be more likely to expect negative outcomes and less likely to expect positive outcomes in a mix of interpersonal and noninterpersonal situations than were nonshy subjects (Teglasi & Hoffman, 1982). Additionally, the shy group expressed less intense positive affect in response to positive outcomes than did the normal group. Although there were no significant group differences in intensity of negative affect in response to negative outcomes, there was an indication that shy subjects had more intense negative affect in specific interpersonal situations. The assessment of intensity of affect related to anticipation of positive or negative outcome is of value because there
is some indication that self-representations have an affective component (Markus, 1990; Markus & Wurf, 1987). Greater intensity of affect associated with a particular expectancy may suggest a more salient self-representation.

In addition to assessing the selective processing of weight-related information, other methods of cognitive assessment may be utilized in the investigation of the channeling of a negative view of the self into a focus on weight and shape. One of the most extensively researched cognitive constructs is that of attributions, or inferences people make regarding the causes of events (Arnkoff & Glass, 1989). Attributional style, referring to a tendency to make particular kinds of causal inferences across situations and time (Metalsky & Abramson, 1981), has been studied extensively in depression and to a lesser extent in social anxiety. Several general attributional patterns have been associated with depression. For negative events, attributions to internal, stable, and global causes have been related to depression, and for positive events, attributions to external, unstable, and specific causes have been associated with depression (see Peterson & Seligman, 1984, and Sweeney, Anderson, & Bailey, 1986, for reviews).

In research on causal attributions in social anxiety, a general finding has been that socially anxious
individuals tend to show reversal of the "self-serving bias" (Hope, Gansler, & Heimberg, 1989). The "self-serving bias" refers to the observed tendency of most people to attribute failure to external causes such as task difficulty or bad luck and to attribute success to internal causes such as ability or skill (cf., Miller & Ross, 1975). Thus, socially anxious individuals reverse the self-serving bias by making internal attributions for failure and external attributions for success (Alden, 1987; Anderson & Arnoult, 1985; Arkin, Appelman, & Burger, 1980; Fenigstein, 1979; Teglasi & Fagin, 1984; Teglasi & Hoffman, 1982). However, in a study comparing attributions for outcomes of interpersonal versus noninterpersonal events, shy subjects exhibited the self-defeating attributional style only for interpersonal events (Anderson & Arnoult, 1985). In noninterpersonal situations they showed the self-serving bias of taking more responsibility for success and less responsibility for failure. A comparison group of depressed subjects exhibited the reversal of the self-serving bias in both interpersonal and noninterpersonal situations. The authors suggested that the differences observed between groups of subjects may be related to interpersonal situations being particularly relevant to shyness, whereas both interpersonal and noninterpersonal situations are relevant to depression.
Work on attributional style has focused on broad content areas of attributions, such as "ability" or "task difficulty." In applying an assessment of attributions to the investigation of the channeling of a negative view of the self into a focus on weight and shape in the eating disorders, it may be useful to assess more specific attributional content. If such channeling does occur, one of the phenomena that would be expected is an intrusion of weight-preoccupation into various situations, particularly social situations. Intrusiveness may be manifested in a greater tendency among anorexics and bulimics to make weight-related attributions for success or failure, compared to non-eating-disordered individuals. Anderson and Arnoult (1985) have suggested that attribution may be conceptualized as a two-stage process. During the problem formulation stage a list of likely causes is generated. During the problem resolution stage the final attribution is decided upon by choosing one or more causes from the list. It may be useful to distinguish between these two stages in examining weight-related attributions. It is possible, for example, that anorexics and bulimics consider weight-related attributions for social failure more frequently than do non-eating-disordered individuals, but do not decide upon weight as the cause of the failure in their final attribution.
Another method that may be used to examine the channeling of the negative view of the self into concerns about weight and shape is the assessment of explanations for interpersonal avoidance. As discussed earlier, eating-disordered individuals, like non-eating-disordered social phobics, are thought to have strong fears and expectations of negative evaluation by others. Both groups of individuals also tend to be socially avoidant. If feelings of inadequacy and expectations of rejection are channeled into a dissatisfaction with weight in the eating disorders, one may expect anorexics and bulimics to give more weight-related explanations for social avoidance than social phobics. One type of weight-related explanation was mentioned earlier - avoidance of social situations due to a fear of overeating. Weight-related explanations may also be examined by assessing what specific aspect of the self the individual anticipates to be a source of negative evaluation by others. According to DSM-III-R (American Psychiatric Association, 1987), social phobics fear negative evaluation of their behavior. However, fear of negative evaluation may also relate to one's appearance. A finding that anorexics and bulimics are more likely than social phobics to avoid social situations due to a fear of negative evaluation of their weight would be consistent with the hypothesis that in individuals with eating
disorders, concerns about disapproval by others are channeled into a focus on weight and shape.
CHAPTER II
The Current Study

This project was designed to explore aspects of self-representation in the eating disorders. The guiding notion of the study was that in anorexia nervosa and bulimia nervosa an underlying view of the self as inadequate, unacceptable, and vulnerable to negative evaluation by others is channeled into a focus on concerns about body weight and shape. Although not all aspects of this general conceptualization were evaluated, several specific hypotheses bearing upon this perspective were tested.

The comparisons of greatest interest to the first part of this hypothesis - that anorexics and bulimics are characterized by an underlying view of the self as inadequate and unacceptable - were between eating-disordered subjects and normal control subjects. It is not suggested that anorexics and bulimics are unique in viewing the self as inadequate and vulnerable to negative evaluation - such self-representations are thought to be basic to many emotional difficulties. Rather, the assertion here is that although weight-related self-representations become predominant for eating-disordered individuals, they do not fully displace the pre-existing general negative self-view. The underlying view of the self as inadequate and vulnerable to negative evaluation is
postulated to persist as the core sense of self. Thus, it was predicted that on measures relevant to self-representations of inadequacy and vulnerability to criticism and rejection, anorexics and bulimics would appear similar to a psychopathological comparison group, social phobics, but would differ from a normal comparison group.

The decision to use social phobics as a psychopathological comparison group in this study was based on several factors. Like social phobics, eating-disordered individuals, particularly anorexics, have been found to have interpersonal difficulties, including social anxiety and avoidance. As discussed earlier, there is also some indication that generalized social phobics have an underlying view of the self as inadequate, particularly on an interpersonal level. It was thus felt that an examination of cognitive similarities and differences between these disorders would be worthwhile. Individuals with only circumscribed social phobias, such as a fear of public speaking, were not included as subjects because an underlying view of the self as inadequate was not expected in individuals with such a discrete concern. Depressives were another obvious choice as a comparison group in that they, too, are characterized by a negative view of the self (Beck, 1976). However, the negative view of the self in
depression is typically exhibited within the context of a more generalized hopelessness not inherent to the eating disorders (Garner & Bemis, 1982). Therefore, it was felt that social phobics were a more appropriate comparison group for this particular study.

The comparisons considered most crucial to the investigation of the underlying view of the self involved the processing of information reflecting negative evaluation. This was tested by using a variation of the Stroop color-word test (Stroop, 1935), discussed earlier. Responses on this measure should be less subject to demand characteristics or denial of concerns compared to self-report measures. The Stroop task was expected to reveal a bias by anorexics and bulimics in the processing of information reflecting negative evaluation. Such a finding would be particularly interesting for anorexics, for whom, theoretically, the eating disorder should most successfully function to "hold any other psychologic problem in abeyance" (Casper et al., 1981, p. 656).

One of the major aims of this study was to incorporate into the design an experimental procedure with limited susceptibility to voluntary distortion of responses, rather than relying solely on self-report measures. The Stroop paradigm was chosen for this purpose because there is an established body of literature on the technique and
it is one of the few such methods that has been employed with eating-disordered individuals. It has also been used with socially anxious individuals to investigate the processing of information related to negative evaluation.

A secondary aim of using the Stroop paradigm in this study was to conduct an initial exploration of the possibility of distinguishing between a generalized negative evaluation of the self and a more specific expectation of criticism and rejection by others. The former can apply either to self-evaluation or to the anticipated evaluation of the self by others ("me as others see me"). For example, words such as "inadequate" and "failure" can characterize either of these two types of evaluation. The more specific expectation of criticism and rejection necessarily involves other people in the (perceived) evaluation. Thus, words such as "criticized" and "rejected" would appear to be more inherently interpersonal in connotation, reflecting essentially social concerns, than words like "inadequate" and "failure." Both of these constructs were hypothesized to be salient in the eating disorders and social phobia. However, it is possible that social phobics do not view themselves as generally inadequate, but only inadequate with regard to specific situations involving evaluation by others. If this is so, one might expect a greater interference in the
processing of information that explicitly reflects interpersonal disapproval and rejection. Because the distinction between these two constructs has not been tested and is of interest, it was included in this study on an exploratory basis with no specific predictions as to the pattern of results.

As discussed earlier, an individual's expectations for success or failure following from his or her actions provide information about the view of the self. If anorexics and bulimics have a persistent underlying self-view as inadequate and vulnerable to negative evaluation by others, one might predict that they would be more likely than normal controls to expect rejection from others, and less likely to expect acceptance. Based on suggestions in the literature that intensity of affect associated with cognitions may relate to saliency of schemata (Markus, 1990), a negative underlying view of the self may also be apparent in the anticipation by eating-disordered subjects of greater intensity of negative affect associated with rejection experiences and lesser intensity of positive affect associated with acceptance experiences, compared to normal control subjects. These two hypotheses bearing upon the underlying view of the self were tested using a self-report measure developed for this study.
It has been generally established in the literature that a perfectionistic style is characteristic of individuals with eating disorders. However, as mentioned earlier, investigation of the multidimensional nature of perfectionism has been limited. Assessment of the dimension of perfectionism involving an overconcern with mistakes would appear to be particularly relevant to the exploration of an underlying negative view of the self. In this study it was hypothesized that anorexics and bulimics would score higher than normal controls on measures of both general perfectionism and the more specific domain of concern over mistakes. It was tentatively predicted that social phobics would score higher on these measures than normal control subjects, as well, possibly reflecting a fear of disapproval and criticism.

The second part of the general guiding conceptualization presented earlier is that in anorexia and bulimia nervosa the negative view of the self is channeled into a focus on weight and shape concerns. As discussed previously, this is not to suggest that the negative self-view becomes directed solely to these areas, but rather that there is a greatly heightened attunement to them and an increased tendency to interpret stimuli in terms of weight and shape. This "channeling" is the aspect of the model hypothesized to be unique to the eating disorders.
Thus, the most relevant comparisons here were between eating-disordered subjects and the non-eating-disordered psychopathological group, social phobics. It was generally hypothesized that anorexics and bulimics would be differentiated from social phobics by showing greater evidence of a channeling of the negative view of the self into a focus on weight and shape. More specifically, anorexics and bulimics were expected to show selective processing of weight-related information on a Stroop task. They were also expected to report more weight-related explanations for social avoidance, and more weight-related attributions for social failure and for social success than were social phobics. Two self-report measures were developed for this study to investigate weight-related explanations and attributions as indicators of the channeling hypothesis. It should be emphasized, however, that the use of these measures to address this issue was considered exploratory, as they were not standardized instruments.

**Specific Hypotheses Related to an Underlying View of the Self as Inadequate and Vulnerable to Negative Evaluation**

1. **Automatic Processing of Information Reflecting Negative Evaluation**

   It was hypothesized that both eating-disordered and socially phobic subjects would demonstrate longer color-naming latencies on the Stroop test for words connoting
negative evaluation compared to matched neutral words than
would normal control subjects.

Two separate sets of evaluation words and their control words were presented to subjects. The first set of words reflected general negative evaluation; the second set reflected a more specific form of negative evaluation related to criticism and rejection by others. It was predicted that anorexics and bulimics would show longer latencies on both of these sets of words compared to neutral control words, consistent with the notion that both types of negative evaluation are relevant to the self-representations of eating-disordered individuals.

Social phobics were also expected to demonstrate longer latencies on the two sets of negative evaluation words compared to matched neutral words. It was less clear whether or not to expect this effect to be stronger for the words reflecting essentially social evaluation compared to the words reflecting general negative evaluation. A finding of such a pattern would suggest a more pronounced concern with interpersonal evaluation on the part of social phobics. However, because the general negative evaluation words were not specifically non-social in connotation, a failure to find a stronger interference effect for the social evaluation words would not necessarily serve as
evidence contradicting a specific concern with interpersonal evaluation on the part of social phobics.

2. Expectations of Failure and of Success in Interpersonal Situations

The general hypotheses were that both eating-disordered individuals and social phobics would hold (a) higher expectations of experiencing interpersonal failure or rejection and (b) lower expectations of experiencing interpersonal success or acceptance than would non-eating-disordered, non-socially phobic individuals. Specifically, it was predicted that on a self-report measure describing various scenarios that result in either success or failure outcomes, anorexics, bulimics, and social phobics would rate interpersonal failure scenarios as more likely to happen to them and interpersonal success scenarios as less likely to happen to them than would normal control subjects.

3. Intensity of Affect Associated with Interpersonal Failure and Success

It was hypothesized that anorexic, bulimic, and socially phobic subjects would anticipate a greater intensity of negative affect when asked to imagine experiencing the interpersonal failure scenarios referred to above than would normal control subjects. With interpersonal success scenarios they were expected to anticipate less intense positive affect than normal control
subjects. These predictions were consistent with the findings of Teglasi and Hoffman (1982) with shy subjects, discussed earlier.

4. Interpersonal Avoidance and Distress

It was expected that eating-disordered and socially phobic subjects would report greater avoidance of or distress in specific social situations described on a self-report measure than would normal controls. More specifically, it was predicted that anorexics and social phobics would report a greater likelihood of either avoiding social situations because of anxiety or enduring them with intense anxiety than bulimics, who would in turn report a greater likelihood of such behavior than normal control subjects.

5. Perfectionism issues

It was hypothesized that, consistent with previous findings of high rates of perfectionism among eating-disordered individuals (e.g., Garner et al., 1983; Halmi et al., 1977), anorexics and bulimics would score higher on measures of general perfectionism than would normal controls. It was tentatively predicted that social phobics would also score higher than normal controls on these measures. On a measure of specific dimensions of perfectionism, anorexics, bulimics, and social phobics were
expected to reveal a greater concern over making mistakes than were normal controls.

(See Table 1 for a list of predictions related to the underlying view of the self as inadequate and vulnerable negative evaluation.)

Specific Hypotheses Related to Channeling of Underlying View of the Self as Inadequate and Vulnerable to Negative Evaluation into Focus on Weight and Shape

1. Automatic Processing of Information Related to Weight and Shape

It was predicted that anorexics and bulimics would demonstrate longer color-naming latencies on the Stroop test for words with negative weight and shape connotations compared to matched neutral words than would social phobics and normal control subjects. Social phobics and normal controls were not expected to differ from one another on this variable.

2. Weight-Related Explanations for Social Avoidance

It was hypothesized that both anorexics and bulimics would more strongly endorse weight-related explanations for avoidance of or distress in specific social situations described on a self-report measure than would social phobics and normal controls. More specifically, it was predicted that eating-disordered subjects would give stronger endorsement than social phobics and normal controls to a fear of negative evaluation of their weight
Table 1
Predictions Related to an Underlying View of the Self as Inadequate and Vulnerable to Negative Evaluation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measures</th>
<th>Predictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response to words reflecting negative evaluation</td>
<td>General Negative Evaluation Stroop</td>
<td>AN, BN, SP&gt;NC</td>
</tr>
<tr>
<td></td>
<td>Negative Evaluation by Others Stroop</td>
<td>AN, BN, SP&gt;NC</td>
</tr>
<tr>
<td>Expectation of failure in interpersonal situations</td>
<td>AES - Expectation of Failure subscale</td>
<td>AN, BN, SP&gt;NC</td>
</tr>
<tr>
<td>Expectation of success in interpersonal situations</td>
<td>AES - Expectation of Success subscale</td>
<td>AN, BN, SP&lt;NC</td>
</tr>
<tr>
<td>Intensity of affect associated with interpersonal failure</td>
<td>AES - Affect Associated with Failure subscale</td>
<td>AN, BN, SP&gt;NC</td>
</tr>
<tr>
<td>Intensity of affect associated with interpersonal success</td>
<td>AES - Affect Associated with Success subscale</td>
<td>AN, BN, SP&lt;NC</td>
</tr>
<tr>
<td>Interpersonal avoidance and distress</td>
<td>AQ - Frequency of Interpersonal Avoidance/Distress</td>
<td>AN, SP&gt;BN&gt;NC</td>
</tr>
<tr>
<td></td>
<td>AQ - Total Interpersonal Avoidance/Distress</td>
<td>AN, SP&gt;BN&gt;NC</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>EDI Perfectionism subscale</td>
<td>AN, BN, SP&gt;NC</td>
</tr>
<tr>
<td></td>
<td>MPS overall perfectionism score</td>
<td>AN, BN, SP&gt;NC</td>
</tr>
<tr>
<td></td>
<td>MPS Concern over Mistakes subscale</td>
<td>AN, BN, SP&gt;NC</td>
</tr>
</tbody>
</table>
and/or figure as contributing to their interpersonal avoidance. They were also expected to more strongly endorse as a contributor a fear of overeating in the social situation.

3. Weight-RelatedAttributions for Interpersonal Failure and Success

It was hypothesized that, compared to social phobics and normal control subjects, anorexics and bulimics would more strongly endorse weight-related attributions for (a) failure/rejection and for (b) success/acceptance in interpersonal situations appearing on a self-report measure. It was anticipated that eating-disordered subjects would report considering weight-related attributions more strongly than the other two subject groups. However, whether or not eating-disordered subjects would also decide upon more weight-related attributions as the most likely cause of interpersonal outcomes when given a choice of six possible causes was unclear. Given that for each scenario two of the attribution choices were plausible external attributions, which would presumably be less threatening in nature, it seemed unlikely that subjects would select a weight-related attribution as the most likely cause. Thus, this index was included on an exploratory basis.
(See Table 2 for a list of predictions related to the channeling of an underlying view of the self as inadequate and vulnerable to negative evaluation into a focus on weight and shape.)
Table 2
Predictions Related to Channeling of Underlying View of the Self as Inadequate and Vulnerable to Negative Evaluation into Focus on Weight and Shape

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measures</th>
<th>Predictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response to words related to weight and shape</td>
<td>Negative Shape Stroop</td>
<td>AN,BN&gt;SP,NC</td>
</tr>
<tr>
<td>Interpersonal avoidance due to weight-related fear of negative evaluation</td>
<td>AQ - Weight and Figure Explanation subscale</td>
<td>AN,BN&gt;SP,NC</td>
</tr>
<tr>
<td>Interpersonal avoidance due to fear of overeating</td>
<td>AQ - Overeating Explanation subscale</td>
<td>AN,BN&gt;SP,NC</td>
</tr>
<tr>
<td>Weight-related attributions considered for interpersonal failure</td>
<td>AES - Failure-Not Thin Enough subscale</td>
<td>AN,BN&gt;SP,NC</td>
</tr>
<tr>
<td>Weight-related attributions considered for interpersonal success</td>
<td>AES - Success-Slender subscale</td>
<td>AN,BN&gt;SP,NC</td>
</tr>
<tr>
<td>Weight-related attributions decided upon for interpersonal failure</td>
<td>AES - &quot;Not Thin Enough&quot; attribution chosen as major cause</td>
<td>AN,BN&gt;SP,NC?</td>
</tr>
<tr>
<td>Weight-related attributions decided upon for interpersonal success</td>
<td>AES - &quot;Slender&quot; attribution chosen as major cause</td>
<td>AN,BN&gt;SP,NC?</td>
</tr>
</tbody>
</table>
CHAPTER III

Method

Subjects

Subject Recruitment and Selection

The subjects in this study were 18 anorexics (14 restricting, 4 bulimic), 15 normal-weight bulimics, 16 social phobics, and 18 normal control subjects. Because of the extremely low rates of eating disorders occurring among males relative to females (Bemis, 1978; Johnson & Connors, 1987), only female subjects were recruited. All subjects were required to be at least 13 years old, as it was felt that some of the study questionnaires may have been difficult to understand or otherwise inappropriate for younger subjects. Selection procedures for eating disorder subjects, social phobics, and normal controls will be described separately because they varied markedly from group to group.

Eating disorder subjects. The majority of anorexic and bulimic subjects were recruited from the eating disorders program of Kapiolani Counseling Center at Kapiolani Medical Center for Women and Children in Honolulu. An application for permission to conduct this study was submitted to and approved by the Research Board of the hospital prior to beginning data collection. Most patients with eating disorders seen at this hospital are
treated on an outpatient basis at Kapiolani Counseling Center. A small minority of the anorexics in treatment are medically hospitalized at the Medical Center, primarily for weight stabilization.

When this project began a review was made of all active eating disorder cases at Kapiolani Counseling Center. A list was compiled of all patients who, from chart review, appeared likely to meet diagnostic criteria for anorexia nervosa or bulimia nervosa. This list was reviewed with Kapiolani Counseling Center staff members (a nutritionist, a psychologist, and a psychiatrist) familiar with these patients. They indicated which patients, in their opinion, met diagnostic and other criteria necessary to be appropriate for the study. As new patients initiated treatment at Kapiolani Counseling Center over the course of data collection, staff members provided the investigator with the names and phone numbers of potential subjects. Additionally, they notified the investigator whenever an anorexic was admitted to an inpatient unit of the hospital. In receiving a referral the investigator informally screened patients for study criteria by questioning staff members about symptomatology. Referrals were generally made during a weekly eating disorders team meeting. In most cases the referring staff member received permission from the patient prior to making the referral.
In addition to patients being treated on an outpatient or inpatient basis at Kapiolani, Kapiolani Counseling Center staff members also referred a number of other individuals as potential subjects. These referrals consisted of several patients being seen on a private basis, as well as several individuals who had recently terminated or not yet begun treatment. Additionally, two subjects were inpatients at Kahi Mohala, a private psychiatric hospital in Ewa Beach, Hawaii. These two subjects were referred by the nutritionist with the eating disorders program at Kapiolani Counseling Center, who also treated eating-disordered patients at Kahi Mohala.

Following referral of a potential anorexic or bulimic subject by a Kapiolani Counseling Center staff member, phone contact was initiated by the investigator, who explained the nature of the project and inquired as to whether or not the individual was interested in participating. She was told that the study was a research project on anorexia nervosa and bulimia nervosa, and that participation would involve a session with the investigator during which she would be asked about some of her symptoms and experiences with her eating disorder. The individual was also told that she would be asked to fill out a number of questionnaires, and to perform several perceptual tasks. The voluntary and confidential nature of
participation was stressed, and confidentiality was maintained in phone contact, as well, in that no identifying messages were left on answering machines or with other persons. No payment was offered for participation, but it was conveyed to the subject that in similar studies subjects had often found the experience to be interesting and beneficial to them. In cases in which the individual was not currently in treatment or in which the referring staff member was unclear as to whether the individual was likely to meet study criteria, screening questions were posed over the phone (see ED Telephone Screen in Appendix A). Most of these questions were items assessing eating disorder symptomatology taken from the diagnostic interview, which will be discussed shortly. The purpose of this screening procedure was to identify at the outset individuals who clearly would not meet study criteria.

An exception to the above initial contact procedure was made with those referred individuals who were inpatients at Kapiolani Medical Center. Those individuals were approached in person in their hospital rooms, rather than over the telephone. They were given the same basic information about the study as were the other potential subjects. This initial contact, as well as the testing session itself with those subjects hospitalized at
Kapiolani Medical Center, was done by a female advanced graduate student other than the investigator who was at that time a practicum student at Kapiolani Counseling Center and a member of the eating disorders treatment team.

The majority of potential subjects contacted about the study agreed to participate. Reasons for refusal to participate included lack of time, a reluctance to discuss their eating disorder, and lack of transportation to the testing session. Only one potential subject was excluded from participation on the basis of the telephone screening procedure. Although that subject reported binge-eating episodes, these did not occur with enough frequency to meet diagnostic criteria for bulimia nervosa. Once a referred individual agreed to participate in the study, an appointment was made with her for the testing session to take place.

Beyond the initial screening performed upon receipt of a referral of a potential subject and, in some cases, through telephone screening as well, the decision for inclusion or exclusion of a subject as meeting study criteria was based on a structured diagnostic interview conducted with the subject during the testing session. The diagnostic interview was developed by a research team consisting of the investigator, the investigator's academic advisor, and several other graduate students (see Appendix
A for copies of the diagnostic interview and diagnostic checklist). The interview was designed to be used for a number of other eating disorder studies, in addition to the current project. The format of the diagnostic interview was based on one used by Bemis (1986), with modifications made as necessary for this study. Bemis utilized the Schedule for Affective Disorders and Schizophrenia (Spitzer & Endicott, 1978) to guide the phrasing of items on her interview schedule.

The diagnostic interview was used to establish the presence or absence of the study diagnoses of anorexia nervosa, bulimia nervosa, and social phobia, generalized type, based on DSM-III-R (American Psychiatric Association, 1987) criteria¹ (see Table 3). In addition to meeting DSM-III-R criteria, anorexics and bulimics were required to meet certain weight criteria. In order to qualify for a study diagnosis of anorexia nervosa, subjects had to be at least 15% below age-corrected "ideal" weight.² DSM-III-R does not specify actual weight requirements in Criterion A for anorexia nervosa, but suggests 85% of expected body weight as a guide. "Ideal" weights were obtained from the 1983 revision of the Metropolitan Life Insurance Company's standards, and are based on statistical associations between longevity and weight status.
Table 3
Diagnostic Criteria for Anorexia Nervosa, Bulimia Nervosa, and Social Phobia, Generalized Type

Anorexia Nervosa
A. Refusal to maintain body weight over a minimal normal weight for age and height, e.g., weight loss leading to maintenance of body weight 15% below that expected; or failure to make expected weight gain during period of growth, leading to body weight 15% below that expected.

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight, size, or shape is experienced, e.g., the person claims to "feel fat" even when emaciated, believes that one area of the body is "too fat" even when obviously underweight.

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

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

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

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

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

E. Persistent overconcern with body shape and weight.
Table 3. (Continued) Diagnostic Criteria for Anorexia Nervosa, Bulimia Nervosa, and Social Phobia, Generalized Type

**Social Phobia**

A. A persistent fear of one or more situations (the social phobic situations) in which the person is exposed to possible scrutiny by others and fears that he or she may do something or act in a way that will be humiliating or embarrassing. Examples include: being unable to continue talking while speaking in public, choking on food when eating in front of others, being unable to urinate in a public lavatory, hand-trembling when writing in the presence of others, and saying foolish things or not being able to answer questions in social situations.

B. If an Axis III or another Axis I disorder is present, the fear in A is unrelated to it, e.g., the fear is not of having a panic attack (Panic Disorder), stuttering (Stuttering), trembling (Parkinson's disease), or exhibiting abnormal eating behavior (Anorexia Nervosa or Bulimia Nervosa).

C. During some phase of the disturbance, exposure to the specific phobic stimulus (or stimuli) almost invariably provokes an immediate anxiety response.

D. The phobic situation(s) is avoided, or is endured with intense anxiety.

E. The avoidant behavior interferes with occupational functioning or with usual social activities or relationships with others, or there is marked distress about having the fear.

F. The person recognizes that his or her fear is excessive or unreasonable.

G. If the person is under 18, the disturbance does not meet the criteria for Avoidant Disorder of Childhood or Adolescence.

Specify **generalized type** if the phobic situation includes most social situations, and also consider the additional diagnosis of Avoidant Personality Disorder.

Normal-weight bulimics were required to weigh between 75% and 125% of age-corrected "average" weights of American women, based on a survey conducted by the Department of Health, Education, and Welfare from 1971 to 1974 (Abraham, Johnson, & Najjar, 1979). (See Appendix B for "average" and "ideal" weight tables.) "Average," rather than "ideal" weights were used with bulimic subjects because the intent was to ensure that their weights were typical of or "average" for American women as a whole, whereas the more conservative "ideal" weight figures were employed with anorexics in order to ascertain that they were significantly below biologically-desirable weight levels. Both "average" and "ideal" weights were calculated for all subjects, and are presented in Appendix B.

Anorexic subjects were classified as restricting anorexics if their weight was controlled through dieting and/or exercise, and if bingeing occurred less than once a month, if at all. They were classified as bulimic anorexics if they reported bingeing on an objectively large amount of food at least once every two weeks, with or without purging.

The social phobia section of the diagnostic interview was based to a large extent on the Anxiety Disorders Interview Schedule - Revised (Di Nardo et al., 1985) and the Structured Clinical Interview for DSM-III-R - Patient
Version (Spitzer, Williams, Gibbon, & First, 1989). In order to meet criteria for social phobia, generalized type it was required that the subject report at least moderate fear and/or avoidance not due to a concern about eating and weight of three or more types of social situations.

In addition to assessing the presence or absence of study diagnoses, the diagnostic interview was designed to screen for study exclusionary criteria and to establish supplementary diagnoses. Automatic exclusionary criteria included possible past or present diagnoses of schizophrenia, schizophreniform disorder, brief reactive psychosis, or psychotic disorder not otherwise specified, estimated IQ of less than 80, or evidence of a current manic episode. Major depression, panic disorder, or substance abuse to which the focal symptomatology appeared to be attributable were regarded as exclusionary criteria, as well. Major depression was assessed for anorexic, bulimic, and social phobic subjects, and was considered to be a supplementary diagnosis provided it could not be established that the focal symptomatology was the result of that condition. Panic disorder was assessed only in subjects who appeared to meet criteria for a diagnosis of social phobia, in order to ascertain that social anxiety and avoidance were not merely secondary to a fear of experiencing a panic attack in public. Diagnosis of
avoidant disorder of childhood or adolescence was an exclusionary criterion for a diagnosis of social phobia, as specified by DSM-III-R (American Psychiatric Association, 1987). Subjects meeting criteria for social phobia were also assessed for a supplementary diagnosis of avoidant personality disorder.

The diagnostic interview was conducted by the investigator with all subjects except those who were inpatients at Kapiolani Medical Center. Those subjects were interviewed and tested by another advanced graduate student, as mentioned earlier. Both interviewers were trained in the administration of the diagnostic interview by the investigator's academic advisor. In cases in which there was some question as to whether or not the subject met study criteria, the investigator consulted with her academic advisor in making a decision about inclusion or exclusion. Only two subjects who were not screened out at time of referral or through telephone contact were eliminated for diagnostic reasons on the basis of the structured diagnostic interview. One was an anorexic who reported feeling that her weight was too low. She expressed fear of increasing her body percentage of "fat," but not of gaining weight, as long as it was muscle. The other subject eliminated following the diagnostic interview
was a bulimic who had not binged or purged for 7 weeks as a result of treatment.

**Social phobic subjects.** Attempts were made to obtain clinical referrals of social phobics from the following sources: the Anxiety Disorders Program at the Queen's Hospital Mental Health Clinic, Pacific Anxiety Resources (an anxiety disorders support group), Kapiolani Counseling Center, Alternatives for Women, and two clinicians in private practice. Despite repeated contact with these organizations and individuals, only three potential subjects were referred by any of these sources. One of these was screened out of the project through telephone contact due to a history of anorexia nervosa; one was eliminated following completion of the testing session because of seemingly random responding to many of the questionnaire items.

Because of the lack of success at obtaining subjects through clinician referral, symptomatic volunteer subjects were solicited in several ways from the University of Hawaii at Manoa. An advertisement was placed in Ka Leo, the university newspaper, and fliers were posted around the campus requesting as subjects women between the ages of 15 and 45 who experience excessive anxiety in a variety of social situations. Fliers were also distributed in four undergraduate speech classes. In exchange for
participation in the project, potential subjects were offered a seminar on coping with social anxiety conducted by the investigator. One woman responded to the advertisement in the student newspaper; one responded to a flier she received in her speech class, but did not keep a scheduled appointment. Sixteen women responded to fliers posted on campus. Three of these were screened out of the project through a telephone screening process assessing social phobia symptomatology (see Social Phobia Screen in Appendix A). In two of these cases the individuals had too circumscribed a fear involving primarily public speaking situations. The other woman screened out in this manner reported only mild social anxiety. Two other individuals who responded to fliers completed the testing session, but did not meet criteria for social phobia, generalized type on the basis of completion of the diagnostic interview. Each of them could only identify one or two types of social situations in which they experienced at least moderate anxiety and/or avoidance.

In addition to the 1 subject obtained as a clinical referral and the 12 subjects obtained through their response to fliers or an advertisement, 3 women were recruited as subjects from a group of students being screened as potential normal control subjects by participating in a psychology experiment for extra credit.
As will be described in the next section, individuals who were recruited as normal control subjects completed a set of five questionnaires, including two measures of social anxiety, prior to the testing session in order to determine whether they met study criteria for inclusion as normal controls. Four subjects scored in the very high range on both social anxiety measures. These subjects were contacted by phone and screened with the social phobia screening form used with those subjects who had responded to the advertisement or fliers. One subject was eliminated in this way because her social anxiety was specific to public speaking and classroom discussions. The other 3 subjects were not screened out through telephone contact, and met criteria for social phobia, generalized type when administered the diagnostic interview.

As with eating disorder subjects, the diagnostic interview was conducted with social phobics during the testing session. All subjects were tested and interviewed by the investigator. In addition to being required to meet diagnostic criteria for social phobia, generalized type as described in the previous section, social phobic subjects could not currently have an eating disorder or have a past history of an eating disorder. Like bulimic subjects, they were required to weigh between 75% and 125% of age-corrected "average" weight. A weight criterion was
utilized with socially phobic subjects, as well as with normal control subjects, in order to minimize the likelihood of a significant weight disorder being responsible for a tendency to interpret situations as weight-related. The same additional exclusionary criteria (e.g., diagnosis of schizophrenia) were employed with social phobics as were applied to eating disorder subjects.

**Normal control subjects.** Normal control subjects were recruited from undergraduate psychology and women's studies classes at the University of Hawaii with the consent of course instructors. They received extra credit points in exchange for participation. No diagnostic interview was conducted with normal control subjects. Individuals were excluded as subjects if their current weight was less than 75% or more than 125% of age-corrected "average" weight, or if they indicated on a subject Information Sheet (see Appendix C) that they currently had an eating disorder or had had one in the past. In addition, in order to reduce the possibility of inadvertently including as normal control subjects individuals with clinically-severe disorders, potential subjects were screened on the basis of their scores on four symptom inventories. They were excluded if they scored higher on any of those measures than the following cut-offs established for this study: 13 on the Drive for Thinness subscale or 10 on the Bulimia
subscale of the Eating Disorder Inventory (EDI); 14 on the Beck Depression Inventory (BDI); 45 on the Brief Fear of Negative Evaluation scale (Brief-FNE); 60 on the Social Phobia and Anxiety Inventory (SPAI).

The cut-off scores for the two EDI subscales were selected because they represent the mean scores for anorexic (Drive for Thinness subscale) and bulimic (Bulimia subscale) groups in the standardization sample (Garner & Olmsted, 1984). The BDI cut-off of greater than 14 has been used in other studies to avoid including subjects with a clinical depression without also excluding normal, mildly dysphoric subjects. The cut-off score for the Brief-FNE was determined on the basis of pilot testing of the instrument by the investigator with 76 undergraduate psychology students. The cut-off value of 45 was 10 points higher than the mean score obtained by pilot subjects, and excluded not more than 20% of those individuals. For the SPAI, the cut-off score employed was that recommended by the developers of the instrument for use in identifying social phobics in a student sample (Turner, Beidel, Dancu, & Stanley, 1989). (See Materials section for full descriptions of these symptom inventories.)

Subject Characteristics

Demographics. Selected demographic characteristics of subjects are summarized in Tables 4 and 5. The majority
Table 4  
Age and Ethnicity of Subjects by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>25.17a</td>
<td>24.40a</td>
<td>29.94a</td>
<td>24.94a</td>
</tr>
<tr>
<td>SD</td>
<td>10.26</td>
<td>6.20</td>
<td>8.50</td>
<td>7.15</td>
</tr>
</tbody>
</table>

| Ethnicity | | | | |
|-----------| | | | |
| Asian     | 5 (28%) | 2 (13%) | 4 (25%) | 9 (50%)  |
| Caucasian | 11 (61%)| 11 (73%)| 10 (63%)| 4 (22%)  |
| Part Hawaiian | 0 | 0 | 0 | 1 (06%) |
| Mixed     | 2 (11%) | 2 (13%) | 1 (06%) | 1 (06%)  |
| Other     | 0       | 0       | 1 (06%) | 3 (17%)  |

Note. Cell means that do not share a common subscript differ at the .05 level.
Table 5

Educational Level and Marital Status of Subjects by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school</td>
<td>8 (44%)</td>
<td>3 (20%)</td>
<td>1 (06%)</td>
<td>0</td>
</tr>
<tr>
<td>College</td>
<td>10 (56%)</td>
<td>11 (73%)</td>
<td>10 (63%)</td>
<td>17 (94%)</td>
</tr>
<tr>
<td>Grad. school</td>
<td>0</td>
<td>1 (07%)</td>
<td>5 (31%)</td>
<td>1 (06%)</td>
</tr>
</tbody>
</table>

Marital status

<table>
<thead>
<tr>
<th>Status</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>10 (56%)</td>
<td>11 (73%)</td>
<td>9 (56%)</td>
<td>--</td>
</tr>
<tr>
<td>Married</td>
<td>7 (39%)</td>
<td>3 (20%)</td>
<td>6 (38%)</td>
<td>--</td>
</tr>
<tr>
<td>Divorced</td>
<td>1 (06%)</td>
<td>1 (07%)</td>
<td>1 (06%)</td>
<td>--</td>
</tr>
</tbody>
</table>

a High school category includes current high school students and high school graduates. College category includes subjects with some college, current college students, and college graduates. Graduated school category includes subjects with some graduate school, current graduate students, and those with graduate degrees.

b Marital status not assessed for normal control subjects.
of subjects reported their ethnicity to be Asian American or Caucasian - 50% of normal controls, 25% of social phobics, 28% of anorexics, and 13% of bulimics were Asian; 22% of normal controls, 63% of social phobics, 61% of anorexics, and 73% of bulimics were Caucasian. There were no significant group differences in age ($F(3,63) = 1.56, p = .2071$). The educational levels of subjects, shown in Table 5, reflect the fact that a substantial number of subjects in each group were students at the time of assessment. All normal controls were recruited from undergraduate classes, and all but one social phobic were recruited through fliers posted on campus, an advertisement placed in the student newspaper, or undergraduate classes. The majority of the eating-disordered subjects were still in school at the high school or undergraduate college level, as well. Marital status was assessed for anorexics, bulimics, and social phobics. Anorexic and socially phobic subjects were virtually identical in status percentages; fewer bulimic subjects were married.

**Treatment status.** Table 6 indicates the current and past treatment status of anorexics, bulimics, and social phobics. At the time of assessment, the average length of treatment for those subjects being treated for the presenting problem on an outpatient basis was 30.22 weeks
<table>
<thead>
<tr>
<th>Type of treatment</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current outpatient</td>
<td>9 (50%)</td>
<td>13 (87%)</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>Current inpatient</td>
<td>7 (39%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Past outpatient for presenting problem</td>
<td>9 (50%)</td>
<td>8 (53%)</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>Past inpatient for presenting problem</td>
<td>7 (39%)</td>
<td>4 (27%)</td>
<td>0</td>
</tr>
<tr>
<td>Past outpatient for other psychiatric problems</td>
<td>9 (50%)</td>
<td>6 (40%)</td>
<td>5 (31%)</td>
</tr>
<tr>
<td>Past inpatient for other psychiatric problems</td>
<td>3 (17%)</td>
<td>3 (20%)</td>
<td>1 (06%)</td>
</tr>
</tbody>
</table>
for anorexics (range 1 - 182 weeks), 18.23 weeks for bulimics (range 1 - 78 weeks), and 30.50 weeks for social phobics (range 8 - 70 weeks). The 7 anorexics receiving inpatient treatment when they took part in the study averaged 12.86 days of hospitalization (range 7 - 21 days). No bulimics or social phobics were inpatients at the time of assessment.

Among those subjects who had participated in prior outpatient treatment for the presenting problem, the duration of that treatment averaged 64.89 weeks (range 2 - 312 weeks), 100.25 weeks (range 4 - 208 weeks), and 72.72 weeks (range 30 - 143 weeks) for anorexics, bulimics, and social phobics, respectively. The number of past hospitalizations undergone for the focal symptomatology ranged from 1 to 5 for those 7 anorexics who had received prior inpatient treatment. Three bulimic subjects had been hospitalized once in the past for treatment of bulimia nervosa, and 1 had been hospitalized twice.

In addition to treatment for the presenting problem, 50% of anorexics, 40% of bulimics, and 31% of social phobics had in the past received outpatient treatment for other psychiatric problems, most commonly depression. Relationship issues, obsessive compulsive disorder, post-traumatic stress disorder, substance abuse, and self-esteem issues were also reported as foci of treatment. Two
anorexics had each been psychiatrically hospitalized five times in the past for problems other than an eating disorder; 1 had been hospitalized once. One bulimic had a history of two prior hospitalizations for other psychological problems, and 2 had histories of single previous hospitalizations. The 1 social phobic who had undergone prior inpatient treatment for psychopathology other than social phobia had been hospitalized twice.

The psychiatric treatment status of normal control subjects was not formally assessed. However, in response to an item on the subject Information Sheet querying whether or not subjects had received a past or present psychiatric diagnosis, 1 subject indicated a past diagnosis of depression. No other subjects responded affirmatively to that item. Five subjects (28%) indicated that they thought they had had a psychiatric disorder, most commonly depression, in the past. No subjects reported thinking they had a disorder at the time of assessment.

**Height and weight.** Table 7 displays group means and standard deviations for subject height and weight characteristics. Univariate analyses of variance (ANOVA)s revealed no significant differences in height between subject groups \( F(3,60) = 1.29, p = .2877 \), but significant differences in weight \( F(3,60) = 11.33, p<.0001 \). A Bonferroni test conducted at the .05 level indicated that,
Table 7

Group Means for Height, Weight, Weight Percentage of
"Average" Weight, and Weight Percentage of "Ideal" Weight

<table>
<thead>
<tr>
<th>Group</th>
<th>AN (n=15)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (inches)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>63.00&lt;sub&gt;a&lt;/sub&gt;</td>
<td>64.93&lt;sub&gt;a&lt;/sub&gt;</td>
<td>63.38&lt;sub&gt;a&lt;/sub&gt;</td>
<td>63.39&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>3.09</td>
<td>2.34</td>
<td>3.34</td>
<td>2.89</td>
</tr>
<tr>
<td>Current weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>97.13&lt;sub&gt;b&lt;/sub&gt;</td>
<td>127.80&lt;sub&gt;a&lt;/sub&gt;</td>
<td>121.06&lt;sub&gt;a&lt;/sub&gt;</td>
<td>126.06&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>16.33</td>
<td>17.51</td>
<td>15.72</td>
<td>16.54</td>
</tr>
<tr>
<td>Current weight % &quot;average&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>70.60</td>
<td>92.40</td>
<td>86.06</td>
<td>94.83</td>
</tr>
<tr>
<td>SD</td>
<td>8.60</td>
<td>11.32</td>
<td>10.17</td>
<td>9.81</td>
</tr>
<tr>
<td>Current weight % &quot;ideal&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>77.27</td>
<td>97.07</td>
<td>94.00</td>
<td>99.22</td>
</tr>
<tr>
<td>SD</td>
<td>9.35</td>
<td>12.02</td>
<td>10.07</td>
<td>8.02</td>
</tr>
</tbody>
</table>

Note. Cell means that do not share a common subscript differ at the .05 level. Percentages of "average" weight based on Abraham et al. (1979). Percentages of "ideal" weight based on Metropolitan Life Insurance Company (1983).

<sup>a</sup>Three anorexics were omitted from all height and weight calculations (see Footnote 3).
as would be expected, anorexics weighed significantly less than bulimics, social phobics, or normal controls. Those three groups did not differ from one another in weight.

The anorexic mean weight of 97.13 pounds - 70.60% of "average" weight for age and height or 77.27% of "ideal" weight - represents partial weight restoration from an average low weight over the prior 2 months of 90 pounds (65.27% of "average" or 71.53% of "ideal"); most subjects had been participating in an active treatment program for at least several weeks at the time of assessment. The mean weight of the other three subject groups ranged from 121.06 to 127.80 pounds, representing 86.06 - 94.83% of "average" weight or 94.00 - 99.22% of "ideal" weight.

Group means and standard deviations of subjects' "preferred" weights, defined as "if you could weigh anything you wanted to, what would you like to weigh?", are shown in Table 8. An overall ANOVA indicated significant group differences in preferred weight [$F(3, 60) = 10.51$, $p<.0001$]. Bonferroni comparisons revealed that the anorexic mean preferred weight of 92.20 pounds (66.93% of "average" or 73.47% of "ideal" weight) was significantly lower than preferred weights of the other three groups, which ranged from 79.87 - 86.67% of "average" or 86.00 - 90.94% of "ideal." The preferred weights identified by
Table 8
Group Means of Preferred Weight

<table>
<thead>
<tr>
<th>Group</th>
<th>AN (n=15)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| M        | 92.20  
  
  b | 113.33  
  a | 112.38  
  a | 115.11  
  a |
| SD       | 15.35 | 12.64 | 12.77 | 11.43 |
| % "average" | | | | |
| M        | 66.93 | 81.67 | 79.87 | 86.67 |
| SD       | 7.97 | 6.20 | 7.14 | 7.35 |
| % "ideal" | | | | |
| M        | 73.47 | 86.00 | 88.25 | 90.94 |
| SD       | 8.56 | 6.99 | 6.69 | 5.85 |
| % current weight | | | | |
| M        | 95.73 | 89.13 | 93.19 | 91.94 |
| SD       | 11.61 | 6.56 | 5.37 | 4.98 |

Note. Cell means that do not share a common subscript differ at the .05 level. Percentages of "average" weight based on Abraham et al. (1979). Percentages of "ideal" weight based on Metropolitan Life Insurance Company (1983).

a Three anorexics were omitted from all height and weight calculations (see Footnote 3).
individuals in all four subject groups averaged between 89.13 and 95.73% of their current weights.

Eating disorder symptomatology. Subject report of the frequency with which they engage in each of four behaviors related to disordered eating is presented in Table 9. As can be seen in the table, very few of the social phobic or normal control subjects reported binge-eating, defined as eating uncontrollably to the point of stuffing oneself, on any more than a less than weekly basis. With the exception of the 4 bulimic anorexics, who averaged 13 binges per week, bingeing was also uncommon among anorectic subjects. Bulimic subjects averaged 5.67 binges per week. No non-eating-disordered subjects reported self-inducing vomiting following food intake, and only one used laxatives (on a less than weekly basis) in order to control her weight. As would be expected, severely restrictive dieting, defined as attempting to consume 1000 calories per day or less, was frequently engaged in by most anorexic subjects. Fifty-three percent of the bulimics reported following such a low-calorie diet at least several times per week; the other 47% never dieted in this manner. Although several social phobics and normal control subjects did report dieting as often as several times a week, a substantial majority indicated they never dieted.
Table 9

Subject Report of Frequency of Eating Disorder Behaviors

<table>
<thead>
<tr>
<th>Behavior</th>
<th>AN-R (n=14)</th>
<th>AN-B (n=4)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Binge eating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>86%</td>
<td>0</td>
<td>0</td>
<td>75%</td>
<td>67%</td>
</tr>
<tr>
<td>Less than weekly</td>
<td>14%</td>
<td>0</td>
<td>0</td>
<td>19%</td>
<td>22%</td>
</tr>
<tr>
<td>Weekly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6%</td>
<td>11%</td>
</tr>
<tr>
<td>Several times/wk</td>
<td>0</td>
<td>25%</td>
<td>67%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Daily or more</td>
<td>0</td>
<td>75%</td>
<td>33%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Self-induced vomiting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>93%</td>
<td>25%</td>
<td>13%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Less than weekly</td>
<td>7%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Weekly</td>
<td>0</td>
<td>0</td>
<td>13%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Several times/wk</td>
<td>0</td>
<td>0</td>
<td>40%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Daily or more</td>
<td>0</td>
<td>75%</td>
<td>33%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Laxative abuse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>71%</td>
<td>100%</td>
<td>80%</td>
<td>94%</td>
<td>100%</td>
</tr>
<tr>
<td>Less than weekly</td>
<td>7%</td>
<td>0</td>
<td>7%</td>
<td>6%</td>
<td>0</td>
</tr>
<tr>
<td>Weekly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Several times/wk</td>
<td>7%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Daily or more</td>
<td>14%</td>
<td>0</td>
<td>13%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Severely restrictive dieting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>14%</td>
<td>25%</td>
<td>47%</td>
<td>75%</td>
<td>78%</td>
</tr>
<tr>
<td>Less than weekly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13%</td>
<td>17%</td>
</tr>
<tr>
<td>Weekly</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6%</td>
</tr>
<tr>
<td>Several times/wk</td>
<td>14%</td>
<td>25%</td>
<td>20%</td>
<td>13%</td>
<td>0</td>
</tr>
<tr>
<td>Daily or more</td>
<td>71%</td>
<td>50%</td>
<td>33%</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note. Restricting and bulimic anorexics reported separately. AN-R = restricting anorexics; AN-B = bulimic anorexics.
As part of the diagnostic interview anorexic and bulimic subjects were also questioned about diuretic use, fasting, and engagement in intensive exercise. Use of diuretics for weight control was rare - one bulimic and one anorexic reported taking diuretics on a less than weekly basis, and one anorexic took diuretics daily. Three of the 18 anorexics (17%) and 2 of the 15 bulimics (13%) reported fasting for 24 hours at least weekly. Regular, intensive exercise for the purpose of weight control was practiced by a large percentage of eating-disordered subjects. Anorexics exercised a mean of 3.22 days per week and bulimics a mean of 2.73 days. Forty-four percent of the anorexics and 40% of the bulimics engaged in exercise sessions of at least an hour duration four or more times per week; 5 of the anorexics and 2 of the bulimics reported exercising daily. For several bulimics intensive exercise, rather than self-induced vomiting, was the primary means of preventing weight gain from binge-eating.

**Social phobia symptomatology.** Fifty percent of the anorexic subjects and 33% of the bulimic subjects met DSM-III-R (American Psychiatric Association, 1987) criteria for social phobia, generalized type. As mentioned earlier, in order for subjects to receive that diagnosis, it was required that they were fearful and/or avoidant of at least three types of social situations. Subjects in the social
phobia group feared and/or avoided a mean of 6.75 types of social situations. Anorexics and bulimics meeting diagnostic criteria for generalized social phobia feared and/or avoided an average of 6.00 and 6.60 types of social situations, respectively. Situations that most commonly provoked anxiety responses included formal public speaking, initiating conversations, talking in meetings, and attending parties. Fifty percent of subjects in the social phobia group met diagnostic criteria for Avoidant Personality Disorder in addition to Social Phobia, Generalized Type. Of the anorexic subjects diagnosable as socially phobic, 67% also met criteria for Avoidant Personality Disorder, as did 60% of the socially phobic bulimics.

**Materials**

**Stroop Cards**

A total of eight cards were used for the color-naming task. Each card measured 43.3 cm x 28 cm, and consisted of 50 words hand-printed in five columns of 10 words each. Words were written in lower case letters 0.7 cm high. There were five different words per card, with each word appearing a total of 10 times on the card. Words were printed in five colors: red, blue, orange, brown, and green. Each of the five different words per card and each of the five colors appeared two times per column.
Presentation order of both words and colors was randomized as much as possible within each column. However, there was some non-random manipulation of items in order to ensure that the two presentations of a particular word or color in a column did not occur consecutively. No attempt was made to avoid consecutive presentation of words or colors across rows. One exception to the above format was the Simple Color Stroop card, on which each item consisted of a series of five X's, rather than words, printed in the randomized colors.

In constructing the cards, 43.3 cm x 28 cm white xerox paper was lightly lined with pencil to guide the spacing of words. Words were printed using fine point marking pens in the appropriate colors. Pencilled lines were then erased, and the xerox paper was mounted on white poster board using spray adhesive. The Stroop cards were then laminated.

In addition to the Simple Color Stroop card described above, a Conflicting Color Stroop card was used which consisted of the names of the five colors (red, blue, orange, brown, green), each printed in a conflicting color. As with the other cards, each color word and each color of lettering appeared two times per column as randomly as possible. No color word was printed in its congruent color. The Conflicting Color Stroop is the card most similar to the original Stroop task, and typically produces
longer color-naming latencies than any other Stroop card due to the difficulty of the task caused by the interference of the color words (Klein, 1964). Both a Simple Color Stroop and a Conflicting Color Stroop have generally been included in studies using similar revised versions of the Stroop Color-Naming Task (e.g., Ben-Tovim et al., 1988; Channon et al., 1988; Hope et al., 1990; Watts et al., 1986). Scores from these cards are used to examine differences between subject groups in performance of the basic color-naming tasks.

The six remaining Stroop cards consisted of three target cards and a control card for each. The Negative Shape Stroop consisted of the words "flabby," "fat," "plump," "thighs," and "chubby." Items for this card were chosen to match as closely as possible words used in the Ben-Tovim et al. (1988) and Channon et al. (1988) studies. The General Negative Evaluation Stroop consisted of the words "failure," "inadequate," "incompetent," "worthless," and "inferior." The items for this card were chosen to connote negative evaluation of a general nature, that may reflect self-evaluation or anticipated evaluation of the self by others. The Negative Evaluation by Others Stroop contained the words "unpopular," "criticized," "rejected," "scorned," and "humiliated." For this card words were chosen that imply that someone other than the self is
involved in the (perceived) evaluation. Five of the words from these last two cards were taken from Hope et al. (1990) and Mathews and MacLeod (1985).

After the two types of evaluation words were selected, thirteen graduate students and undergraduate seniors were asked to sort each word into one of the two categories (see Expert Rating Task in Appendix D). The rates of agreement among raters that each word on the General Negative Evaluation Stroop belonged in that category were the following: "inadequate" - 92%, "failure" and "inferior" - 77%, "incompetent" and "worthless" - 69%. Agreement rates for Negative Evaluation by Others words were: "rejected" - 100%, "scorned" - 92%, "unpopular" and "humiliated" - 77%, "criticized" - 69%.

Control cards for each of the three target cards consisted of words which were matched as closely as possible to each target word in terms of frequency of occurrence in the English language (Kucera & Francis, 1967) and graphomorphemic features (number of letters, visual shape of the word, initial letter). In selecting control words, words with food, weight, shape, social, moralistic, or other connotations thought to be potentially anxiety-provoking to eating-disordered individuals were avoided. Color-related words, such as "sky" or "grass" were excluded because color-naming is facilitated when such
words are printed in their congruent color (e.g., "sky" printed in blue ink) (Dalrymple-Alford, 1972a). In addition, because it has been found that the use of words with initial or ending sounds similar to the name of a color other than the color in which the word is printed (e.g., "blur" printed in red ink) results in longer color-naming latencies (Dalrymple-Alford, 1972b), the use of such words was avoided in selecting control words. (See Appendix C for lists of target words and their controls.)

Card Sorting Task

A card sorting task was used purely as a distracter in the testing sequence. The task consisted of a set of 91 plain white square cards, approximately 3 inches in diameter. Each card had a different line drawing glued onto it. Two boxes, one labeled "simple" and the other labeled "complex," were used in the task, as well.

Eating Disorder Inventory (EDI)

The EDI is a 64-item instrument designed to assess eight behavioral and psychological dimensions presumed to be related to anorexia nervosa and bulimia (Garner & Olmsted, 1984; Garner et al., 1983a; see Appendix C). The eight dimensions, each represented by a subscale of the EDI, are Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears. "Bulimia"
refers to bulimic behaviors (primarily bingeing), rather than to the disorder of bulimia nervosa. No non-anorexic bulimics were included in the criterion group of the validation studies.

Subjects are asked to rate the degree to which each of the 64 items applies to them, using a 6-point Likert-type scale. Items responded to in the most extreme "anorexic" direction receive scores of three points. The second and third most adjacent responses are given scores of two and one points, respectively. The other three choices for each item receive no score. Scores are obtained for each of the eight subscales.

Several items were added to the EDI for this study in order to obtain additional information related to weight and weight control from all subjects. These items assessed restrictive dieting, binge-eating, intentional vomiting, laxative use, height, weight, and preferred weight. Responses to these items did not contribute to EDI subscale scores. These additional items were also assessed during the diagnostic interview with anorexic and bulimic subjects.

The EDI has robust internal consistency, with alpha coefficients above .80 on all subscales for anorexic subjects (Garner et al., 1983a). Total score test-retest reliability has been demonstrated to be quite high (r =
for both a sample of undergraduate students and a subsample of students who were identified as at risk for developing an eating disorder based on their scores on the Drive for Thinness (DT), Bulimia (B), and Body Dissatisfaction (BD) subscales of the EDI (Wear & Pratz, 1987). Test-retest reliability for all subscales ranged from .97 to .81 for both groups, with the exception of the Maturity Fears subscale (r = .77 for at risk subjects; r = .65 for subjects not at risk).

A recent factor analytic study of the EDI using patient responses yielded eight factors corresponding to the eight subscales of the inventory (Welch, Hall, & Norring, 1990). This finding contrasted with an earlier demonstration of three factors when nonpatient (psychology, nursing, and aerobic dance students) responses were used. In that study one factor consisted of a combination of the DT, B, and BD subscales, a second factor combined the Ineffectiveness and Interpersonal Distrust subscales, and a third factor consisted of the items of the Perfectionism subscale (Welch, Hall, & Walkey, 1988). The authors of the more recent study suggested that the divergent results may have been related to patients and nonpatients differing in their interpretation of the meaning of EDI items.
Although there is evidence that the dimensions measured by the DT, B, and BD subscales are specific to individuals with eating disorders, there is some indication that the other dimensions reflect general psychological disturbance, rather than features specific to anorexics or bulimics (Cooper et al., 1985; Hurley et al., 1990). In the present study only subscales concerned with shape, weight, and eating were used as measures of eating disorder symptomatology. The other two subscales of interest, the Ineffectiveness and Perfectionism Scales, were used as measures of general feelings of inadequacy and of perfectionism, respectively.

Social Phobia and Anxiety Inventory (SPAI)

The SPAI (Turner, Beidel, Dancu, & Stanley, 1989; see Appendix C) is an empirically-derived instrument designed to assess cognitive, behavioral, and somatic dimensions of social phobia and social anxiety. The inventory consists of 45 items divided into two subscales - a Social Phobia subscale and an Agoraphobia subscale. Items are responded to using a 7-point Likert-type scale, in order to assess severity of symptoms. The Agoraphobia subscale is included in the instrument to control for social distress that is due to a fear of having panic attacks or of being trapped, rather than to fear of negative evaluation. The final total score, which is the only score utilized once it is
obtained, is computed by subtracting the Agoraphobia subscale from the Social Phobia subscale.

The SPAI has demonstrated good internal consistency, with alpha coefficients of .96 for the Social Phobia subscale and .85 for the Agoraphobia subscale. Two-week test-retest reliability for the total score was .86 for a sample of undergraduate students (Turner, Beidel, Dancu, & Stanley, 1989). The instrument is able to differentiate social phobics from other anxiety patients (Turner, Beidel, Dancu, & Stanley, 1989) and from normal controls (Beidel, Turner, Stanley, & Dancu, 1989). Significant correlations between SPAI scores and distress in daily social encounters have been reported for both a student sample of social phobics (Beidel, Turner, Stanley, & Dancu, 1989) and a clinic sample (Beidel, Borden, Turner, & Jacob, 1989). A factor analytic study has confirmed the division of the SPAI into the Social Phobia and Agoraphobia subscales (Turner, Stanley, Beidel, & Bond, 1989).

Brief Fear of Negative Evaluation (Brief-FNE)

The FNE is a 30-item true-false scale designed to measure apprehension about, expectation of, and distress over negative evaluation by others (Watson & Friend, 1969). The FNE has demonstrated internal consistency, with mean item to total score correlations of .72, and Kuder-Richardson formula 20 correlations of .94 and .96 for
samples of 205 and 154 college students, respectively. Test-retest reliabilities of .78 for one sample and .94 for a second sample over a one-month period were reported. Compared to low FNE subjects, high FNE subjects have been shown to be more nervous in evaluative situations and to be more likely to seek social approval (Watson & Friend, 1969). The scale correlates significantly with other relevant measures. However, it does not appear to be sensitive specifically to social phobia or other anxiety disorders, but rather to emotional distress in general (Turner, McCanna, & Beidel, 1987).

For the current study the Brief-FNE (Leary, 1983; see Appendix C), a 12-item abbreviated version of the original FNE, was used. In constructing the Brief-FNE, Leary selected items that correlated at least .50 with the FNE scale total. The response format was changed to a 5-point Likert-type scale. Subjects are asked to indicate how characteristic each statement is of them using a scale ranging from "not at all" to "extremely" characteristic. A single total score is obtained ranging from 0 to 60. The mean score of undergraduate subjects was found to be 35.7, with a standard deviation of 8.10. The Brief-FNE is highly correlated with the FNE ($r = .96$). It has demonstrated good internal consistency, with an alpha coefficient of .90. Test-retest reliability over a four week period was
found to be .75 (Leary, 1983). Median splits performed on subjects' scores on the FNE and Brief-FNE identically classified 93% of subjects into high and low fear of negative evaluation groups. Validity of the Brief-FNE was also examined by conducting an experiment in which subjects conversed with another subject. Scores on the Brief-FNE correlated .31 (p < .05) with the degree to which subjects thought they were coming across well to the other subject during the experiment, and .57 (p < .0001) with the degree to which subjects reported that they would be bothered by an unfavorable evaluation by the other subject (Leary, 1983).

Beck Depression Inventory (BDI)

The BDI is a 21-item, clinically-derived scale designed to measure symptomatology of depression (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; see Appendix C). The instrument assesses cognitive, affective, behavioral, and somatic symptoms, with an emphasis on cognitive content. Each of the items consists of a series of ordered statements relating to a particular symptom. The individual is asked to indicate which statement best describes his or her current state. Each statement is scored 0 to 3, with increasing scores indicating greater severity of depression. A single total score is obtained, ranging from 0 to 63.
The internal consistency of the BDI has been extensively examined. In a recent review of studies evaluating the psychometric properties of the instrument, Beck, Steer, and Garbin (1988) reported that the mean coefficient alpha was 0.86 for psychiatric populations and 0.81 for nonpsychiatric samples. Test-retest reliabilities of .75 for undergraduates after one month (Rehm, 1981) and .48 for psychiatric patients after 3 weeks (May, Urquhart, & Tarran, 1969) have been reported. Moderate to good correlations with other self-report depression scales provide evidence of concurrent validity (Shaw, Vallis, & McCabe, 1985). Correlations with clinicians' ratings of depression in psychiatric patients have ranged from 0.55 to 0.96, with a mean correlation coefficient of 0.72 across 11 psychiatric samples (Beck et al., 1988).

It should be noted that several items on the BDI assess symptomatology that is often present as a direct consequence of anorexia nervosa or bulimia nervosa. The most obvious of these are Items 18 (appetite), and 19 (weight loss), but Items 14 (physical appearance), 16 (sleep disturbance), and 21 (sexual interest) may also tap eating disorder sequelae. Thus, BDI scores of eating-disordered individuals are likely to be slightly inflated due to potential confounding between symptoms stemming
directly from depression and those which may be secondary to anorexia nervosa or bulimia nervosa. Previous studies have found, however, that removal of particular items for score calculation and analysis does not significantly alter depression score ranges obtained for eating-disordered subjects (e.g., Bemis, 1986).

For the current study several items were added to the end of the BDI that are of a form similar to those added to the EDI. These items were included as an attempt to make the instrument appear balanced with the EDI. They were not used in the calculation of BDI scores.

**Multidimensional Perfectionism Scale (MPS)**

The MPS (Frost et al., 1990; see Appendix C) is a 35-item instrument developed to measure six dimensions of perfectionism. The six dimensions, each represented by a subscale of the MPS, are Concern over Mistakes, Personal Standards, Parental Expectations, Parental Criticism, Doubting of Actions, and Organization. Subjects respond to items using a 5-point Likert-type scale ranging from "strongly disagree" to "strongly agree." The scale yields an overall perfectionism score in addition to the six subscale scores.

The MPS has been found to have a consistent factor structure, corresponding to the six subscales, across different subject samples. The instrument has demonstrated
internal consistency, with an alpha coefficient of .90 for the overall perfectionism score. Alpha coefficients of the six subscales ranged from .77 to .93. The Organization subscale, reflecting a preference for neatness and order, correlates only weakly with the other subscales, and thus is not included in the computation of the overall perfectionism score. The MPS has been shown to correlate significantly with other measures of perfectionism, including the Perfectionism subscale of the EDI (Frost et al., 1990).

Attributions and Expectations Scale (AES)

The AES was developed for this study to assess attributions associated with interpersonal failure and success experiences (see Appendix C). The measure also assesses expectations of the likelihood of occurrence of such experiences, as well as intensity of related affect. It is an 18-item scale, with four parts to each item. Each item is presented in the form of a scenario written in the second person. The subject is instructed to "try to imagine as vividly as possible that you are in that situation."

Twelve of the AES scenarios are interpersonal in nature and six are noninterpersonal. Half of each of these describe unsuccessful outcomes in which the subject is rejected by others in the case of interpersonal items or
experiences a noninterpersonal failure in the case of noninterpersonal items. The other half of the scenarios depict successful outcomes in which the subject experiences acceptance in the case of interpersonal items or success of a noninterpersonal nature. The noninterpersonal items were included on the AES to check for response style bias in attribution ratings. The eight attribution response categories, described below, that formed subscales for this study make little sense when applied to noninterpersonal items (e.g., an attribution of social awkwardness to account for being unable to finish a crossword puzzle). If a response style bias of providing extreme scores for particular response categories were to be present, it may be notable on the noninterpersonal items, on which generally low ratings would be expected.

A list of six attributions follows presentation of each scenario. The first four of these are standard throughout the questionnaire, and reflect attributions to the self in the form of 1) an attribution to social awkwardness or confidence, 2) an attribution to being "not thin enough" or "slender," 3) an attribution to being "boring" or "interesting," and 4) an attribution to (un)attractiveness. The fifth and sixth attribution response categories are more variable, being specific in wording to each item, but generally reflect external
attributions in the form of 5) situational circumstances or a neutrally-toned behavior of another person or persons, and 6) a positive or negative trait of other individuals involved (in the case of interpersonal items), or an attribution to the circumstances (in noninterpersonal items). These last two attribution response categories were included only in an attempt to make the weight attribution appear less obvious by providing a wider range of attributions. The nature of these two types of external attributions was not entirely consistent across scenarios, and they were not intended to represent usable subscales.

In part a) of each item, following presentation of the six attributions, the subject is instructed to rate on a 7-point Likert-type scale (ranging from "not at all likely" to "extremely likely") how likely she would be to consider each of the attribution choices if she were in the described situation. Part b) asks the subject to indicate which of the six attributions she would be most likely to decide upon as being the major cause of the outcome. In part c) the subject's expectation of the occurrence of a similar situation is assessed, and in part d) she is asked to report the degree of negative/positive affect she would anticipate experiencing in such a situation. Both parts c) and d) utilize 7-point Likert-type scales.
Eight Attribution subscales are derived from the AES: Failure-Socially Awkward, Failure-Not Thin Enough, Failure-Boring, Failure-Unattractive, Success-Socially Confident, Success-Slender, Success-Interesting, and Success-Attractive. The two of primary interest are those assessing weight-related attributions - Failure-Not Thin Enough and Success-Slender. The other Attribution subscales are included for comparison to the two weight-related subscales, and to make the interest in weight appear less obvious. In addition, two Expectation subscales - Expectation of Failure and Expectation of Success - and two Affect subscales - Affect Associated with Failure and Affect Associated with Success - are derived.

The format of the AES, as well as the wording of several of the scenarios, was based in part on several existing measures of attribution (Anderson & Arnaoult, 1985; Anderson, Horowitz, & French, 1983; Teglasi & Hoffman, 1982). Parts c) and d) of each item, tapping expectations and affect, were taken from the attributional scale developed by Teglasi and Hoffman (1982). However, the attributions component of the AES was designed to assess weight-related attributions in comparison to other specific attributions, rather than the more general attributional dimensions typically examined on measures of attributional style (e.g., locus, globality, stability).
Avoidance Questionnaire (AQ)

The AQ is a two-part scale developed for the current study in order to assess probability of and explanations for avoidance of interpersonal situations due to anxiety (see Appendix C). The scale consists of a list of 15 activities, 10 of an interpersonal and 5 of a noninterpersonal nature. The noninterpersonal items are included only as a check on possible response style bias. In Part I the subject is to rate on a 7-point Likert-type scale how likely she would be to avoid each activity because of anxiety, or to endure it, but with intense anxiety. The scale ranges from "1" ("not at all likely to avoid it/endure with anxiety") to "7" ("extremely likely to avoid it/endure with anxiety"). The format of this part of the instrument is similar to that of the Fear Questionnaire (Marks & Mathews, 1979). The inclusion on the AQ of the possibility of enduring the activity with concomitant intense anxiety, rather than actually avoiding the activity, reflects Criterion D of DSM-III-R (American Psychiatric Association, 1987) diagnostic criteria for social phobia, as well as evidence that social phobics do not necessarily avoid feared situations (Turner et al., 1986).

Two subscales are derived from Part I of the AQ: Frequency of Interpersonal Avoidance and Distress and
Total Interpersonal Avoidance and Distress. The former is a frequency count of the number of interpersonal activities scored greater than "1" ("not at all likely to avoid it/endure with anxiety"), and has a scoring range of 0 - 10. It provides a measure of the breadth of avoidance or distress. The Total Interpersonal Avoidance and Distress subscale assesses likelihood of avoidance and/or distress, and is composed of the sum of the ratings of the 10 interpersonal items. The scoring range on this subscale is 10 - 70.

Part II of the AQ assesses explanations for social avoidance and distress. For each of the items rated greater than "1" on Part I, the subject is asked to rate on a 7-point scale how much of a role each of six separate factors would play in her avoidance of the activity. The first four factors relate to concerns about negative evaluation by others: fear of negative evaluation of 1) behavior or performance, 2) weight and/or figure, 3) physical appearance other than weight and figure, and 4) physiological indicators of nervousness (e.g., blushing or trembling). The fifth factor relates to fear of over-eating in the particular situation, and the sixth factor, fear of talking too much in the situation, is included simply to make the fifth factor appear less unbalanced with the other four factors. For each item completed, after
rating all six factors, the subject then rates which of the factors would play the greatest role in her avoidance of the activity. Subscales are derived for each factor, reflecting the six Types of Explanation - Behavior, Weight and Figure, Physical Appearance, Nervousness, Overeating, and Talking. The Weight and Figure and Overeating subscales are of central interest in this study; the other four are included for the purpose of comparison and to balance the scale.

**Procedure**

The procedure for the administration of the set of five symptom inventories (EDI, SPAI, Brief-FNE, BDI, MPS) varied between the subject groups. Normal control subjects completed these measures in a group testing session 2 to 3 weeks prior to participating in the individual testing session. They also received and signed a consent form at that time (see Appendix E for copies of consent forms). This testing sequence was employed because, as discussed earlier, potential normal control subjects were screened on the basis of their scores on those questionnaires. Social phobics were mailed the set of symptom inventories following telephone screening, and were asked to complete and bring them to the testing session. Eating disorder subjects referred by Kapiolani Counseling Center received the set of questionnaires as part of an intake packet, and
completed them prior to or following the testing session. The two anorexic subjects referred by Kahi Mohala completed the measures following the testing session.

Testing of normal control and social phobic subjects took place in a private research room in the psychology building at the University of Hawaii. Two eating disorder subjects were tested there, as well. Eating disorder subjects referred by Kapiolani Counseling Center were tested in a private office at the Counseling Center; Kahi Mohala subjects were tested in their hospital rooms. As described earlier, all social phobic subjects were tested by the investigator, as were all eating disorder subjects with the exception of the five anorexics who were inpatients at Kapiolani Medical Center. Those five subjects were tested by an advanced graduate student. Several female graduate and undergraduate research assistants conducted testing sessions with normal control subjects. These individuals were all carefully trained in the administration of the Stroop color-naming task, the card sorting task, and the AES and AQ.

At the beginning of the testing session eating disorder and social phobic subjects were reminded of the confidential nature of their disclosures and test responses. It was stressed to eating disorder subjects that their therapist and/or nutritionist would not have
access to their responses, and they were encouraged to be as open and honest as possible. Eating disorder and social phobic subjects were asked to read and sign a consent form; normal control subjects had already done so during the earlier group testing session.

The testing sequence for all subjects was the following: Stroop color-naming task, card sorting task, AES, AQ. The diagnostic interview was conducted with eating disorder and social phobic subjects at the end of the testing session, following completion of the AQ.

In administering the Stroop task the tester read verbatim to the subject a set of instructions (see Stroop Administration Instructions in Appendix C). She described the task as being a test of visual perception in which the subject was to name as quickly as possible the colors of ink in which the items were printed, ignoring the word printed in each item. Subjects were instructed in how the cards should be placed on the table in front of them, and familiarized with the colors used before beginning the task. Cards were presented in the following order: Simple Color Stroop card, Conflicting Color Stroop card, control card for General Negative Evaluation Stroop, General Negative Evaluation Stroop, control card for Negative Evaluation by Others Stroop, Negative Evaluation by Others Stroop, control card for Negative Shape Stroop,
Negative Shape Stroop. Each control card was presented before its matched target card so that if a practice effect were to occur across the session, it would tend to go against the hypothesized longer color-naming latencies on the target cards compared to the control cards. The tester timed the subject on each card, and recorded times as well as observations of any testing deviations on a recording sheet (see Stroop Data Recording Sheet in Appendix C). Errors, which were infrequent and usually corrected, were not recorded.

Following completion of the Stroop task, the subject was given the card sorting task, which was used as a neutral distracter before administration of the AES and AQ. This was done because it was felt that there was a possibility that subjects' responses on the two questionnaires might be influenced by the fact that the last Stroop card in the sequence was the Negative Shape card. If the subject were to complete the AES immediately after having seen a page of words such as "fat," "plump," and "flabby," she might be "primed" to be focused on negative weight stimuli. It was thought that such an effect would be minimized by having the subject complete a neutral task before beginning the questionnaires. The sorting task was described to the subject as being a test of the way people make decisions about the degree of
complexity they perceive. She was instructed to sort the cards into one of two categories - "simple" or "complex." The task took approximately 5 minutes to complete (see Appendix C for a copy of the Sorting Task Instructions).

The AES was administered next, followed by the AQ. With both of these measures the subject was simply told to ask questions if she did not understand the instructions printed on the instrument. Very few subjects required clarification of the instructions. While the subject completed these measures the tester read a book or other material so as not to appear to be observing the subject's responses. Upon completion of the AQ, the structured diagnostic interview was conducted with social phobic and eating disorder subjects as the last part of the session. Normal control subjects were informed as to how they would receive their bonus points for participation in the study; social phobic subjects had explained to them when and where the seminar on coping with social anxiety would take place.
CHAPTER IV
Results

Symptom Inventories

(Differences in the degrees of freedom reported in this section reflect the fact that 1 anorexic subject did not complete the SPAI, Brief-FNE, or MPS.)

Eating Disorder Inventory

Table 10 displays means and standard deviations by group on the five subscales of the EDI that were of interest in this study - Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Ineffectiveness (I), and Perfectionism (P). Mean scores obtained were consistent with those reported elsewhere for anorexic, bulimic, and normal control subjects (e.g., Garner et al., 1983a; Hurley et al., 1990). A one-way between groups (anorexics, bulimics, social phobics, normal controls) multivariate analysis of variance (MANOVA) was performed on scores on these subscales. The set of dependent variables was significantly related to subject group membership [Wilks' Lambda = 0.18; $F(15,163) = 9.53$, $p<.0001$].

Subsequent to finding a significant overall effect for group, univariate ANOVAS were conducted. Significant variation among subject groups was found for all five EDI subscales: Drive for Thinness [$F(3,63) = 33.41$, $p<.0001$], Bulimia [$F(3,63) = 23.45$, $p<.0001$], Body Dissatisfaction
Table 10
Group Means and Standard Deviations on Five Eating Disorder Inventory Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive for Thinness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>13.11a</td>
<td>16.27a</td>
<td>4.44b</td>
<td>3.28b</td>
</tr>
<tr>
<td>SD</td>
<td>4.96</td>
<td>3.90</td>
<td>5.42</td>
<td>3.41</td>
</tr>
<tr>
<td>Bulimia</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>4.28b</td>
<td>12.80a</td>
<td>1.44b</td>
<td>0.61b</td>
</tr>
<tr>
<td>SD</td>
<td>6.41</td>
<td>5.61</td>
<td>3.14</td>
<td>1.04</td>
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<td>Body Dissatisfaction</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>18.44ab</td>
<td>21.47a</td>
<td>12.38bc</td>
<td>10.94c</td>
</tr>
<tr>
<td>SD</td>
<td>5.20</td>
<td>5.40</td>
<td>8.20</td>
<td>8.49</td>
</tr>
<tr>
<td>Ineffectiveness</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>14.11a</td>
<td>13.27a</td>
<td>9.44a</td>
<td>0.39b</td>
</tr>
<tr>
<td>SD</td>
<td>7.98</td>
<td>7.91</td>
<td>6.25</td>
<td>0.78</td>
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<td></td>
</tr>
<tr>
<td>M</td>
<td>9.28a</td>
<td>9.27a</td>
<td>6.50ab</td>
<td>3.89b</td>
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<tr>
<td>SD</td>
<td>5.83</td>
<td>5.56</td>
<td>3.98</td>
<td>2.83</td>
</tr>
</tbody>
</table>

Note. Cell means that do not share a common subscript differ at the .05 level.
\[ F(3,63) = 8.19, \ p<.0001, \] Ineffectiveness \[ F(3,63) = 17.10, \ p<.0001, \] and Perfectionism \[ F(3,63) = 5.26, \ p<.0027. \] Correlations between subscales ranged from .13 to .67. Bonferroni comparisons conducted at the .05 level indicated that anorexics and bulimics scored significantly higher than social phobics and normal controls on the Drive for Thinness subscale. As might be expected, the scores of bulimic subjects were significantly higher than those of anorexics, social phobics, or normal controls on the Bulimia subscale. The mean scores of the latter three groups did not differ from one another. On the Body Dissatisfaction subscale, both anorexics and bulimics scored significantly higher than normal controls. Only the bulimic mean score differed significantly from the social phobic mean score, however. The patterns of group differences on the Ineffectiveness and Perfectionism subscales were similar to one another – on the former, anorexics, bulimics, and social phobics scored significantly higher than normal controls and did not differ from each other; the results of Bonferroni comparisons on the latter subscale were identical, with the exception that the social phobic mean score did not differ significantly from the normal control group average.
Social Phobia and Anxiety Inventory

An overall ANOVA on SPAI total scores revealed significant group differences [$F(3,62) = 29.35$, $p < .0001$]. A Bonferroni comparison procedure indicated that the mean scores of social phobics ($\bar{M} = 107.25$, $SD = 15.70$), anorexics ($\bar{M} = 89.11$, $SD = 21.14$), and bulimics ($\bar{M} = 86.70$, $SD = 19.41$) were significantly higher than that of normal controls ($\bar{M} = 35.98$, $SD = 18.85$). Although social phobics scored 18 - 20 points higher than anorexics or bulimics on this measure, the differences were not significant at the .05 level. The normal control group mean was consistent with that of a larger sample of non-socially-anxious female college students ($\bar{M} = 29.40$), while the social phobic group mean was actually somewhat higher than that of a clinic group of social phobics ($\bar{M} = 94.00$) (Turner, Beidel, Dancu, & Stanley, 1989).

Brief Fear of Negative Evaluation

An overall ANOVA on Brief-FNE scores yielded significant group differences [$F(3,62) = 28.61$, $p < .0001$]. A Bonferroni test conducted at the .05 level revealed that the means of the anorexic, bulimic, and social phobic groups ($\bar{M} = 49.12$, $SD = 11.55$; $\bar{M} = 51.80$, $SD = 6.54$; $\bar{M} = 51.13$, $SD = 5.91$, respectively) clustered together, and were significantly higher than that of the normal control group ($\bar{M} = 30.00$, $SD = 6.91$). The former three mean scores
indicate a pronounced fear of negative evaluation, while the latter score is consistent with the average score reported elsewhere for a larger sample of college students (Leary, 1983, $M = 35.70$).

**Beck Depression Inventory**

A significant difference between groups was found on the BDI [$F(3,63) = 10.14$, $p<.0001$]. Bonferroni contrasts revealed that the group means of anorexics ($M = 22.94$, $SD = 13.85$), bulimics ($M = 24.73$, $SD = 14.78$), and social phobics ($M = 17.00$, $SD = 7.87$) did not significantly differ from one another, but were all higher than the normal control group average ($M = 6.11$, $SD = 4.38$). The mean scores of the former three groups indicate mild to moderate levels of depression; that of the normal controls reflects a nondepressed state. These findings are fairly consistent with other reports of BDI scores for anorexic (Thompson & Schwartz, 1982, $M = 21.40$), bulimic (Mizes, 1988, $M = 20.85$), and socially phobic (Butler, Cullington, Munby, Amies, & Gelder, 1984, $M = 13.50$) subjects. Additionally, on the basis of the diagnostic interview, 7 anorexics (39%), 4 bulimics (27%), and 3 social phobics (19%) in this study met DSM-III-R criteria for major depression.
Multidimensional Perfectionism Scale

Table 11 presents means and standard deviations of MPS overall perfectionism scores, as well as scores on the six subscales for all groups. An ANOVA conducted on MPS overall perfectionism scores showed significant group differences \[ F(3,62) = 14.40, p<.0001 \]. A Bonferroni test conducted at the .05 level indicated that the mean overall scores of the bulimic, anorexic, and social phobic groups were significantly higher than the mean of normal controls, and did not differ from one another.

To examine scores on the six MPS subscales, a one-way between groups MANOVA was performed. The significant MANOVA \[ \text{Wilks' Lambda} = 0.44; F(18,162) = 3.04, p<.0001 \] was followed by univariate ANOVAs to explore the overall variance in the group means for each individual subscale. An ANOVA conducted on scores on the Concern over Mistakes subscale indicated significant group differences \[ F(3,62) = 13.08, p<.0001 \]. Bonferroni comparisons revealed that, as hypothesized, anorexics, bulimics, and social phobics scored significantly higher on this subscale than normal controls. When significant overall F-ratios on the Parental Criticism \[ F(3,62) = 10.45, p<.0001 \] and Doubting of Actions \[ F(3,62) = 9.98, p<.0001 \] subscales were followed by Bonferroni comparisons, the same clustering of anorexic, bulimic, and social phobic means as significantly
<table>
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<tr>
<th>Group</th>
<th>AN (n=17)</th>
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<th>NC (n=18)</th>
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</tr>
<tr>
<td>M</td>
<td>104.47&lt;sub&gt;a&lt;/sub&gt;</td>
<td>105.40&lt;sub&gt;a&lt;/sub&gt;</td>
<td>94.63&lt;sub&gt;a&lt;/sub&gt;</td>
<td>71.56&lt;sub&gt;b&lt;/sub&gt;</td>
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<tr>
<td>SD</td>
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<td>18.60</td>
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<td>15.71</td>
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<td>Concern Over Mistakes Subscale</td>
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<td></td>
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<td>7.11</td>
<td>5.13</td>
<td>2.37</td>
<td>3.96</td>
</tr>
<tr>
<td>Parental Expectations Subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>15.59&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>17.93&lt;sub&gt;a&lt;/sub&gt;</td>
<td>14.69&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>12.33&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>5.22</td>
<td>4.50</td>
<td>5.97</td>
<td>4.20</td>
</tr>
<tr>
<td>Parental Criticism Subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>13.59&lt;sub&gt;a&lt;/sub&gt;</td>
<td>14.60&lt;sub&gt;a&lt;/sub&gt;</td>
<td>11.88&lt;sub&gt;a&lt;/sub&gt;</td>
<td>7.83&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>3.91</td>
<td>3.29</td>
<td>4.59</td>
<td>3.33</td>
</tr>
</tbody>
</table>
Table 11. (Continued) Group Means and Standard Deviations on the Multidimensional Perfectionism Scale

<table>
<thead>
<tr>
<th>Group</th>
<th>AN (n=17)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>M</strong></td>
<td><strong>M</strong></td>
<td><strong>M</strong></td>
<td><strong>M</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.24&lt;sub&gt;a&lt;/sub&gt;</td>
<td>14.53&lt;sub&gt;a&lt;/sub&gt;</td>
<td>13.69&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td></td>
<td><strong>SD</strong></td>
<td>3.23</td>
<td>3.20</td>
<td>2.91</td>
</tr>
<tr>
<td>Doubting of Actions Subscale</td>
<td>26.00&lt;sub&gt;a&lt;/sub&gt;</td>
<td>25.33&lt;sub&gt;a&lt;/sub&gt;</td>
<td>22.88&lt;sub&gt;a&lt;/sub&gt;</td>
<td>23.22&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td></td>
<td><strong>SD</strong></td>
<td>5.00</td>
<td>3.06</td>
<td>4.94</td>
</tr>
</tbody>
</table>

Note. Cell means that do not share a common subscript differ at the .05 level.

<sup>a</sup>One anorexic subject did not complete this instrument.

<sup>b</sup>Organization Subscale score not used in calculation of overall perfectionism score.
higher than those of normal controls was seen. Using the
Bonferroni test following a significant overall F-ratio on
the Parental Expectations subscale ($F(3,62) = 3.52, p<.02$),
bulimics were found to score significantly higher than
normal controls. The mean scores of anorexics and social
phobics, however, did not differ from those of either
normal controls or bulimics at the .05 level. The
univariate ANOVAs conducted on scores on the Personal
Standards subscale and the Organization subscale revealed
that the variance in group means was not significant
[$F(3,62) = 2.38, p = .08$, and $F(3,62) = 2.42, p = .07$,
respectively]. MPS subscale intercorrelations ranged from
.10 to .74.

**Stroop Color-Naming Task**

**Color-Naming Times and Interference Scores**

Mean color-naming times (number of seconds per 50-word
card) for each of the eight Stroop cards, along with
standard deviations, are presented by subject group in
Table 12. As can be seen in this table, anorexics
exhibited the longest response latencies of the four groups
of subjects on all eight cards. In order to determine
whether there were significant group differences in basic
color-naming speed, univariate ANOVAs were conducted on
scores obtained on both the Simple Color Stroop and the
Conflicting Color Stroop. Neither ANOVA indicated
<table>
<thead>
<tr>
<th>Stroop Card</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Color</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>29.39</td>
<td>26.67</td>
<td>27.38</td>
<td>27.22</td>
</tr>
<tr>
<td>SD</td>
<td>4.77</td>
<td>4.76</td>
<td>3.56</td>
<td>3.95</td>
</tr>
<tr>
<td>Conflicting Color</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>52.72</td>
<td>47.87</td>
<td>46.38</td>
<td>46.89</td>
</tr>
<tr>
<td>SD</td>
<td>15.90</td>
<td>7.68</td>
<td>9.61</td>
<td>8.43</td>
</tr>
<tr>
<td>General Negative Evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>44.44</td>
<td>39.93</td>
<td>39.31</td>
<td>33.61</td>
</tr>
<tr>
<td>SD</td>
<td>12.71</td>
<td>7.01</td>
<td>5.78</td>
<td>5.97</td>
</tr>
<tr>
<td>General Negative Evaluation Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>35.06</td>
<td>31.53</td>
<td>32.44</td>
<td>33.11</td>
</tr>
<tr>
<td>SD</td>
<td>6.54</td>
<td>4.52</td>
<td>5.14</td>
<td>4.87</td>
</tr>
<tr>
<td>Negative Evaluation by Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>43.06</td>
<td>39.13</td>
<td>39.50</td>
<td>33.22</td>
</tr>
<tr>
<td>SD</td>
<td>13.22</td>
<td>6.08</td>
<td>6.91</td>
<td>4.78</td>
</tr>
</tbody>
</table>
Table 12. (Continued) Mean Time in Seconds for Each Stroop Color-Naming Task

<table>
<thead>
<tr>
<th>Group</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>by Others Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>36.67</td>
<td>34.40</td>
<td>33.00</td>
<td>33.67</td>
</tr>
<tr>
<td>SD</td>
<td>8.30</td>
<td>6.36</td>
<td>4.40</td>
<td>5.75</td>
</tr>
<tr>
<td>Negative Shape</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>46.56</td>
<td>43.33</td>
<td>39.31</td>
<td>37.11</td>
</tr>
<tr>
<td>SD</td>
<td>13.16</td>
<td>9.30</td>
<td>7.31</td>
<td>7.14</td>
</tr>
<tr>
<td>Negative Shape Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>39.56</td>
<td>34.80</td>
<td>35.75</td>
<td>35.50</td>
</tr>
<tr>
<td>SD</td>
<td>9.31</td>
<td>6.11</td>
<td>7.15</td>
<td>6.70</td>
</tr>
</tbody>
</table>
significant variation among the groups \[ F(3, 63) = 1.33, p = .2739; F(3, 63) = 1.21, p = .3124, \text{ respectively} \]. Although anorexics consistently displayed the longest color-naming latencies across stimulus cards, they did not differ significantly from the other three groups in their performance of the basic, neutral-material color-naming tasks.

As has been done in other Stroop studies to control for even minor differences between groups in general color-naming speed (e.g., Ben-Tovim & Walker, 1991; Ben-Tovim et al., 1989; McNally, Kaspi, Riemann, & Zeitlin, 1990; McNally, Riemann, & Kim, 1990; Watts et al., 1986; Williams & Broadbent, 1986), interference indices were calculated from scores obtained on the three sets of target and control cards. For each set, the response latency of the control card was subtracted from that of the target card, yielding three interference indices: General Negative Evaluation Interference, Negative Evaluation by Others Interference, and Negative Shape Interference. Subject group means and standard deviations for each of the interference indices are presented in Table 13. As can be seen in the table, normal control subjects had low interference scores for all three target and control card sets, and actually displayed a shorter mean color-naming
Table 13

Mean Scores on Stroop Interference Indices (in Seconds)

<table>
<thead>
<tr>
<th>Group</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Negative Evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interference Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>9.39&lt;sub&gt;a&lt;/sub&gt;</td>
<td>8.40&lt;sub&gt;a&lt;/sub&gt;</td>
<td>6.88&lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.50&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>8.41</td>
<td>4.81</td>
<td>3.44</td>
<td>3.28</td>
</tr>
<tr>
<td>Negative Evaluation by Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interference Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>6.39&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.73&lt;sub&gt;a&lt;/sub&gt;</td>
<td>6.50&lt;sub&gt;a&lt;/sub&gt;</td>
<td>-0.44&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>10.12</td>
<td>3.95</td>
<td>4.55</td>
<td>3.90</td>
</tr>
<tr>
<td>Negative Shape</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interference Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>7.00&lt;sub&gt;a&lt;/sub&gt;</td>
<td>8.53&lt;sub&gt;a&lt;/sub&gt;</td>
<td>3.56&lt;sub&gt;b&lt;/sub&gt;</td>
<td>1.61&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>7.56</td>
<td>6.01</td>
<td>4.50</td>
<td>2.97</td>
</tr>
</tbody>
</table>

Note. Cell means that do not share a common subscript differ at the .05 level.
latency on the Negative Evaluation by Others card than on its control card.

Following the computation of interference indices, mean interference scores were submitted to a Group (anorexics, bulimics, social phobics, normal controls) x Word Type (General Negative Evaluation, Negative Evaluation by Others, Negative Shape) repeated measures ANOVA. All effects were significant: Group [$F(3,63) = 8.11, p<.0001$], Word Type [$F(2,126) = 4.14, p<.0182$], and Group x Word Type interaction [$F(6,126) = 2.51, p<.0249$].

Subsequent to finding an overall Group x Word Type interaction, specific predictions were tested using Bonferroni tests to correct for multiple comparisons. The hypothesis that eating-disordered subjects would demonstrate longer latencies on the Stroop test for words with negative weight and shape connotations compared to matched neutral words than would socially phobic and normal control subjects was supported. The Negative Shape Interference Index was significantly larger for anorexics and bulimics than for social phobics or normal controls. The Interference Indices of the latter two groups did not differ significantly from one another.

Turning to the testing of hypotheses related to the processing of information reflecting negative evaluation, as predicted, eating-disordered and socially phobic
subjects demonstrated longer latencies on the Stroop test for words connoting negative evaluation compared to matched neutral words than did normal controls. Both the General Negative Evaluation Interference Index and the Negative Evaluation by Others Interference Index were significantly larger for anorexics, bulimics, and social phobics compared to normal controls.

To examine potential differences in interference effects between the two types of negative evaluation words, it was first established that the response latencies of anorexics, bulimics, and social phobics on the two target cards (General Negative Evaluation, Negative Evaluation by Others) were significantly slower than on the corresponding control cards (General Negative Evaluation Control, Negative Evaluation by Others Control). An overall repeated measures ANOVA performed on the eight Stroop cards revealed a significant Group x Card interaction \( F(21,441) = 2.50, p < .0003 \). A subsequent Bonferroni-adjusted t-test conducted on the scores of bulimics on the Negative Evaluation by Others card and its control card indicated that the mean score of 39.13 seconds on the former was significantly longer than the 34.40 seconds obtained on the latter. As can be seen in Tables 12 and 13, that target-control card difference of 4.73 seconds was the smallest such difference obtained by any of
these three subject groups on either the General Negative Evaluation or Negative Evaluation by Others target-control card sets. The other, larger target-control card time differences in question were significant, as well. In contrast, as mentioned earlier, normal controls demonstrated a very small, nonsignificant interference effect on the General Negative Evaluation card, and performed the Negative Evaluation by Others card slightly more quickly than its control card.

Subsequent to establishing that, as predicted, the anorexic, bulimic, and socially phobic groups each showed longer latencies on the two sets of negative evaluation words compared to matched neutral control words, differences in mean scores between the General Negative Evaluation Interference Index and the Negative Evaluation by Others Interference Index for each of the three subject groups were examined. Bonferroni tests revealed that the General Negative Evaluation interference score was significantly larger than the Negative Evaluation by Others interference score for both anorexics and bulimics. In contrast, the two interference scores of social phobics did not differ significantly from one another.
Correlations Between Interference Indices and Symptom Inventory Scores

To examine to what extent the amount of interference caused by Stroop target words was related to scores obtained on symptom inventories utilized in this study, correlations were calculated between the three interference indices and the SPAI, Brief-FNE, and BDI, as well as the most relevant scales of the EDI and MPS. These correlations are shown in Table 14. As can be seen, interference indices were significantly correlated with scores on the majority of these measures. Any conclusions are made equivocal, however, by the fact that the symptom inventory scores themselves were highly intercorrelated. Nevertheless, the findings do suggest that selective processing of information related to negative evaluation and to weight and shape is associated with symptomatology assessed by those self-report measures.

Attributions and Expectations Scale

As noted in Chapter III, noninterpersonal items were included on the AES in order to check for possible response style bias in attribution ratings. Examination of attribution mean scores on noninterpersonal items indicated that no subject group gave higher than low to moderate mean ratings on any of the eight Attribution subscales for noninterpersonal scenarios (see Appendix F),
Table 14
Correlations of Interference Indices with Symptom Inventory Scores

<table>
<thead>
<tr>
<th>Interference Index</th>
<th>General Negative Evaluation</th>
<th>Negative Evaluation by Others</th>
<th>Negative Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAI</td>
<td>.32**</td>
<td>.23</td>
<td>.15</td>
</tr>
<tr>
<td>Brief-FNE</td>
<td>.38**</td>
<td>.30**</td>
<td>.28*</td>
</tr>
<tr>
<td>BDI</td>
<td>.29*</td>
<td>.19</td>
<td>.31**</td>
</tr>
<tr>
<td>EDI-Drive for Thinness</td>
<td>.33**</td>
<td>.09</td>
<td>.43**</td>
</tr>
<tr>
<td>EDI-Bulimia</td>
<td>.21</td>
<td>.08</td>
<td>.19</td>
</tr>
<tr>
<td>EDI-Body Dissatisfaction</td>
<td>.23</td>
<td>.03</td>
<td>.31**</td>
</tr>
<tr>
<td>EDI-Ineffectiveness</td>
<td>.29*</td>
<td>.22</td>
<td>.24*</td>
</tr>
<tr>
<td>EDI-Perfectionism</td>
<td>.19</td>
<td>.33**</td>
<td>.24*</td>
</tr>
<tr>
<td>MPS-Overall Perfectionism</td>
<td>.29*</td>
<td>.30**</td>
<td>.28*</td>
</tr>
<tr>
<td>MPS-Concern Over Mistakes</td>
<td>.28*</td>
<td>.27*</td>
<td>.25*</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01.
suggesting that no extreme response style bias was in effect. Noninterpersonal items will not be considered in further AES analyses.

Cronbach's alpha coefficients of internal consistency were computed for each of the 12 subscales of the AES to be examined below. The alpha coefficients for the Expectation of Failure and Expectation of Success subscales were both .84. Alpha coefficients for the Affect Associated with Failure and Affect Associated with Success subscales were .86 and .82, respectively. Those for the eight Attribution subscales were as follows: Failure-Socially Awkward - .90, Failure-Not Thin Enough - .93, Failure-Boring - .87, Failure-Unattractive -.92, Success-Socially Confident - .93, Success-Slender - .93, Success-Interesting - .90, Success-Attractive -.92.

Two-week test-retest reliability for the 12 subscales of the AES was obtained with a sample of 27 undergraduate students. Using the Pearson product-moment correlation, test-retest reliability coefficients were computed to be the following: Expectation of Failure - \( r = .75 \), Expectation of Success - \( r = .78 \), Affect Associated with Failure - \( r = .75 \), Affect Associated with Success - \( r = .72 \), Failure-Socially Awkward - \( r = .64 \), Failure-Not Thin Enough - \( r = .77 \), Failure-Boring - \( r = .85 \), Failure-Unattractive - \( r = .76 \), Success-Socially Confident - \( r = \)
.64, Success-Slender - $r = .87$, Success-Interesting - $r = .61$, Success-Attractive - $r = .85$.

**Expectation Subscales**

To test the hypotheses that anorexics, bulimics, and social phobics would display (a) higher expectations of experiencing interpersonal failure, and (b) lower expectations of experiencing interpersonal success than would normal controls, a one-way between groups MANOVA was performed with the AES-Expectation of Failure and AES-Expectation of Success subscales as dependent variables. The set of dependent variables was significantly related to subject group membership [Wilks' Lambda = 0.66; $F(6,124) = 4.79$, $p<.0002$].

Subsequent to finding a significant overall effect for group, univariate ANOVAs were conducted. Significant variation among subject groups was found on the Expectation of Failure subscale [$F(3,63) = 5.74$, $p<.0016$]. A Bonferroni test conducted at the .05 level revealed that, as predicted, the anorexic ($M = 3.74$, $SD = 1.40$), bulimic ($M = 4.17$, $SD = 1.27$), and social phobic ($M = 3.76$, $SD = 1.07$) groups were more likely than normal controls ($M = 2.64$, $SD = .67$) to expect interpersonal failure. (The possible range of scores for both of the Expectation subscales, as well as for the two Affect and eight Attribution subscales, is 1 - 7.) The former three groups
did not differ significantly from one another. The ANOVA performed on the Expectation of Success subscale indicated significant group differences, as well \( F(3,63) = 5.95, \ p<.0012 \). However, Bonferroni comparisons yielded only partial support for the hypothesized lower scores of anorexics, bulimics, and social phobics compared to normal controls. Although social phobics were significantly less likely than normal controls to expect interpersonal success \((M = 3.15, SD = .83; M = 4.74, SD = .98, \text{ respectively})\), anorexics \((M = 3.94, SD = 1.09)\) and bulimics \((M = 3.92, SD = 1.45)\) did not differ significantly from normal controls (or from social phobics) on this measure.

**Affect Subscales**

A one-way between groups MANOVA was utilized to test the hypotheses that anorexics, bulimics, and social phobics would anticipate (a) a greater intensity of negative affect associated with interpersonal failure, and (b) a lesser intensity of positive affect associated with interpersonal success than would normal controls. The AES-Affect Associated with Failure and AES-Affect Associated with Success subscales were the dependent variables in this analysis. A significant MANOVA \([\text{Wilks' Lambda} = 0.65; F(6,124) = 4.96, \ p<.0001]\) was followed by univariate ANOVAS performed on each of the two Affect subscales. Significant variation among subject groups was found on the Affect
Associated with Failure subscale \(F(3,63) = 10.01, p < .0001\). A Bonferroni test conducted at the .05 level revealed that, as hypothesized, anorexics \(M = 5.73, SD = 1.23\), bulimics \(M = 5.68, SD = 1.11\), and social phobics \(M = 5.40, SD = 0.89\) anticipated a greater intensity of negative affect associated with interpersonal failure than did normal controls \(M = 3.14, SD = 1.17\). The former three groups did not differ significantly from one another.

No significant effect for group was revealed on the Affect Associated with Success subscale. Anorexics \(M = 5.72, SD = .91\), bulimics \(M = 5.88, SD = .87\), and social phobics \(M = 5.66, SD = 1.16\) did not anticipate significantly less positive affect associated with interpersonal success compared to normal controls \(M = 5.99, SD = .81\).

**Attribution Subscales**

Table 15 displays means and standard deviations by group on the eight Attribution subscales of the AES. A one-way between groups MANOVA was performed on scores on these subscales in order to test the hypotheses concerning weight-related attributions considered for interpersonal failure and success. The set of dependent variables was significantly related to subject group membership [Wilks' Lambda = 0.25; \(F(24, 163) = 4.19, p < .0001\)].

Following the significant MANOVA for the eight Attribution scores, univariate ANOVAs were conducted.
Table 15
Group Means on AES Attribution Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure-Not Thin Enough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>3.79&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.79&lt;sub&gt;a&lt;/sub&gt;</td>
<td>2.70&lt;sub&gt;b&lt;/sub&gt;</td>
<td>1.44&lt;sub&gt;c&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>1.80</td>
<td>1.70</td>
<td>1.37</td>
<td>0.42</td>
</tr>
<tr>
<td>Failure-Socially Awkward</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>4.19&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.89&lt;sub&gt;a&lt;/sub&gt;</td>
<td>5.01&lt;sub&gt;a&lt;/sub&gt;</td>
<td>2.17&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>1.37</td>
<td>1.33</td>
<td>1.14</td>
<td>1.05</td>
</tr>
<tr>
<td>Failure-Boring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>4.37&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.97&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.48&lt;sub&gt;a&lt;/sub&gt;</td>
<td>2.22&lt;sub&gt;b&lt;/sub&gt;</td>
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<tr>
<td>SD</td>
<td>1.22</td>
<td>1.14</td>
<td>1.05</td>
<td>1.03</td>
</tr>
<tr>
<td>Failure-Unattractive</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>4.26&lt;sub&gt;a&lt;/sub&gt;</td>
<td>5.08&lt;sub&gt;a&lt;/sub&gt;</td>
<td>3.93&lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.79&lt;sub&gt;b&lt;/sub&gt;</td>
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<tr>
<td>SD</td>
<td>1.49</td>
<td>1.47</td>
<td>1.29</td>
<td>0.84</td>
</tr>
<tr>
<td>Success-Slender</td>
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<td></td>
</tr>
<tr>
<td>M</td>
<td>4.07&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.31&lt;sub&gt;a&lt;/sub&gt;</td>
<td>2.21&lt;sub&gt;b&lt;/sub&gt;</td>
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<tr>
<td>SD</td>
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<td>1.85</td>
<td>1.21</td>
<td>0.88</td>
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<td>Success-Socially Confident</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
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<td>4.82&lt;sub&gt;a&lt;/sub&gt;</td>
<td>3.85&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.86&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>1.19</td>
<td>1.39</td>
<td>1.67</td>
<td>1.51</td>
</tr>
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Table 15. (Continued) Group Means on AES Attributions Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
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</thead>
<tbody>
<tr>
<td>Success-Interesting M</td>
<td>4.82&lt;sub&gt;a&lt;/sub&gt;</td>
<td>5.13&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.13&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.98&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>1.05</td>
<td>1.48</td>
<td>1.42</td>
<td>1.06</td>
</tr>
<tr>
<td>Success-Attractive M</td>
<td>3.98&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>4.76&lt;sub&gt;a&lt;/sub&gt;</td>
<td>3.04&lt;sub&gt;b&lt;/sub&gt;</td>
<td>3.38&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>SD</td>
<td>1.37</td>
<td>1.75</td>
<td>1.26</td>
<td>1.44</td>
</tr>
</tbody>
</table>

Note. Possible range of scores for all subscales is 1 - 7. Cell means that do not share a common subscript differ at the .05 level.
Significant variation among subject groups was revealed on the Failure-Not Thin Enough subscale \[ F(3, 63) = 17.14, \ p < .0001 \]. A Bonferroni test conducted at the .05 level yielded partial support for the prediction that eating-disordered subjects would more strongly endorse considering a weight-related attribution for interpersonal failure than would social phobics or normal controls. Bulimic subjects scored significantly higher on this subscale than non-eating-disordered subjects. However, although anorexics scored significantly higher than normal controls, their mean score, while in the hypothesized direction, did not differ significantly from that of the social phobics. The mean score of the latter group on this variable was not significantly different from that of the normal controls, and the bulimic average did not differ significantly from the anorexic average.

The ANOVA performed on the Success-Slender subscale revealed a significant effect for group \[ F(3, 63) = 12.79, \ p < .0001 \]. The Bonferroni procedure indicated that, as predicted, anorexics and bulimics more strongly endorsed considering a weight-related attribution for success in social situations than did social phobics and normal controls, who did not differ from one another in their endorsement of this attribution.
Significant group effects were also found on the other three Failure subscales - Failure-Socially Awkward \( [F(3,63) = 19.75, p<.0001] \), Failure-Boring \( [F(3,63) = 20.57, p<.0001] \), and Failure-Unattractive \( [F(3,63) = 20.11, p<.0001] \) - as well as on the Success-Attractive subscale \( [F(3,63) = 4.23, p<.0087] \). Bonferroni comparisons conducted at the .05 level revealed a consistent pattern of results on the non-weight-related Failure subscales: Anorexics, bulimics, and social phobics gave significantly stronger endorsement to all three of these types of attributions for interpersonal failure than did normal controls, and did not differ from one another in their strength of endorsement. On the Success-Attractive subscale bulimic subjects scored significantly higher than socially phobic or normal control subjects. No other between-group differences on that subscale were significant. No significant effects for group were revealed for either the Success-Socially Confident \( [F(3,63) = 1.70, p = .1750] \) or Success-Interesting \( [F(3,63) = 2.01, p = .1210] \) subscales, indicating no significant differences between subject groups in strength of endorsement of these types of attributions for interpersonal success.

Examination of subject indication of deciding upon the weight-related attribution for interpersonal failure as being the major cause of that outcome revealed striking
differences between groups. Whereas only 1 normal control
subject (6%) and 1 social phobic (6%) reported that they
would be most likely to settle on the attribution of "I'm
not thin enough" as being the one major cause of the
negative outcome presented in one of the six AES failure
scenarios, 10 anorexics (56%) and 10 bulimics (67%) so
indicated for one or more of those scenarios. One
anorexic and one bulimic reported that they would choose
that attribution as the major cause for five out of the six
scenarios, and another nine eating-disordered subjects did
so for between two and four scenarios.

The weight-related attribution for interpersonal
success was selected by eating-disordered subjects as the
major cause of that outcome with much less frequency than
for interpersonal failure. Two anorexics reported that
they would be most likely to settle upon the attribution of
"I look really slender" as the major cause of the positive
outcome presented in four of the six AES success
scenarios, and one anorexic so indicated for three of the
scenarios. Three bulimics chose the weight-related
attribution for one or more (range 1 - 4) of the success
scenarios. No social phobics or normal controls reported
that they would decide upon a weight-related attribution
for the positive outcome presented in any of the
interpersonal success scenarios.
Avoidance Questionnaire

As noted in Chapter Three, noninterpersonal items were included on the AQ solely for the purpose of testing for possible response style bias. Examination of responses to noninterpersonal items showed a low rate of indication by subjects of any avoidance or anxiety associated with those situations. Less than 1/3 of all subjects responded other than "1" (not at all likely to avoid the situation or endure it with anxiety) on any of the five noninterpersonal items; only 8 subjects (12%) responded other than "1" on item #6. There was no evidence of a response style bias occurring with any particular subject group—responses of greater than "1" on noninterpersonal items of Part I were given by averages of 23% of anorexics, 29% of bulimics, 18% of social phobics, and 28% of normal controls. Consequently, noninterpersonal items will not be considered in further AQ analyses. (A table of frequency counts by subject group of responses greater than "1" on each of the five noninterpersonal items is presented in Appendix F.)

Cronbach's alpha coefficients of internal consistency were computed for each of the eight subscales of the AQ to be considered. The alpha coefficients for the Frequency of Interpersonal Avoidance and Distress subscale and Total Interpersonal Avoidance and Distress subscale were .87 and .88, respectively. Those for the six Explanation subscales
were as follows: Behavior - .93, Weight and Figure - .97, Physical Appearance - .96, Nervousness - .94, Overeating - .88, Talking - .92. Test-retest reliability coefficients for the eight subscales were calculated to be the following: Frequency of Interpersonal Avoidance and Distress - $r = .74$, Total Interpersonal Avoidance and Distress - $r = .73$, Behavior - $r = .81$, Weight and Figure - $r = .80$, Physical Appearance - $r = .83$, Nervousness - $r = .92$, Overeating - $r = .80$, Talking - $r = .63$.

**Interpersonal Avoidance and Distress Subscales**

To test the hypothesis that anorexics and social phobics would report greater avoidance of or distress in specific social situations than bulimics, who would in turn report a greater likelihood of such behavior than normal controls, a one-way between groups MANOVA was conducted with the AQ-Frequency of Interpersonal Avoidance and Distress subscale and the AQ-Total Interpersonal Avoidance and Distress subscale as dependent variables. A significant overall effect for subject group was found [Wilks' Lambda = 0.69; $F(6,124) = 4.30$, $p<.0006$].

Subsequent univariate ANOVAs indicated significant variation among subject groups on both of the subscales [$F(3,63) = 5.37$, $p<.0023$; $F(3,63) = 8.85$, $p<.0001$, respectively]. Bonferroni tests yielded partial support for the hypothesized differences between groups. On the
Total Interpersonal Avoidance and Distress subscale, which
has a range of 10 - 70, anorexics (M = 38.78, SD = 13.48),
social phobics (M = 42.75, SD = 10.84), and bulimics (M =
38.67, SD = 12.70) scored significantly higher than normal
controls (M = 23.94, SD = 9.05); however, the predicted
higher scores of the anorexic and social phobic groups
compared to the bulimic group were not found. The means of
those three groups did not differ from one another. On the
Frequency of Interpersonal Avoidance and Distress
subscale, on which scores can range from 0 - 10, social
phobics (M = 9.06, SD = 1.29) and bulimics (M = 8.33, SD =
1.91) scored significantly higher than normal controls (M =
5.72, SD = 3.54), but did not differ from one another. The
anorexic mean of 7.78 (SD = 2.71) was not significantly
different from that of any of the other three groups.

**Explanation Subscales**

Table 16 displays group means and standard deviations
on the six Explanation subscales of the AQ. A one-way
between groups MANOVA was performed on scores on these
subscales in order to test the hypotheses concerning
weight-related explanations for interpersonal avoidance.
The set of dependent variables was significantly related
to subject group membership [Wilks' Lambda = 0.29; F(18,
159) = 4.85, p<.0001].
Table 16

Group Means on AQ Explanation Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight and Figure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
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<td>3.30&lt;sub&gt;b&lt;/sub&gt;</td>
<td>1.57&lt;sub&gt;c&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>1.93</td>
<td>1.40</td>
<td>1.57</td>
<td>0.80</td>
</tr>
<tr>
<td><strong>Overeating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>2.36&lt;sub&gt;a&lt;/sub&gt;&lt;sub&gt;b&lt;/sub&gt;</td>
<td>3.07&lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.56&lt;sub&gt;b&lt;/sub&gt;</td>
<td>1.42&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>0.87</td>
<td>1.47</td>
<td>0.75</td>
<td>0.78</td>
</tr>
<tr>
<td><strong>Behavior</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>4.90&lt;sub&gt;a&lt;/sub&gt;</td>
<td>4.96&lt;sub&gt;a&lt;/sub&gt;</td>
<td>5.40&lt;sub&gt;a&lt;/sub&gt;</td>
<td>3.10&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>1.86</td>
<td>1.27</td>
<td>1.14</td>
<td>1.28</td>
</tr>
<tr>
<td><strong>Physical Appearance</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>4.28&lt;sub&gt;a&lt;/sub&gt;&lt;sub&gt;b&lt;/sub&gt;</td>
<td>5.22&lt;sub&gt;a&lt;/sub&gt;</td>
<td>3.89&lt;sub&gt;b&lt;/sub&gt;</td>
<td>1.70&lt;sub&gt;c&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>1.78</td>
<td>1.21</td>
<td>1.39</td>
<td>0.83</td>
</tr>
<tr>
<td><strong>Nervousness</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>3.73&lt;sub&gt;a&lt;/sub&gt;</td>
<td>3.97&lt;sub&gt;a&lt;/sub&gt;</td>
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<td>2.48&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>1.96</td>
<td>1.55</td>
<td>1.10</td>
<td>1.51</td>
</tr>
<tr>
<td><strong>Talking</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>2.43&lt;sub&gt;a&lt;/sub&gt;</td>
<td>2.89&lt;sub&gt;a&lt;/sub&gt;</td>
<td>2.20&lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.70&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>1.38</td>
<td>1.31</td>
<td>1.34</td>
<td>0.89</td>
</tr>
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</table>

**Note.** Possible range of scores for all subscales is 1 - 7. Cell means that do not share a common subscript differ at the .05 level.
When the significant MANOVA was followed by univariate ANOVAs, significant effects for group were found for both of the subscales of primary interest - the Weight and Figure subscale \( F(3, 61) = 8.06, p < .0001 \) and the Overeating subscale \( F(3, 61) = 9.14, p < .0001 \). Bonferroni tests conducted at the .05 level on group scores on the Weight and Figure subscale revealed that, as predicted, anorexics and bulimics more strongly endorsed a fear of negative evaluation of their weight and/or figure as contributing to their social avoidance than did social phobics. The mean score of social phobics on this subscale was, in turn, significantly higher than that of normal controls.

On the Overeating subscale the prediction was partially supported that, compared to social phobics, eating disorder subjects would more strongly endorse as a contributor to their interpersonal avoidance a fear of eating too much in social situations. The bulimic mean score on this subscale was significantly higher than those of social phobics or normal controls. However, the mean difference between anorexics and social phobics on this measure, while in the hypothesized direction, failed to reach statistical significance at the .05 level. An analysis of group scores after removal of items describing situations in which food is generally not present (e.g.,
giving a speech or class presentation; playing tennis with other people watching) increased the difference in mean scores between the anorexics and social phobics to a significant level. While the average scores of the social phobics ($M = 1.75$) and normal controls ($M = 1.41$) remained essentially identical to what they had been when all items were included in the computations, those of the anorexics ($M = 3.85$) and bulimics ($M = 4.69$) increased substantially with removal of the non-food-related items.

The ANOVA conducted on the Behavior subscale revealed significant variation among subject groups [$F(3,61) = 8.06$, $p<.0001$]. Bonferroni comparisons indicated no significant differences between the mean scores of anorexics, bulimics, and social phobics. All three of these groups gave stronger endorsement to a fear of negative evaluation of their behavior as contributing to their social avoidance than did the normal control group. A significant effect for group was found when an ANOVA was performed with scores on the Physical Appearance subscale as the sole dependent variable [$F(3,61) = 18.79$, $p<.0001$]. A Bonferroni procedure indicated that bulimics, anorexics, and social phobics rated a fear of negative evaluation of their physical appearance other than their weight and figure as playing a role in their avoidance of social situations more strongly than did normal controls. The bulimic mean score
of 5.22 on this subscale did not differ significantly from
the anorexic average of 4.43, but was higher than the
social phobic mean of 3.89. The difference between the
anorexic and social phobic means was not significant.

The ANOVA performed on scores on the Nervousness
subscale yielded a marginally significant overall F-ratio
\[ F(3,61) = 2.74, p < .051 \]. However, adjustment by the
Bonferroni procedure at the .05 level indicated that the
differences in mean scores between subject groups were not
statistically significant. Subjects did not differ in
their endorsement of a fear of negative evaluation by
others of physiological indicators of nervousness, such as
blushing and trembling, as a contributor to their
interpersonal avoidance. No significant effect for group
was found when an ANOVA was conducted with Talking scores
as the sole dependent variable \( F(3,61) = 2.46, p = .07 \).
The four subject groups did not differ in how strongly they
rated a fear of talking too much as playing a role in their
avoidance of social situations.

In addition to assessing strength of endorsement of
each of the six explanations for interpersonal avoidance
and distress, all items in Part II of the AQ query which of
those explanations would play the greatest role in the
individual's avoidance of the activity. Table 17 displays
percentages of subject responses to these inquiries across
### Table 17

Percentages of Subject Responses to AQ "Greatest Role" for Each Explanation for Interpersonal Avoidance

<table>
<thead>
<tr>
<th>Explanation</th>
<th>AN</th>
<th>BN</th>
<th>SP</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of neg. eval. of weight and/or figure</td>
<td>35%</td>
<td>36%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>Fear of overeating</td>
<td>12%</td>
<td>13%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Fear of neg. eval. of behavior</td>
<td>38%</td>
<td>31%</td>
<td>81%</td>
<td>49%</td>
</tr>
<tr>
<td>Fear of neg. eval. of appearance</td>
<td>4%</td>
<td>12%</td>
<td>3%</td>
<td>11%</td>
</tr>
<tr>
<td>Fear of neg. eval. of nervousness</td>
<td>9%</td>
<td>6%</td>
<td>2%</td>
<td>18%</td>
</tr>
<tr>
<td>Fear of talking too much</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td>11%</td>
</tr>
</tbody>
</table>

**Note.** Figures are percentages of subject responses that indicate the explanation would play the greatest role in the individual's avoidance out of all six explanations, calculated across the 10 interpersonal activities.
all 10 interpersonal activities. The table indicates that, for over one third of the items, anorexics and bulimics reported that the greatest role in their avoidance of the described activities would be played by a fear of people negatively evaluating their weight and/or figure. This factor was implicated as the primary motivation for avoidance of a wide range of activities. For example, 9 anorexics (50%) and 8 bulimics (53%) reported that a fear of negative evaluation of their weight and/or figure would play the greatest role out of all six factors in their avoidance of attending a party. Three anorexics and 4 bulimics selected the weight and/or figure explanation as the primary reason for avoidance of giving an optional speech or presentation, and 5 individuals in each of those subject groups did so for the activity of playing tennis with other people watching.

In contrast to the eating-disordered subjects, social phobics and normal controls implicated the factor of a fear of negative evaluation of their weight and/or figure as the primary reason for avoidance of only 10% and 8% of the items, respectively. For those two subject groups, all of the "weight and/or figure as greatest role" responses were limited to the two items "swimming in the ocean or in a pool when other people are around" and "participating in an exercise class," two activities that are likely to
elicit weight- and/or figure-related self-consciousness in many women.

A fear of overeating in the situation was also predictably cited by anorexics and bulimics more frequently than by non-eating-disordered subjects as the strongest factor contributing to avoidance. The types of situations for which this explanation was given as primary were more limited than for the weight-related explanation. Fifty-nine percent of the "overeating as greatest role" responses of eating-disordered subjects were made for the item "going to a restaurant with other people," with an approximately equal percentage of those responses being given by anorexics as by bulimics. For five of the other nine interpersonal activities, between 1 and 4 eating-disordered subjects indicated that a fear of eating too much would be the greatest contributor to their avoidance of each situation; four of the activities received no "overeating as greatest role" responses. Interestingly, on the item "attending a party" only 1 anorexic and no bulimics implicated a fear of eating too much as the major reason for avoidance. In spite of the fact that such a situation would surely involve the presence of food and the opportunity for overeating, the fear of negative evaluation of weight and/or figure, which as discussed above was heavily endorsed by eating-disordered subjects as playing
the greatest role in their avoidance of this activity, was apparently more threatening.

A high percentage (81%) of social phobic responses implicated a fear of negative evaluation of behavior as the primary reason for social avoidance, consistent with the social phobia diagnostic criterion of DSM-III-R (American Psychiatric Association, 1987) of the fear of "do[ing] something or act[ing] in a way that will be humiliating or embarrassing" (p. 243). Although, as discussed earlier, anorexics and bulimics did not differ significantly from social phobics in their endorsement of a fear of negative evaluation of their behavior as contributing to their social avoidance, as measured by mean scores on the Behavior subscale, when queried as to which of the six explanations would play the greatest role in avoidance the eating-disordered subjects nominated "behavior" much less frequently than did social phobics.

It is also interesting to note that bulimics indicated more often than either anorexics or social phobics that a fear of negative evaluation of their appearance other than their weight and figure would be the largest contributor to their social avoidance. Taken together with the previously-discussed finding that bulimic subjects scored significantly higher on the Appearance subscale than did socially phobic subjects, and displayed a trend in that
direction in comparison to anorexic subjects, this indication suggests concerns on the part of bulimics about adequacy and acceptability to others of their general physical appearance, in addition to their more specific concerns about weight and figure. The similar percentage (11%) obtained by normal controls for the appearance explanation may be attributable to the fact that several of those subjects chose this factor as the major reason for avoidance of swimming in the ocean or in a pool. Bulimic subjects almost universally selected the weight and/or figure explanation as primary on the "swimming" item, and instead implicated appearance on a range of other items.
CHAPTER V
Discussion

Evaluation of Hypotheses

Hypotheses Related to an Underlying View of the Self as Inadequate and Vulnerable to Negative Evaluation

1. Automatic processing of information reflecting negative evaluation. The results of this portion of the study support the hypothesis that eating-disordered and socially phobic subjects exhibit a selective processing of material reflecting negative evaluation. Anorexics, bulimics, and social phobics all demonstrated significantly longer response latencies for color-naming words representing general negative evaluation, as well as words more specifically connoting criticism and rejection by others, than they did for matched neutral words. Normal control subjects, in contrast, showed no such slowing in their response to negative evaluation words relative to neutral words. These results are congruent with the findings of the sole previous study utilizing the Stroop paradigm with socially phobic subjects. In that study Hope et al. (1990) found that social phobics, but not subjects with panic disorder, exhibited longer color-naming latencies for social threat words than for neutral words. No prior studies have used a Stroop task to examine the
processing by anorexics and bulimics of theoretically relevant material not related to food or weight.

The slowing in color-naming that was observed during presentation of the stimuli reflecting negative evaluation is likely to be indicative of a disruption in information processing associated with anxiety or conflict in that domain. The content of the material did not reflect weight and shape concerns, which represent the specific psychopathology of anorexia nervosa and bulimia nervosa. Nevertheless, the stimulus words were emotionally salient and disruptive for anorexics and bulimics. In fact, following testing sessions a number of eating-disordered subjects commented that the words on the negative evaluation target cards, particularly the General Negative Evaluation card, had been quite upsetting to them.

One of the aims of this study was to investigate whether a distinction might be made between the emotional significance of stimuli connoting a generalized negative evaluation of the self and material reflecting a more specific form of negative evaluation related to criticism and rejection by others. It was theorized that both of these content areas would be emotionally relevant to eating-disordered individuals and generalized social phobics, reflecting a similarity between the groups in the underlying view of the self. However, if it is instead
the case that social phobics do not view themselves as generally inadequate, but rather as inadequate only with regard to interpersonal situations involving potential evaluation by others, these individuals might exhibit a greater interference in the processing of information explicitly reflecting interpersonal disapproval and rejection. Because it was unclear whether or not to expect a differential subject response to the two types of stimuli, no specific predictions were made about this aspect of the study.

The pattern of results obtained upon comparing scores on the General Negative Evaluation Interference Index to those on the Negative Evaluation by Others Interference Index were not particularly useful in addressing the question of whether the concerns of social phobics related to negative evaluation are specific to the interpersonal domain. Social phobics demonstrated almost identical interference from the two types of words. This may reflect a sense of generalized inadequacy in addition to interpersonal inadequacy on the part of these individuals. On the other hand, because the General Negative Evaluation words were not specifically non-social in nature, their emotional salience for social phobics may have been tied to these subjects' interpersonal concerns.
A clearer finding was that the General Negative Evaluation stimuli were particularly disruptive to anorexics and bulimics. These two subject groups, like the social phobics, were significantly slower in color-naming the Negative Evaluation by Others words than the control words, and showed significantly greater interference from this material than did normal controls (who exhibited no interference). However, unlike social phobics, both anorexics and bulimics exhibited significantly larger General Negative Evaluation interference scores than Negative Evaluation by Others interference scores. This finding suggests that although material reflecting criticism and rejection by others is emotionally salient and anxiety-provoking to individuals with eating disorders, stimuli representing a more generalized personal inadequacy, presented in this study in the form of the words "inadequate," "failure," "worthless," "incompetent," and "inferior," may tap underlying concerns even more strongly.

As noted in Chapter One, the indication of selective processing by anorexics, bulimics, and social phobics of material related to a negative view of the self may serve to confirm self-report data assessing these dimensions. In this project, as in previous studies, subjects in these three groups displayed elevated scores on the
Ineffectiveness subscale of the EDI, designed to measure general feelings of inadequacy, the Brief-FNE, assessing fear of negative evaluation, and the BDI, measuring depression. The General Negative Evaluation Interference Index was significantly correlated with all three of these scales; the Negative Evaluation by Others Interference Index correlated significantly with the Brief-FNE. Although there was high intercorrelation among the symptom inventory scores, the consistency in demonstration of concerns on both the Stroop cognitive processing task and these self-report measures helps to build a case for the existence of a prominent view of the self as inadequate and vulnerable to negative evaluation in these emotional disorders.

2. Expectations of failure and of success in interpersonal situations. The finding that anorexics, bulimics, and social phobics reported having a greater expectation of experiencing interpersonal failure or rejection than normal controls supports the proposition that these individuals are apt to regard negative social events as particularly likely to occur. For example, eating-disordered subjects and social phobics rated the likelihood of situations such as having a co-worker turn down their invitation to go shopping together more highly than did controls. Negative expectancies may develop from
a past history of actual failure in interpersonal situations, or may reflect enduring cognitive distortions resulting in an overestimation of the probability of negative social outcomes (Lucock & Salkovskis, 1988). Because selective information processing is biased toward the confirmation of expectations based upon dominant schemata, along with the neglect of conflicting data (Goldfried & Robins, 1983; Nisbett & Ross, 1980), immunity to positive feedback may prevent these individuals from developing increased self-confidence and a more positive view of the self through the experience of successful interpersonal exchanges.

It had been hypothesized that, along with greater anticipation of interpersonal failure, social phobics and eating-disordered subjects would hold lower expectations of experiencing success and acceptance in interpersonal situations compared to normal controls. The finding that this was the case for social phobics is consistent with the results of previous studies on expectancies conducted with social phobics (Lucock & Salkovskis, 1988) and shy subjects (Teglasi & Hoffman, 1982), and provides further evidence of a negative self-view in generalized social phobia.

That the prediction was not upheld for anorexics and bulimics is of interest to a theoretical understanding of
the eating disorders, and may have treatment implications, as well. The finding that these subjects were no less likely than normal control subjects to anticipate that they would experience specific social situations involving positive outcomes suggests that, in addition to possessing negative interpersonal self-schemata, eating-disordered individuals may also have aspects of a positive interpersonal sense of the self. Responses obtained on two of the Attribution subscales may provide suggestive evidence in support of this notion. Although these subscales were not of primary interest to the study and the group differences observed were not significant, the scores of anorexics and bulimics on the Success-Socially Confident and Success-Interesting subscales resembled those of the normal controls to a greater extent than those of the social phobics (see Table 15). If anorexics and bulimics have a view of the self that may accommodate the possibility of successful interpersonal interactions which may be attributed to positive, non-weight-related personal qualities, such as being interesting and socially confident, it could be useful to draw upon such elements in treatment.

3. Intensity of affect associated with interpersonal failure and success. Large differences were found between normal controls and the other three subject groups in the
intensity of negative affect anticipated with the occurrence of interpersonal failure. Social phobics and eating disorder subjects indicated that they would feel "moderately" to "extremely bad," on the average, should the specific rejection experiences happen to them, whereas normal controls rated their average affective response between "not at all" and "moderately bad." The disparate anticipated emotional responses may reflect differing interpretations of the meaning or importance of the negative outcome. The situations described represented what most individuals might consider to be mild to moderate interpersonal failure - none of the scenarios presented events that would typically be regarded to be devastating experiences, such as a partner ending a relationship. Social phobics and eating-disordered individuals may imbue these types of experiences with greater significance, and thus be more upset by their occurrence, than persons without emotional disorders. It is possible that such intensity of negative affect may be indicative of activation of a salient self-schema related to this domain.

The failure to find a difference between groups in the intensity of anticipated positive affect associated with interpersonal success is somewhat puzzling, particularly for the socially phobic group. As discussed earlier, Teglasi and Hoffman (1982) reported that shy subjects
expressed less intense positive affect than non-shy subjects in response to scenarios describing successful outcomes. In the present study all four subject groups indicated they would feel between "moderately" and "extremely good," on the average, in response to experiencing the social situations reflecting acceptance and approval by others. It is possible that the scenarios presented were less or more emotion-eliciting than those used by Teglasi and Hoffman, resulting in either the socially phobic/shy subjects or the normal control subjects responding differently in the two studies. That the eating-disordered subjects did not differ from normal controls on this variable is perhaps more understandable, given the finding that they were also no less likely to expect the occurrence of successful interpersonal situations.

4. Interpersonal avoidance and distress. As expected, eating-disordered subjects and social phobics reported a greater likelihood than normal controls of avoiding specific social situations because of anxiety, or of enduring them, but with intense discomfort. However, the prediction that social phobics and anorexics would score higher on this subscale of the AQ than bulimics was not upheld. Furthermore, although social phobics and bulimics reported that they would feel anxious in and/or
avoid a wider range of social situations than did controls, the mean score of anorexics on this variable, while in the hypothesized direction, did not differ significantly from that of controls. These findings were surprising, given the indication in the literature of greater interpersonal avoidance on the part of anorexics than bulimics (Fairburn, 1982; Fairburn et al., 1986). Response patterns on the other two measures of social avoidance and distress employed in this study, the SPAI and the diagnostic interview, were examined to determine if they were congruent with the AQ data. Scores obtained on the SPAI indicated no significant differences between social phobics, anorexics, and bulimics in the frequency of experiencing social anxiety and avoidance, although the mean score of the former group was 20 points higher than that of the bulimic group. The scores of the anorexics and bulimics on this instrument were essentially equivalent (89.11 and 86.70, respectively), generally consistent with the findings on the AQ. On the diagnostic interview, however, a lower percentage of bulimics than anorexics met criteria for generalized social phobia (33% compared to 50%). In the subset of subjects meeting criteria, bulimics and anorexics reported avoidance of an approximately equal number of different types of social situations.
Overall, the findings seem to suggest that, for the current sample, bulimics are not significantly less likely to experience interpersonal anxiety and/or avoidance than anorexics or social phobics. A variable not assessed in this study, however, was intensity of anxiety. Neither the AQ nor the SPAI measured the severity of anxiety anticipated in various social situations. Unfortunately, the AQ combined an assessment of the likelihood of avoidance with the likelihood of experiencing intense anxiety while remaining in the situation, without attempting to clearly measure degree of distress. Similarly, the SPAI assessed only the frequency of anxiety-related thoughts, feelings, and behavior. It may be that bulimics experience anxiety in or avoidance of social situations at a frequency rate comparable to social phobics and anorexics, but at a less intense level, resulting in less social impairment. The finding that more anorexics than bulimics met criteria for generalized social phobia on the basis of the diagnostic interview, the only instrument used in this study that in any way addressed severity of anxiety, appears consistent with this possibility. Future research will be required to address the question of intensity of social anxiety.

5. Perfectionism issues. Two separate measures of perfectionism were used in this research project. The
Perfectionism subscale of the EDI has been employed in a number of studies on anorexia nervosa and bulimia nervosa (e.g., Garner et al., 1983a; Garner et al., 1984), and typically yields significantly higher scores for eating-disordered subjects compared to normal controls. Because of the narrow scope of assessment of the perfectionism construct provided by this measure, the current project additionally utilized a newer instrument, the Multidimensional Perfectionism Scale.

As has been found in previous studies, anorexics and bulimics evidenced greater perfectionism on the Perfectionism subscale of the EDI, compared to normal controls. As discussed in Chapter One, this subscale primarily addresses the aspects of perfectionism involving parental expectations and the setting of high personal standards. Contrary to hypothesis, social phobics did not score significantly higher than controls on this measure, although a trend in this direction was observed. They did, however, obtain the predicted higher scores relative to controls on the Concerns Over Mistakes subscale and the overall perfectionism score of the MPS, as did eating-disordered subjects.

The Concern Over Mistakes subscale assesses what the authors of the MPS describe as the central psychopathological component of perfectionism (Frost et
According to Hamachek (1978), the primary difference between "normal" and "neurotic" perfectionists is that, while both set high standards for themselves, "normal" perfectionists accept minor flaws in their performance, still viewing it as successful. "Neurotic" perfectionists tend to focus excessively on their mistakes, judging less-than-perfect performance as unsuccessful. An overconcern with making mistakes may reflect a negative view of the self. It may represent a tendency to critically judge the self, and/or a fear that one's shortcomings will be discovered and harshly evaluated by others.

Frost et al. (1990) also describe a tendency to doubt the quality and/or completeness of one's performance on a task as a negative feature of perfectionism. In contrast, they have found that both high standard-setting and an emphasis on order and organization are positive, adaptive aspects of perfectionism. In the current study eating-disordered subjects and social phobics did not differ from normal controls on the latter two dimensions. In other words, they were no more likely than controls to set high standards for themselves or to overemphasize organization and neatness. The subscales of the MPS on which they scored significantly higher than controls were those representing the more psychopathological aspects of
perfectionism - concerns about mistakes, doubting of actions, and perceived parental criticism. Because of its multidimensional nature, the MPS may be more useful than the Perfectionism subscale of the EDI in addressing the specific aspects of perfectionism most relevant to an underlying view of the self.

Hypotheses Related to Channeling of Underlying View of the Self as Inadequate and Vulnerable to Negative Evaluation into Focus on Weight and Shape

1. Automatic processing of information related to weight and shape. It had been hypothesized that eating-disordered subjects would demonstrate longer color-naming latencies on the Stroop task for weight- and shape-related words compared to neutral words than would social phobics or normal controls. This prediction was supported, while no differences were observed between the social phobic and normal control groups on this variable. These findings are consistent with the notion that anorexics and bulimics selectively process material with negative weight and shape connotations, suggesting the existence of conflict in this area.

It is difficult to compare the results of this study to those of other studies utilizing the Stroop paradigm with eating-disordered individuals. Because the Negative Shape card and its control card were presented following the two negative evaluation cards and their controls, it is
possible that subjects may have been "primed" by viewing words reflecting inadequacy and negative evaluation, resulting in the negative shape words acquiring a greater saliency. In a previous Stroop study presentation of the card containing body shape words followed a card with food words such as "cake," "butter," and "sandwich" (Channon et al., 1988). It could be hypothesized that viewing such stimuli could also activate weight-related concerns; however, an interference effect was found only for the food items. It is unclear at this point what impact prior viewing of conflictual stimuli from various content categories may have on subsequent performance on the Stroop task.

Another factor making direct comparison between studies difficult is the fact that the words used on the Negative Shape card and its control card were not identical to those used in any other Stroop study. This lack of standardization of stimulus materials across studies is a general issue in research employing a Stroop paradigm - each project published to date has been unique in terms of the words, ink colors, and other aspects of stimulus presentation. With these caveats, the findings of this portion of the study are consistent with at least one previous Stroop study conducted with eating-disordered individuals. Ben-Tovim and Walker (1991) found a
significant interference effect for anorexics and bulimics compared to weight-preoccupied, non-eating-disordered adolescents. In earlier research they had found such an effect with shape-related words only for bulimics, with anorexics showing a trend in that direction (Ben-Tovim et al., 1989). Another study demonstrated an interference effect for bulimics compared to normal controls (anorexics were not assessed); however, since food and shape words had been combined on the same target card, interpretation of the findings was difficult (Fairburn et al., 1991). As previously noted, a fourth Stroop study, conducted with anorexics, yielded an interference effect for food- but not weight-related stimuli (Channon et al., 1988).

In spite of the potential problems in interpretation, the results of this portion of the study are of interest, particularly because this is the first report of research employing the Stroop task with anorexics and bulimics in comparison to another psychopathological subject group. Taken in conjunction with the findings discussed in Hypothesis 1 of the previous section, the results suggest that the selective processing of weight-related material is specific to the eating disorders as distinct from emotional disorders in general. Whereas both eating-disordered subjects and social phobics evidenced a selective processing of negative evaluation words, consistent with
the theoretically-conflictual nature of such stimuli for these individuals, anorexics and bulimics, but not social phobics, did so for weight- and shape-related words. These findings support the existence of an attentional bias for personally-threatening information. In the case of individuals with eating disorders, both information connoting negative evaluation and that reflecting weight and shape issues appear to be emotionally significant.

2. Weight-related explanations for social avoidance. The distribution of mean scores on the Explanation subscales of the AQ support the hypothesis that eating-disordered subjects would more strongly endorse than social phobics or normal controls weight-related explanations for interpersonal avoidance and distress. Compared to the other two subject groups, both anorexics and bulimics scored significantly higher on the subscale assessing the extent to which a fear of negative evaluation by others of their weight and/or figure would contribute to their anxiety in or avoidance of specific social situations. Furthermore, for an average of over one-third of the interpersonal activities described, subjects with eating disorders indicated that this particular fear would play a greater role in their social avoidance than any of five other categories of fear. Social phobics, the comparison group of most relevance to this hypothesis, chose the
weight-related fear as primary for only 10% of the activities.

The distinguishing characteristic of social phobia - a fear of negative evaluation of behavior (American Psychiatric Association, 1987) - was endorsed equally strongly by anorexics, bulimics, and social phobics as a factor in their anxiety and avoidance. However, whereas the latter group rated that explanation for distress much more highly than the fear of negative evaluation of their weight and/or figure, the former two groups rated the two types of explanations equivalently. Similarly, social phobics overwhelmingly indicated that the fear of negative evaluation of their behavior would play the greatest role in their concerns. In contrast, eating-disordered subjects implicated weight-related fear of negative evaluation with approximately the same frequency as they did behavior-related fear. The data illustrate the extent to which the preoccupation with weight impacts the lives of these individuals. Whereas some non-eating-disordered women may avoid walking down a beach to the water for a swim because of concerns about their figure, a number of eating-disordered subjects in this study indicated that such a concern would be the primary reason that they would avoid a variety of activities in which weight and shape are
typically deemed insignificant, such as giving a speech or visiting a friend.

The other weight-related explanation for interpersonal avoidance assessed in this portion of the study was a fear of overeating in social situations. The prediction that eating-disordered subjects would endorse this fear more strongly than social phobics or normal controls as a contributor to their anxiety and avoidance was upheld. This was found to be particularly true in situations in which food was highly likely to be present, such as in a restaurant or at a movie with friends. The finding lends support to the possibility that the social avoidance commonly reported as a concomitant of the eating disorders may in some cases be motivated by concerns about food consumption, rather than interpersonal anxiety.

3. Weight-related attributions for interpersonal failure and success. As noted in Chapter Four, the hypothesis concerning interpersonal failure was partially supported. Bulimics were more likely to consider a weight-related attribution for such an occurrence than social phobics or normal controls, as were anorexics in comparison to controls. Although the difference between the anorexic and social phobic mean score did not reach significance, a trend was observed in the hypothesized direction.
Non-optimal phrasing of the weight-related attribution for failure may have weakened its impact on anorexics. The weight-related attribution was presented in the form "I'm not thin enough." Although the instructions of the AES state "how likely would it be that each of the following thoughts or a thought similar to it [emphasis added] would come to mind?", it is possible that a stronger effect for anorexics may have been obtained if the item had been phrased "I look fat," emphasizing the presence of a highly negative (from an anorexic's point of view) characteristic, rather than the insufficiency of a positive characteristic.

A number of authors have postulated that failure experiences or other emotional distress "can make a patient instantly 'feel fat!'" (Casper, 1982, p. 441). It is possible that such a process occurred when eating-disordered subjects read the scenarios describing interpersonal failure and rejection, particularly if they followed the instructions of the instrument to "try to imagine as vividly as possible that you are in that situation." Alternatively, the findings may more simply reflect the indication of previous studies that individuals with eating disorders tend to project concerns about fatness into a wide range of situations (Cooper, Taylor, Cooper, & Fairburn, 1987).
As predicted, both anorexics and bulimics were more likely than social phobics or normal controls to consider the attribution "I look really slender" as a possible cause of successful interpersonal experiences resulting in approval and acceptance by others. That these individuals would attribute experiences such as having others respond positively to their class presentation or being elected as vice-president of an organization to a slender appearance illustrates the intrusiveness of weight preoccupation into interpersonal situations. The finding of positive weight-related attributions is particularly interesting for the bulimic subjects, who were objectively not "really slender," as all were within a normal weight range.

As discussed in Chapter One, Anderson and Arnoult (1985) have proposed that attribution is a two-stage process consisting of a problem formulation stage, during which a list of likely causes is generated, followed by a problem resolution stage in which a final attribution is decided upon. An attempt was made in this portion of the study to address both of these stages. It was determined that anorexics and bulimics were more likely than normal controls (and social phobics, in the case of bulimics) to consider weight-related attributions for interpersonal failure. Moreover, more than half of the eating disorder subjects indicated that they would decide upon the
attribution of "I'm not thin enough" as the major cause of at least one of the interpersonal failure situations. In contrast, only one social phobic and one normal control chose the weight-related attribution as the major cause of a negative outcome. Each scenario included as options plausible external attributions, such as "She's busy with some other obligation" in the case of a co-worker turning down an invitation. The finding that a large percentage of anorexics and bulimics viewed not being thin enough as the primary cause of at least one hypothetical interpersonal failure experience attests to the significance accorded body weight and shape as an explanatory factor for negative outcomes.

Few eating disorder subjects endorsed the weight-related attribution as the main cause of any of the interpersonal success scenarios. Although no calculations were made regarding external attributions selected because of the lack of consistency in their phrasing between scenarios, it is possible that anorexics and bulimics tended to choose external attributions, such as "She's a friendly person," as the major cause of successful situations. This tendency might be expected, based on the accumulated evidence that both socially anxious and depressed individuals tend to make external attributions for success (see Chapter One).
Although no predictions were made concerning the non-weight-related Attribution subscales, the data from the other three subscales assessing attributions considered for failure are consistent with the proposition that the focus of eating-disordered subjects on weight and shape does not replace the more generalized feelings of personal inadequacy. Anorexics and bulimics did not differ from social phobics in how strongly they rated the likelihood that they would consider attributing interpersonal failure to being socially awkward, boring, and insufficiently attractive. All three subject groups were more likely to consider such attributions than were normal controls.

No significant differences were seen between the four subject groups in how likely they would be to consider attributing successful interpersonal outcomes to being socially confident and interesting, although the scores of social phobics showed a trend toward being lower than those of the other three groups on both of these subscales. That significant differences were not found was surprising, particularly for social phobics, given their previously-discussed low expectations for success. The results were unexpected for anorexics and bulimics as well; however, as discussed earlier, it is possible that positive attributions such as these reflect aspects of a positive self-view.
Methodological Limitations

Limitations Related to the Sample

One of the primary limitations of the current study was the lack of a clinical sample of generalized social phobics. Because attempts to obtain subjects through clinician referral were unsuccessful, all but one of the social phobics were solicited symptomatic volunteers. Only 25% of these subjects were in treatment for their symptoms of social anxiety at the time of assessment. In contrast, 89% of the anorexics and 87% of the bulimics were receiving treatment for their eating disorder. Heimberg and his colleagues (Heimberg & Barlow, 1988; Heimberg et al., 1987) have suggested that many individuals who would meet diagnostic criteria for social phobia do not pursue treatment for the disorder. They may be unaware that psychological or pharmacological interventions are applicable to their concerns, or may avoid treatment settings because of anxiety related to the idea of talking about themselves. Additionally, they may perceive their distress as reflecting a stable characterological trait unamenable to change.

Like anorexics and bulimics, social phobics in this study received a carefully conducted diagnostic interview that thoroughly assessed DSM-III-R (American Psychiatric Association, 1987) criteria for social phobia. All
subjects in the social phobia subject group met these criteria, including the criterion of impairment in social, occupational, or academic functioning or marked distress about having the fear, which Turner and Beidel (1989) suggest may distinguish between shyness and true social phobia. In addition, they met the requirement imposed in this project that the subject's report of fear and/or avoidance apply to at least three types of social situations. On the average, social phobics experienced moderate or greater fear in and/or avoidance of 6.75 types of social situations. Their mean score of 107.25 on the SPAI was high, relative to the mean of 94.00 obtained by the sample of patients with social phobia on which the instrument was normed (Turner, Beidel, Dancu, & Stanley, 1989). Only 4 of the 16 social phobic subjects scored below 100 on the SPAI, and only 2 of those scored lower than the normative social phobia group mean (77.60 and 83.35, respectively). Taken together, subject responses on the diagnostic interview and the SPAI appear to indicate that the sample of social phobics, although not referred by clinicians and predominantly not in treatment, may have been generally equivalent to clinical subjects in severity of primary symptomatology. It has been argued that generalization from analogue to clinical subjects is most valid when samples show comparable anxiety levels (Borkovec
demonstrated generalizability of findings of highly socially anxious analogue subjects to clinical social phobics. It is unclear, however, to what extent the results of the present study will generalize to a clinician-referred socially phobic population.

Another subject factor that may have implications for the generalizability of the findings was the heterogeneity in treatment status and history of all participants other than normal controls. As just noted, fewer social phobics than eating disorder subjects were in treatment for the focal problem at the time of assessment. Moreover, whereas 39\% of the anorexic sample were inpatients, no bulimics or social phobics were hospitalized at the time of their participation in the research project. Although the effect of current hospitalization upon performance on study measures is unknown, such status may have impacted subject responses. The experience of being hospitalized, including the intensive, round-the-clock focus on the eating disorder by hospital personnel, may have served to increase the saliency of weight-related cues. Additionally, most of the inpatient anorexics were minors who had been hospitalized unwillingly. Although the subjects themselves consented to take part in the project and it was the impression of the evaluator that they were
attempting to respond honestly, it is possible that one or
more individuals may have used the testing session as a
means of venting frustration at the intrusion of
hospitalization upon their lives, by deliberately
minimizing or exaggerating responses.

Subjects also varied greatly in the duration of
present and past treatment for their disorder. As
discussed in Chapter Two, for those subjects being treated
for the presenting problem at the time of assessment the
range of current length of outpatient treatment was 1 ­
182 weeks, 1 - 78 weeks, and 8 - 70 weeks for anorexics,
bulimics, and social phobics, respectively. Even greater
duration ranges were reported for past outpatient care.
Type of treatment experienced (e.g., cognitive therapy,
psychodynamic therapy, pharmacotherapy) was not
systematically assessed. These large variations in
treatment history may have affected subject performance.
For example, it is possible that a subject who had
experienced 8 weeks of cognitive therapy focused on
identifying automatic thoughts and altering cognitive
distortions would have given lower ratings to negative,
internal attributions for interpersonal failure than one
who had not. Short of setting stringent criteria as to
duration and type of therapy involvement, or recruiting
only untreated subjects whose responses are not
contaminated by the influence of past or current treatment, it is difficult to eliminate the potential effect of treatment variability.

**Limitations Related to the Measures**

At least two methodological problems that could affect the validity of the study were related to the measures utilized. With the exception of the Stroop task, all of the instruments employed relied on self-report. In addition to the potential for subject distortion and response bias inherent to any use of self-report measures (Kazdin, 1980), their use with eating-disordered subjects may be particularly problematic. As discussed in Chapter One, eating-disordered individuals, especially anorexics, are notorious for misrepresentation and denial of concerns (Vitousek et al., 1991). In this study concerted efforts were made to reduce deliberate distortion by these subjects. It was emphasized that the research project was completely separate from subjects' treatment, and that participation would not in any way affect their care. Subjects were repeatedly assured of confidentiality that extended to the treatment team. It was suggested that the testing session offered a chance for the individual to share her experience with someone familiar with the disorder without concern that her report would be communicated to others. The project was characterized as
an attempt to learn more about the particular disorder from "experts" - individuals who have experienced the symptoms. Subjects were told that their participation would benefit others by expanding the knowledge base on the disorder, and were encouraged to be as open and honest as possible. It is unknown whether these attempts to increase accuracy of self-report were effective, as no control group of subjects not receiving these instructions was included in the study. However, it was the impression of the investigator that subjects believed and responded to the assurances of confidentiality and the opportunity to talk openly about their disorder without fear of recrimination.

In addition to the problem of heavy reliance on self-report, the validity of the study was threatened by the use of two non-standardized instruments, the AES and AQ, developed specifically for this investigation. These measures were designed to assess variables of interest that were not tapped by existing standardized instruments. Although adequate internal consistency was demonstrated for most of the subscales, and test-retest reliability was assessed using a small sample of normal control subjects, further documentation of the psychometric properties of these measures was not undertaken. The lack of establishment of psychometric soundness represents a
weakness of the current project, and should be remedied prior to further use of the measures in research.

Limitations Related to the Procedures

As discussed earlier, it is possible that the presentation order of the Stroop cards may have created a priming effect by preceding the weight and shape stimuli by material reflecting negative evaluation. The fixed presentation order could also have caused a practice or fatigue effect across the testing session. The placement of target cards following their control cards was selected so that if a practice effect did occur, it would run counter to the hypothesized interference effect. An examination of mean color-naming times for each subject group across Stroop cards gives no indication of the occurrence of a practice effect - response times do not tend to decrease across cards in any subject group. There is, however, the suggestion of a possible fatigue effect. Examining latencies on the neutral control cards (General Negative Evaluation Control, Negative Evaluation by Others Control, Negative Shape Control) only, in all four subject groups the mean times increase slightly across cards (see Table 12). These latencies cannot legitimately be compared, because words on each control card were matched only to words on its own target card in terms of graphomorphemic features and frequency of occurrence in the
English language. Nevertheless, a fatigue effect cannot be ruled out. There is less suggestion of fatigue when latencies are examined across target cards. None of the four subject groups demonstrated mean color-naming times that increased across all three target cards, as they did for the control cards.

If a fatigue effect were present, it would not appear to substantially affect the findings, as the only between-cards interference comparison that was made (General Negative Evaluation Interference Index to Negative Evaluation by Others Interference Index) produced results counter to such an effect. However, future research should consider counterbalancing target-control card set presentation in order to avoid potential fatigue and, more importantly, priming effects. Several recent Stroop studies have used computer-presented words (e.g., Foa et al., 1991; McNally, Riemann, & Kim, 1990). Such an approach to stimulus presentation appears to be preferable to the use of cards. Besides addressing the problems just discussed, randomized individual presentation of different categories of words on a computer screen allows response latencies to be obtained for each word, providing more precise information about specific types of conflictual stimuli.
Another variable related to presentation order of materials that may have impacted the results of the study is the fact that the AES and AQ were completed soon after performance of the Stroop task. Although the Sorting Task was employed as a neutral distracter between administration of the Stroop and the AES, responses on the latter measure may have been affected by having recently processed words related to negative evaluation and body shape. However, there was no other reasonable testing sequence, as completion of the Stroop following the AES and AQ would certainly have constituted priming. Because the Stroop task was considered most critical to the research, this alternative would not have been acceptable.

The possibility of a priming effect resulting from contextual cues (Vitousek et al., 1992) is another concern. Eating disorder subjects were told that the project concerned anorexia nervosa and bulimia nervosa. Social phobic subjects were led to believe it was a study on social anxiety in women. In contrast, normal controls were given the vague description of the project as being an investigation of the relationship between cognition, emotion, and behavior in college women. Consequently, the former two groups had clear, although conflicting, expectations as to the focus of the study, and were essentially primed through this awareness. While this is
unfortunate, there is no practical way to avoid such priming when subjects are solicited from specialty clinic populations. Individuals obtaining services from a treatment program for anorexia nervosa and bulimia nervosa will be implicitly cued that a study in which they are asked to participate concerns eating disorders in some way.

Normal controls in this project may have been alerted in a sense, as well, in that they completed the EDI two weeks prior to the testing session. Although this instrument was "buried" amongst the four other symptom inventories and a significant amount of time had elapsed since its administration, the content of the EDI tends to stand out in comparison to other measures, and may have stimulated hypotheses about the focus of the study. Thus, subjects may have been "primed" in a variety of ways in this project, many of which were uncontrollable. Whether potential priming may have predisposed subjects to respond in a particular manner to any of the measures is unknown, but is presented as a caveat to the discussion of implications of the study.

Several other procedural characteristics may have affected the validity of the research. As noted in Chapter Three, several evaluators participated in testing subjects, in addition to the principal investigator. Whereas all social phobics, as well as all outpatient anorexics and
bulimics, were assessed by the principal investigator, all but 2 anorexic inpatients were evaluated by another advanced graduate student who was a member of the eating disorders treatment team at Kapiolani Counseling Center. Normal control subjects were tested by several different graduate and undergraduate research assistants. Although all evaluators were thoroughly trained in the administration of study measures, the use of multiple individuals for this purpose and the lack of a balanced assignment of subjects among evaluators could represent a threat to the internal validity of the research. Additionally, as all study personnel were informed as to the general hypotheses of the project, and the two evaluators who dealt with eating disorder and social phobic subjects were aware of participant diagnosis, there is the possibility that rater bias may have influenced findings.

Yet another factor that could have affected the results was the fact that subjects were not all tested in the same location and under the same conditions. As described in Chapter Three, normal control subjects, most social phobics, and two eating disorder subjects were assessed in a research office at the University of Hawaii. The remaining eating disorder subjects were tested in offices at Kapiolani Counseling Center, with the exception of the 2 subjects referred from Kahi Mohala, who were seen
in their hospital rooms. The possibility exists that the varying settings may have in some way influenced subjects' responses on the self-report instruments.

There are certainly additional problems with the methodology utilized in this project that might be addressed; however, the final issue to be noted is the limitations imposed by the study's cross-sectional design. Although the guiding notion of the research was that a generalized view of the self as inadequate and vulnerable to negative evaluation is channeled into a focus on weight and shape in the eating disorders, the non-longitudinal nature of the design precludes any statement of causality. The study cannot elucidate whether characteristics such as perfectionism and high expectations of failure precede and/or contribute to the overconcern and dissatisfaction with body shape - it merely provides evidence that both are present in the eating disorders, whereas only the former appear to be features of generalized social phobia. An alternative hypothesis is that the eating disorder creates the general emotional distress, rather than channeling diffuse underlying distress into weight preoccupation. Without costly and time-consuming research that initiates assessment of individuals prior to the development of symptoms, propositions about a pre-existing negative view of the self can only be speculative.
Theoretical Implications

The findings of the current study provide support for theoretical models emphasizing the prominence of cognitive factors in the eating disorders. The data are consistent with the common clinical observation that anorexics and bulimics tend to invest the world with weight-related meaning and interpret stimuli in terms of weight and shape. In this project anorexics and bulimics demonstrated an intrusion of weight and body shape preoccupation into a wide range of social situations. They reported considering, and at times deciding upon, weight-related attributions for interpersonal failure, as well as for success. They endorsed a fear of negative evaluation of their weight and/or figure as an explanatory factor in their frequent avoidance of situations involving interpersonal interaction. They also admitted to avoiding social situations out of a fear of overeating. Attributions and explanatory factors are key constructs in theories emphasizing cognitive processes. The demonstration by eating-disordered individuals of selective processing of shape-related information on a Stroop task is consistent with the results of several other studies (Ben-Tovim & Walker, 1991; Ben-Tovim et al., 1989), and provides further evidence not based on self-report of conflict in this domain. Taken together, these findings
contribute to the documentation of the prominence of weight-related self-schemata in the eating disorders.

Of further theoretical interest are the indications from this study of the extent to which individuals with eating disorders show evidence of a persistent generalized negative self-view. With the exception of the expectation of experiencing interpersonal success, on every measure of this study pertinent to the investigation of the underlying view of the self anorexics and bulimics responded in a manner resembling the psychopathological comparison group, social phobics, and differing from normal controls. Like social phobics, they exhibited a selective processing of stimuli reflecting personal inadequacy and negative evaluation, indicating anxiety and conflict related to those issues. To the same degree as social phobics, anorexics and bulimics indicated that they expect interpersonal failure and rejection, anticipate experiencing significant negative affect with its occurrence, and consider as likely causes of the failure outcomes attributions to themselves as boring, socially awkward, and unattractive. They reported a frequency rate of social anxiety and avoidance similar to that reported by social phobics, and related those feelings and behavior as strongly as did social phobics to concerns about negative evaluation of their behavior by others. Additionally,
anorexics and bulimics reported levels of depression, fear of negative evaluation, psychopathological aspects of perfectionism, and feelings of ineffectiveness similar to those reported by social phobics, and significantly higher than normal controls.

Thus, in spite of the prominence of the focus on weight and shape in anorexia and bulimia nervosa, that preoccupation does not seem to replace generalized feelings of inadequacy and concerns about negative evaluation. The symptomatology of the eating disorder does not appear to block out the individual's awareness of her broader unhappiness and dissatisfaction with herself. It is possible that these self-representations were even more negative prior to the development of the eating disorder, and may have been alleviated somewhat by the intense focus on body shape and weight; whether this is in fact the case is unknown. However, in almost all of the ways assessed in this study a negative self-view was demonstrated to persist. There was evidence of this persistence, not only on a cognitive processing task designed to avoid the potential for denial of concerns that plagues self-report measures, but on the instruments relying on subject self-report, as well. The preoccupation with weight and shape may help to "hold any other psychologic problem in abeyance" (Casper et al., 1981, p. 656) on a day-to-day
basis, but does not preclude awareness when such problems are specifically assessed in a research setting.

This underlying view of the self as inadequate and vulnerable to disapproval and rejection by others may thus represent the "embedding context" (Markus, 1990, p. 246) for the prominent weight-related self-schemata characteristic of the eating disorders. If these harsh and painful self-representations constitute the answer to Markus' question of "what other schemas are available in the individual's self-concept to balance [the particular self-schema] or offset it?" (p. 246), they do not seem to represent a very appealing alternative. It may indeed be less devastating to direct one's dissatisfaction onto body shape and weight.

The current project assessed only particular dimensions of the view of the self, however - little effort was made to investigate positive self-representations, which may be available to draw upon. The unanticipated finding that anorexics and bulimics expect the occurrence of interpersonal success as strongly as do non-socially anxious, non-eating-disordered individuals is important in this respect. It suggests that there may be other aspects of a positive self-view in the eating disorders that could be further developed and strengthened in order to increase their accessibility and influence. Future research
endeavors may benefit from a more directed assessment of other positive representations of the self.

Although the current study was designed to address aspects of the self in the eating disorders, the findings have implications for generalized social phobia, as well. As discussed in Chapter Two, generalized social phobics were selected as a logical comparison group for anorexics and bulimics on the basis of indications in the literature of possible similarities between these individuals in the underlying view of the self. Much of the focus of the project involved interpersonal difficulties and concerns. Consistent with previous reports, social phobics demonstrated selective processing of material reflecting negative evaluation, revealed high expectations of experiencing interpersonal failure and low expectations of experiencing interpersonal success, and anticipated feeling significantly upset by the occurrence of mild social failure or rejection. In addition, they reported higher levels of social anxiety and avoidance, fear of negative evaluation, depression, and negative dimensions of perfectionism, relative to controls.

It is not possible to draw definitive conclusions as to the relationship between the eating disorders and generalized social phobia on the basis of this study. No attempt was made to conduct a systematic comparison between
the subject groups across all potentially relevant variables. Furthermore, the project design did not include an additional psychopathological comparison group, such as depressives. Without the inclusion of such a control group, it is impossible to determine whether the similarities detected between the eating disorders and generalized social phobia suggest a specific relationship between these two conditions, or would be expected in all psychopathological comparison groups. The data do suggest certain relationships between the disorders, however. Whereas social phobic symptomatology was found to characterize both eating disorder subjects and social phobics, eating disorder symptomatology was present only in the anorexic and bulimic groups. Thus, the relationship between the disorders was unidirectional in nature. The only significant differences between the groups on measures relevant to the underlying view of the self were greater expectations of interpersonal success and stronger indications of concerns about personal inadequacy and incompetence on the part of eating disorder subjects.

Assessment and Treatment Implications

The data presented here underscore the importance of addressing aspects of the underlying view of the self in anorexia nervosa and bulimia nervosa, in addition to targeting the more specific eating- and weight-related
psychopathology. Most multifaceted cognitive approaches to assessment and treatment emphasize the functional quality of eating disorder symptomatology, and incorporate extensive work directed at remediation of deficits in the self-concept (e.g., Garner & Bemis, 1982, 1985; Garner, Garfinkel, & Bemis, 1982; Garner et al., 1985). Modification of the underlying feelings of inadequacy and unhappiness with the self is an essential component of comprehensive psychological treatment.

The findings of the current project suggest several potential areas for therapeutic intervention. The data indicate that deleterious dimensions of perfectionism are prominent in the eating disorders, as well as in social phobia. It may be particularly important for treatment efforts to target the overconcern with making mistakes found to be characteristic of these disorders. This cognitive feature, exemplified in the judgement of the self as a failure following imperfect performance, is the aspect of perfectionism most closely associated with other symptoms of psychopathology, such as self-critical depression (Frost et al., 1990). Additionally, the tendency to doubt the quality and completeness of one's actions, also shown to be prominent in anorexia nervosa, bulimia nervosa, and social phobia, may reflect more
general self-doubts and uncertainties that should be addressed in therapy.

The data were consistent with previous indications in the literature that interpersonal concerns and difficulties are common features of the eating disorders. The social anxiety and fear of negative evaluation experienced by anorexics and bulimics may focus largely on their weight and shape, but also reflect the more general distorted attitudes about the importance of the opinions of others that characterize social phobia (Butler, 1985; Marks, 1987; Mattick & Peters, 1988). Butler (1985) has suggested that treatment of social phobia must yield a reduction in the individuals' concerns about others' opinions of them to be effective on a long-term basis. Interventions combining exposure to anxiety-provoking situations with cognitive restructuring techniques designed to alter beliefs about the likelihood of unfavorable evaluation and the necessity of approval by others have been shown to be effective in the treatment of social phobia (Butler, Cullington, Munby, Amies, & Gelder, 1984; Mattick & Peters, 1988), and may be adapted for use with eating-disordered individuals with similar concerns. The primary cognitive component of social phobia, the fear of negative evaluation, criticism, or rejection by others (Butler, 1989), appears to be a
major feature of anorexia nervosa and bulimia nervosa, as well.

Expectations of interpersonal failure, found in this study to characterize both eating-disordered subjects and social phobics, may contribute to avoidance of social situations, as well as inhibition of appropriate social behavior when in social situations. Socially anxious individuals have been found to be more likely than non-socially anxious to remember negative interpersonal reactions (O'Banion & Arkowitz, 1977). Such selective memory may affect expectancies for future social interactions. Treatment methods may incorporate work on changing expectations of failure. Lucock and Salkovskis (1988) reported that following cognitive treatment involving thought monitoring, challenging and identifying alternatives to negative automatic thoughts, and role playing, social phobics rated the probability of interpersonal failure experiences less highly than they had pre-treatment.

Suggestions have been made in the literature for the use of the Stroop technique as a diagnostic aid (Hope et al., 1990; McNally, Kaspi, Riemann, & Zeitlin, 1990), a measure of severity of psychopathology (Ben-Tovim et al., 1989; Foa et al., 1991), or a measure of treatment-related change (Watts et al., 1986) that does not incur the biases
inherent in self-report. The data obtained from this study suggest that administration of Stroop stimuli related to inadequacy and negative evaluation may be helpful in determining the extent to which such concerns are relevant for the individual client. Additionally, given the comments volunteered by several eating disorder subjects concerning the upsetting nature of those words for them, it seems possible that completion of the task may facilitate addressing those concerns in therapy by stimulating the related negative affect.

As discussed earlier, the finding that anorexics and bulimics are more likely than social phobics to expect interpersonal success may have also implications for treatment. Therapeutic intervention should incorporate an enhancement of positive characteristics, in addition to working on altering maladaptive symptoms and problems. Identification of aspects of positive self-schemata that can be further developed to compete with the view of the self as inadequate may be an important part of assessment and treatment.

Most of the data differentiating anorexics and bulimics from social phobics were related to the measures reflecting weight preoccupation. A couple of specific targets of intervention are suggested by the findings. The demonstration of the prominence of weight-related
attributions for interpersonal failure and success in the eating disorders suggests that these causal constructs may be a useful focus of treatment. The validity of the assumption that one's weight and figure may play a major role in the outcome of interpersonal interactions can be examined and tested. Additionally, the indication from the data that the social anxiety and avoidance of anorexics and bulimics may in part be related to a fear of negative evaluation of their weight and figure by others suggests potential lines of inquiry into the accuracy of such beliefs. Detailed descriptions of protocols for the implementation of cognitive-behavioral treatment for both anorexia nervosa (Garner & Bemis, 1982, 1985) and bulimia nervosa (Fairburn, 1985) are available.

Implications for Future Research

As noted in the discussion of methodological limitations of the study, computerized presentation of Stroop stimuli makes it possible to obtain individual response latencies for each word. It would be worthwhile to employ such a design with the words used in this project in order to obtain more precise information about the source of interference. A computerized approach may be especially useful in continuing to examine potential differences in saliency between material related to a generalized negative evaluation of the self and that more
specifically reflecting interpersonal evaluation. Personalizing material by basing stimuli on subjects' idiosyncratic descriptions of their concerns, rather than using the standardized stimuli, may also help to clarify whether the conflicts of social phobics related to negative evaluation are specific to the interpersonal domain or reflect a general sense of inadequacy. Other cognitive processing paradigms, such as a dichotic listening task, may be applied to this investigation, as well.

Future research utilizing a Stroop paradigm with eating-disordered individuals should include a comparison group of weight-preoccupied and/or dieting subjects to establish that the selective processing of shape-related stimuli is specifically associated with the psychopathology of anorexia nervosa and bulimia nervosa, rather than a more generalized focus on weight (Vitousek & Hollon, 1990). In fact, Vitousek et al. (1991) suggest that most eating disorder research should incorporate a control group of currently dieting subjects to examine whether obtained effects are secondary to food deprivation or general weight preoccupation. It would also be useful to consider administering the Stroop task, as well as the other instruments used in this study, to a sample of untreated eating-disordered individuals and social phobics,
as a means of eliminating the contaminating effects of treatment noted earlier.

One of the areas assessed in this study was expectation of interpersonal failure and success. Future research on expectancies may benefit from an examination of not only the anticipated likelihood that a particular type of interpersonal experience will occur, but also the subject's expectations as to ability to cope with the social situation. The latter aspect of expectancy relates to the concept of self-efficacy (Bandura, 1977). Maddux, Norton, and Leary (in press) reported that self-efficacy expectations in imagined social situations were negatively correlated with social anxiety and with the degree of anxiety individuals expected to experience in the situation. Edelmann (1985) found that socially anxious subjects believed they would be less able to deal adequately with embarrassing situations compared to non-socially anxious controls. Expectations related to coping ability may apply to situations involving positive interpersonal occurrences, in addition to negative events. For example, one of the scenarios described on the AES in this study was that of attending a party and receiving a good deal of positive attention. Although this may be considered to be an objectively positive situation, it is possible that certain individuals would judge themselves to
be unable to cope well with attention from others, even that of a positive nature. Given that anorexics and bulimics were found to be more likely than social phobics to expect the occurrence of situations involving interpersonal success, it might be informative to determine whether they would also exhibit greater self-efficacy expectations in such situations.

As discussed earlier, intensity of affect may be related to saliency of self-schemata. The current study assessed affect associated with interpersonal failure and success in only a general way - how "bad"/"good" the subject would feel. It might be valuable to attempt to identify more precisely anticipated emotional reactions (e.g., "hurt," "embarrassed"). Additionally, examination of intensity of affect associated with situations specifically involving weight and shape could be a useful component of research on weight-related self-schemata in the eating disorders (Vitousek & Hollon, 1990). Compared to non-eating-disordered subjects, anorexics and bulimics have been found to express a greater intensity of negative affect in response to imagined weight gain and of positive affect in reaction to imagined weight loss (Bemis, 1986). Other weight-related situations, such as overhearing a comment about one's figure, might be assessed on the dimension of affect intensity, as well.
A more thorough study of weight-related attributions for interpersonal failure and success is also suggested. Item analysis could be performed to identify particular types of social situations that may most strongly elicit attributions to weight and figure. It is also recommended that in future work scenarios be presented in an open-ended format, rather than providing the attribution choices as was done in this project. Subjects may be less likely to volunteer a weight-related attribution when an open-ended format is used than to endorse one supplied for them. However, spontaneous attributions to weight and shape would constitute stronger evidence of an intrusion of weight-preoccupation into interpersonal situations.

As noted earlier, the present project measured the likelihood of anxiety in or avoidance of various social situations, but did not measure severity of anxiety anticipated. It would be important to include the latter dimension in any future research comparing eating disorder subjects to social phobics. It would also be worthwhile to examine severity of weight-related fear of negative evaluation, as well as fear of overeating, and the extent to which they contribute to social avoidance in the eating disorders. Additionally, no attempt was made in this study to comprehensively assess potentially problematic social situations. The elicitation from subjects of their unique
domains of perceived difficulty may help to identify possible distinctions between social phobics and eating-disordered individuals in specific types of interpersonal concerns.

In a number of different ways, this study attempted to examine aspects of self-representation, or self-schemata, in anorexia nervosa and bulimia nervosa, and to explore cognitive similarities and differences between these disorders and generalized social phobia. Although the findings were generally consistent with a theoretical model proposing a prominence of both weight-related self-schemata and self-schemata reflecting a generalized sense of inadequacy in the eating disorders, a number of methodological drawbacks limit the confidence with which they can be interpreted. Further research will be necessary to elucidate more clearly the nature of representations of the self in anorexia nervosa and bulimia nervosa.
Footnotes

1 Five anorexic subjects reported maintaining regular or irregular menstrual periods in spite of weights averaging only 74% of average population weight for age and height, thus not meeting Criterion D of amenorrhea for diagnosis of anorexia nervosa. It was decided to include these individuals as subjects because their presentation was classic in all other ways, including the active defense of an abnormally low weight, and because amenorrhea may be a suggestive rather than definitive indication of pathological weight status (K. B. Vitousek, personal communication, November, 1991). For example, one of the anorexic subjects with regular menstruation was 59 inches tall and weighed 88 pounds. She reported that in the past she had ceased menstruating only when her weight had dropped to 65 pounds.

2 One anorexic was included as a subject in the study in spite of the fact that her weight on the day of testing of 113 pounds at a height of 66 inches was 86% of "ideal." She had been in inpatient treatment for 2 weeks at that time, with an admission weight of 102 pounds (78% of "ideal"). Her stated preferred weight of 100 pounds suggested that her recent weight gain during hospitalization to just within the "ideal" range did not represent remission of anorexic symptomatology.
Three anorexic subjects were not included in height and weight computations on the basis of their ages. Two were 14 years of age (subjects #299 and #324), and one was 13 (subject #309). Because it was likely that these individuals had not yet attained expected mature stature, a decision was made to omit them from calculations of subject group differences for height and weight variables. Height and weight data for these subjects are included in the table of raw data presented in Appendix B.
APPENDIX A

Diagnostic Instruments

**ED TELEPHONE SCREEN**

1) Have you ever been diagnosed as having an eating disorder?

2) Approximately what is your current weight? ___ lbs.
   What is your current height? ___ ft. ___ in.

   What is the lowest weight you have been at this height? _____ lbs.
   When was this?

   What was your lowest weight within the last 2 months? _____ lbs.

   What was your weight before you developed problems with eating and weight? _____ lbs.

3) If you could weigh anything you wanted to, what would you like to weigh? _____ lbs.

4) How do you feel about your present weight?

5) Do you think and worry a lot about your weight? How much of the time?

6) When you look at yourself, through your own eyes and using your own standards, would you say that you seem too heavy, too thin, or just about right to yourself?
ED Screen - p. 2

7) What do you think other people would say?

8) Does the thought of gaining weight or becoming fat frighten you a great deal? Do you feel frightened even when your weight is low?

9) Do you often feel that you are fat even when other people might think you look average or underweight?

10) Do you prefer to keep your weight quite a bit below what most other people would consider average for your age and height?

11) Do you have any medical problems that you think may be related to your eating disorder?
   a) Are your menstrual periods regular?
   b) (If regular) Are you currently taking hormones or birth control pills?

12) Do you ever have episodes of binge-eating, when you eat a large amount of food in a relatively short period of time?
   a) Can you give me an example of what you might eat during a typical binge?
   b) How often do these episodes of binge-eating tend to occur?
   c) Do you feel a loss of control over your eating at these times?
13) Do you often try to lose weight?
   
a) Have you ever used any of the following measures as a means of losing? Over the last 3 months, how often have you used this measure?
      
      Self-induced vomiting
      
      Laxatives (dose__________________)
      
      Diuretics or water pills
      
      Fasting at least 24 hours

   
b) Out of the average week, approximately how many days if any would you say that you are trying to stick to a severely restricted diet of 1000 calories per day or less?

   
c) Do you exercise regularly, at least in part for the purpose of controlling your weight?
      
      Frequency: ________ days per week
      
      Duration: ________ hours per exercise day
      
      Types: ____________________________
SOCIAL PHOBIA SCREEN

1) Do you feel fearful, anxious, or nervous in social situations where you might be observed or evaluated by others?

2) In these situations are you overly concerned that you may do and/or say something that might embarrass or humiliate you in front of others, or that others may think badly of you? Quite a bit more concerned about this than the average person?

3) What types of social situations do you avoid or feel very anxious in?

4) Do you almost always feel anxious as soon as you.....?

5) Has the fear interfered with your work or school, your social activities, your relationships, etc.? (If "NO": Does having this fear bother you a lot?)

6) Do you think that you are more afraid of ..... than you should be, or than makes sense?

7) Have you ever had episodes of severe depression? What about anorexia? - or bulimia, where you binge-eat and then make yourself vomit or go on a strict diet or exercise compulsively? (if "YES" to AN/BN, use ED Screen to establish whether individual must be excluded, or possibly qualify as ED subject)

8) How much do you weigh? (If weight is low or high, ask for height and consult weight chart)

9) How old are you?
ID # __________

DIAGNOSTIC INTERVIEW

(1 = yes; 2 = no; 3 = past only unless otherwise specified)

MAJOR DEPRESSIVE EPISODE

At least five of the following nine symptoms have been present nearly every day during the same two-week period and represent a change from previous functioning; at least one of the symptoms is either 1) depressed mood (or can be irritable mood in adolescents), or 2) loss of interest or pleasure. Ask frequency questions as need to establish that the symptom has been present nearly every day.

1. **Depressed mood**

   How have you been feeling over the last two weeks? Have you felt depressed or blue? Have you cried or been tearful? How often is your mood very low? Does it come and go? How long does it last? (SHOULD BE MOST OF THE DAY).

   FOR ADOLESCENTS ONLY: Have you felt unusually irritable for you?

2. **Loss of interest or pleasure in activities**

   Do you find that you have lost interest or get less pleasure from things that you used to enjoy - like your job, school, your family, sex, hobbies, or watching TV?

   INQUIRE FURTHER INTO "YES" RESPONSES - WHAT HAVE YOU LOST INTEREST IN, WHAT DO YOU STILL ENJOY, ETC. SCORE ONLY IF SUBJECT HAS LOST INTEREST/PLEASURE IN ALL OR ALMOST ALL ACTIVITIES MOST OF THE DAY, NEARLY EVERY DAY.

   IF 'NO' TO 1 AND 2, SKIP TO MANIA SECTION

3. **Weight or appetite change**

   Have you gained or lost any weight since you started feeling depressed? How much? Were you trying to gain or lose weight? How has your appetite been compared to the way it usually is? Do you have to force yourself to eat/have you eaten more than usual nearly every day?

   DO NOT SCORE A.N. PATIENTS WHO FORCE THEMSELVES TO EAT BECAUSE OF FAMILY OR STAFF PRESSURE: FOR ALL Ss, DO NOT SCORE WEIGHT LOST THROUGH DIETING.
Diagnostic Interview – p. 2

4. **Insomnia or hypersomnia**
   Have you had trouble sleeping? What about falling asleep? Waking up in the middle of the night or early in the morning? Or sleeping too much? How many hours a night compared to usual?

5. **Psychomotor agitation or retardation**
   Have you been so fidgety or restless that you can't sit still? Have other people noticed it? Has that been nearly every day? What about the opposite – talking or moving more slowly than normal for you? Have other people noticed it? Nearly every day?
   NOTE: CONSIDER BEHAVIOR DURING THE INTERVIEW.

6. **Fatigue or loss of energy**
   Have you had less energy than usual to do things, or have you been getting tired more easily than usual?

7. **Feelings of worthlessness or excessive or inappropriate guilt**
   Do you blame yourself for anything you have done or not done? Are you down on yourself? Do you feel guilty? What is your opinion of yourself compared to other people – do you feel worthless or like a failure?

8. **Diminished ability to think or concentrate, or indecisiveness**
   Have you had trouble thinking or concentrating (nearly every day)? Have you had difficulty making everyday decisions?

9. **Recurrent thoughts of death, recurrent suicidal ideation with or without a plan, or suicide attempt**
   When a person gets upset, depressed, or feels hopeless, she may think about dying or even killing herself. Have you? Do you sometimes wish you were dead? Have you thought about how you would do it? Have you done anything?

**MANIC EPISODE**

Have there ever been times you felt very good or too cheerful or high? Not just your normal self? When you felt on top of the world and as if there was nothing you couldn't do? If people saw you during these times, would they think you were just in a good mood, or something more than that?
Diagnostic Interview - p. 3

Have there ever been periods when you felt extremely irritable, annoyed, or angry? How did you show it?

NOTE: TO SCORE "1" MUST BE INTENSE AND PROLONGED: MUST INVOLVE OVERT EXPRESSION, SUCH AS ARGUMENTS, BREAKING THINGS, HITTING SOMEONE, ETC. SCORE CONSERVATIVELY.

IF "NO" TO BOTH ITEMS ABOVE, SKIP TO PSYCHOTIC SECTION.

REVIEW THE DIAGNOSTIC CRITERIA FOR MANIA, BELOW, WITH ALL SUBJECTS WHO GAVE AN AFFIRMATIVE ANSWER TO EITHER OF THE ITEMS ABOVE. A TENTATIVE DIAGNOSIS OF MANIC EPISODE IS A BASIS FOR EXCLUSION FROM THE STUDY.

Criteria for manic episode (Score only if current)

A. One or more distinct periods with a predominantly elevated, expansive, or irritable mood, which is prominent and relatively persistent.

B. At least three (or four if mood is only irritable) must be present for at least one week to a significant degree (or any duration is hospitalization was necessary)

1. increase in activity (socially, work, sexually), restlessness
   Have there been times when you feel much more active and energetic compared to your usual level?

2. more talkative, pressure to talk
   Have there been times when you spoke very rapidly or talked on and on and couldn't be stopped?

3. flight of ideas or racing thoughts
   Were there times when your thoughts raced through your mind - more than you could handle?

4. inflated self-esteem or grandiosity
   Do you feel more self-confident than is usual at these times? Have you felt that you are a particularly important person or that you have special talents or abilities?

5. decreased need for sleep
   At these times, do you need less sleep than usual?
Diagnostic Interview - p. 4

6. distractibility (attention too easily drawn to unimportant or irrelevant external stimuli)
   Do you find it difficult to keep your mind on something?

7. excessive involvement in activities that have a high potential for painful consequences which are not recognized
   During these periods, have you: done anything foolish with money? Done anything that would get you into trouble if you were caught? Done anything sexually that was unusual for you? In retrospect, was there anything you did that you think showed poor judgement?

C. Clinical picture not dominated by mood-incongruent delusions or hallucinations or by bizarre behavior.
D. Not superimposed on either schizophrenia, schizophreniform, or paranoid disorder.
E. Not due to an organic mental disorder, such as substance intoxication.

PSYCHOTIC DISORDERS

Has your imagination been playing tricks on you in any way?
Have you had ideas that other people might not understand?
Have you felt that you are a particularly important person, or that you have special, extraordinary powers or abilities?
Has anyone been making life hard or deliberately causing you trouble or trying to hurt you?
Has there been anything unusual about the way things looked, sounded, or smelled?
Have you ever heard voices or other things that weren't there or that other people could not hear, or seen things that were not there or that other people could not see?
Have there been times in the past when you have had unusual ideas or experiences of the kind I have been describing?

Notes re. affirmative responses:

IF AN AFFIRMATIVE RESPONSE IS GIVEN TO ANY OF THE PSYCHOTIC SCREENING ITEMS, FOR THE PAST OR IN THE PRESENT, CONTINUE WITH QUESTIONS BELOW. THE ONLY
EXCEPTIONS TO THIS RULE ARE:

A. INSTANCES WHERE BRIEF INQUIRY INTO A POSITIVE RESPONSE CLEARLY INDICATES A MISINTERPRETATION OF THE QUESTION (FOR EXAMPLE, TO THE SECOND QUESTION, "YES, OTHER PEOPLE DON'T UNDERSTAND THAT IT REALLY UPSETS ME TO GAIN WEIGHT," OR TO THE FOURTH QUESTION, "YES, THE NURSES ARE MAKING LIFE VERY HARD FOR ME IN THE HOSPITAL - THEY ARE ALWAYS BUGGING ME TO EAT.")

B. INSTANCES WHERE A POSITIVE RESPONSE IS CLEARLY ATTRIBUTABLE TO THE FOCAL SYMPTOMATOLOGY (FOR EXAMPLE, AN ANOREXIC PATIENT WHO RESPONDS TO THE FIFTH QUESTION BY REPORTING THAT COLORS SEEM BRIGHTER AND SMELLS STRONGER SINCE HER WEIGHT HAS BEEN LOW).

BUT - WHEN IN DOUBT, OR WHEN BRIEF INQUIRY CANNOT CLEAR UP YOUR DOUBTS, ASK THE FULL SET OF DIAGNOSTIC QUESTIONS.

NOTE THAT FOR THE PURPOSES OF THIS RESEARCH, IT IS LESS IMPORTANT TO IDENTIFY THE PRECISE NATURE OF A PSYCHOTIC DISORDER, OR TO DIFFERENTIATE BETWEEN PSYCHOTIC CONDITIONS, THAN TO DETECT THE PRESENCE OF ANY PSYCHOTIC-LIKE PROCESSES, WHICH ARE AN AUTOMATIC BASIS FOR EXCLUSION. BE SURE TO INQUIRE ABOUT BOTH PAST AND PRESENT, SINCE EITHER IS A BASIS FOR EXCLUSION.

Psychotic criteria

A. At least one of the following during illness:

1. bizarre delusions
   - of control: Have you had the feeling that you were controlled by some force or power outside yourself? As though you were a robot without a will of your own? Have you felt that you were forced to make movements or say things without your willing it? Or think thoughts and have impulses that were not your own?
   - broadcasting: Did you ever feel that your thoughts were broadcast so that other people knew what you were thinking? Not just from your facial expression?
   - thought insertion: Did you ever feel that thoughts were put into your head that were not your own?
Diagnostic Interview - p. 6

- thought withdrawal: Did you ever feel that thoughts were taken away from you by some external force?

2. somatic, grandiose, religious, nihilistic other delusions
   FOR ALL THE FOLLOWING, INQUIRE CAREFULLY INTO ANY POSITIVE RESPONSES TO BE CERTAIN THAT BELIEFS ARE DELUSIONAL.
   Have you felt that you are a particularly important person or that you have special powers or abilities?
   Is some part of your body giving you trouble? What is really wrong?
   RATE ONLY A DELUSIONAL BELIEF, SUCH AS "MY HEART IS ROTTING," NOT SIMPLY EXCESSIVE CONCERN.
   Have you felt that something terrible has happened or will happen?
   Have you had any unusual religious experiences?

3. Delusions of persecutory or jealous content IF hallucinations are also present
   Has anyone been making life hard or deliberately causing you trouble or trying to hurt you?

4. Hallucinations - running commentary, or two voices talking
   FOR THIS AND THE FOLLOWING QUESTION, FOLLOW UP ON THE SCREENING ITEM - ANYTHING UNUSUAL ABOUT THE WAY THINGS LOOKED/SOUNDED/SMELLED; HEARD VOICES THAT WEREN'T THERE OR SEEN THINGS THAT WEREN'T THERE.

5. Hallucinations with no relation to depression or elation

6. Incoherence, marked loosening of associations, markedly illogical thinking, or marked poverty of content of speech, if associated with at least one of: blunted/flat/inappropriate affect; delusions or hallucinations; catatonic or other grossly disturbed behavior.

B. Deterioration from previous level of functioning in such areas as work, social relations, self-care
Diagnostic Interview - p. 7

C. Duration (at least 6 mos. for schizophrenia, 2 wks for schizophreniform)

D. Full depressive or manic syndrome, if present, developed after any psychotic symptoms or was brief in duration relative to psychotic symptoms

E. Onset before age 45

F. Not due to organic mental d/o or retardation

SUBSTANCE ABUSE

During the past six months, how much drinking have you been doing?  
Do you have to drink in order to feel good?  
Does drinking have any effect on your family, work, or health? (Score 1 for possible alcohol problem; if 1, inquire into relationship to primary symptomatology)

Have you been taking any drugs to get high?  
Any prescription drugs? (Inquire and score as above)

How many caffeinated beverages do you consume in a typical day? (If high frequency, inquire about relationship to focal symptomatology)

SOCIAL PHOBIA

1a. In social situations where you might be observed or evaluated by others, do you feel fearful, anxious, or nervous?

1b. Are you overly concerned that you may do and/or say something that might embarrass or humiliate you in front of others, or that others may think badly of you?

IF "NO" TO 1a AND 1b, SKIP TO VALUATION OF SOCIAL AVOIDANCE QUESTION, p. 7

2. I am going to describe some social situations, and for each one I would like you to tell me whether you fear and/or avoid the situation.

NOTE: TO RATE AS PRESENT, FEAR OR AVOIDANCE SHOULD BE MODERATE TO SEVERE. ASK CLARIFYING QUESTIONS AS NECESSARY TO DETERMINE SEVERITY.
Diagnostic Interview – p. 8

IF SUBJECT INDICATES FEAR OR AVOIDANCE OF PARTIES, EATING IN PUBLIC, AND/OR DATING SITUATIONS, GO BACK AND INQUIRE AS TO WHETHER THE FEAR/AVOIDANCE IS DUE TO A CONCERN ABOUT EATING AND WEIGHT, OR WHETHER IT IS DUE TO ANOTHER, UNRELATED REASON. SCORE ONLY IF ENDORSED FOR REASONS NOT RELATED TO EATING AND WEIGHT. USE "COMMENTS" LINE TO SO INDICATE, AND TO NOTE SITUATIONS THAT SUBJECT REPORTS HAVING A STRONG DESIRE TO AVOID BUT IS UNABLE TO FOR PRACTICAL REASONS.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Fear</th>
<th>Avoid</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Parties</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>b. Meetings or class discussions</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>c. Eating in public</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>d. Telephoning</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>e. Talking in front of group/formal speaking</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>f. Dating situations</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>g. Talking to persons in authority</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>h. Initiating a conversation</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>i. Maintaining a conversation</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>j. Other situations</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

3. Do you almost always feel anxious as soon as you...(INSERT SOCIAL PHOBIA SITUATIONS)? 1 2

4. Has the fear interfered with your work or school, your social activities, your relationships, etc? IF "NO": Does having this fear bother you a lot? 1 2
Diagnostic Interview - p. 9

5. Do you think that you are more afraid of ...(INSERT SOCIAL PHOBIA SITUATIONS) than you should be, or than makes sense?

NOTE: IF CLARIFICATION IS NECESSARY, REFER SPECIFICALLY TO SITUATIONS SUBJECT REPORTED AVOIDING ON PRECEDING QUESTION. EXAMPLE: "DO YOU THAT THE DEGREE OF ANXIETY YOU FEEL AT PARTIES IS RATIONAL/MAKES SENSE?

6. Have you ever had a panic attack, during which you suddenly experienced a rush of intense fear, anxiety, and/or a feeling of impending doom?

IF "YES," COMPLETE ITEMS 7-11; IF "NO", SKIP TO AVOIDANT PERSONALITY

7. Which of the following sensations do you typically experience during a panic attack?

a. Shortness of breath or smothering sensations
b. Dizziness, unsteady feelings, or faintness
c. Heart "jumping," skipping beats, or beating very fast
d. Trembling or shaking
e. Sweating
f. Choking
g. Nausea or abdominal distress
h. Feeling that things around you seem unreal, or feeling detached from part of your body
i. Numbness or tingling sensations
j. Feeling very hot or cold
k. Chest pain or discomfort
l. Fear of dying
m. Fear of going crazy or of doing something uncontrolled

8. Have you ever had an attack like this in/at (INSERT SOCIAL PHOBIA SITUATIONS)?

9a. Have you ever had such attacks out of the blue in situations that have not involved social evaluation (i.e., in situations where you weren't afraid of doing or saying something that might evaluated negatively by others?)
Diagnostic Interview - p. 10

(If "NO", SKIP TO ITEM 10; IF "YES", CONTINUE...GOAL IS TO ASCERTAIN THAT SOCIAL ANXIETY AND/OR AVOIDANCE IS NOT MERELY SECONDARY TO PANIC DISORDER.)

b. What types of situation(s)?

c. Do you fear or avoid (SITUATION NOTED ABOVE) in addition to (INSERT SOCIAL PHOBIA SITUATIONS)?

d. What other situations do you avoid, or confront only when someone is with you or by forcing yourself?

e. Have you ever had 4 panic attacks in a 1-month period in situations that have not involved social evaluation? (If "NO," ASK THE FOLLOWING QUESTION:)

After having one or more panic attacks in a situation that did not involve social evaluation, did you worry a lot about having another one? Did this last at least 1 month?

f. During a panic attack, do most of the symptoms you experience become intense during the first 10 minutes after the first of your symptoms has appeared?

10. Does it seem to you that your anxiety in and/or avoidance of (INSERT SOCIAL PHOBIA SITUATION) is related more to a fear of experiencing a panic attack than to a fear of doing or saying something that might cause you to be embarrassed or humiliated in front of others?

11. If you stopped experiencing panic attacks in social situations, would you still avoid such situations or feel anxious in them?

AVOIDANT PERSONALITY DISORDER

NOTE: THIS SECTION SHOULD BE COMPLETED ONLY IF THE SUBJECT APPEARS TO MEET CRITERIA FOR SOCIAL PHOBIA. AT LEAST 4 AFFIRMATIVE RESPONSES ARE REQUIRED FOR DIAGNOSIS.
Diagnostic Interview - p. 11

1. Are you easily hurt by criticism or disapproval?  
2. Other than your immediate family - parents, brothers, sisters, spouse - do you have fewer than two close friends?  
3. Do you need to feel certain that someone will like you before you try to initiate a relationship with him or her?  
4. Do you try to avoid work, social, or school activities that involve a lot of contact with other people?  
5. Do you tend to be quiet in most social situations because of a fear of saying something inappropriate or foolish, or of being unable to answer a question?  
6. Are you afraid of being embarrassed by blushing, crying, or showing signs of anxiety in front of other people?  
7. Do you tend to worry too much about the potential difficulties, physical dangers, or risks involved in doing something outside of your usual routine, that other people probably wouldn't worry about? (An example would be cancelling travel plans because you anticipate that you will be exhausted by the effort of getting there.)

AVOIDANT DISORDER OF CHILDHOOD OR ADOLESCENCE

NOTE: THIS SECTION SHOULD BE COMPLETED ONLY IF THE SUBJECT IS UNDER AGE 18 AND APPEARS TO MEET CRITERIA FOR SOCIAL PHOBIA, BUT DOES NOT MEET CRITERIA FOR AVOIDANT PERSONALITY DISORDER.)

1a. In the last six months or longer, have you tended to avoid contact with people you don't know well?  
   (IF "NO," SKIP TO ANOREXIA NERVOSA; IF "YES," CONTINUE BELOW.)

b. Has this avoidance interfered with your relationships with other people your age?
Diagnostic Interview - p. 12

2a. Do you like and want social involvement with family members and peers you know well? 1 2

b. Do you have generally warm and satisfying relationships with family members and other people you know well? 1 2

VALUATION OF SOCIAL AVOIDANCE

Do you in any way value social avoidance? (If S in unclear re. question, clarify by asking whether she in any way sees avoiding other people/social situations as positive, desirable, or beneficial for her) If yes, ask S to rate degree on scale of 1-10.

ANOREXIA NERVOSA

What is your current weight? _____ lbs.

What is your current height? _____ ft. _____ in.

What is the lowest weight you have been at this height? _____ lbs.

When was this? ____________________________

FOR SUSPECTED EATING DISORDER SUBJECTS ONLY:

What was your lowest weight within the last two months? _____ lbs.

(FOR INPATIENTS, NOTE INSTEAD: What was your weight when you were admitted to the hospital?)

What was your weight before you developed problems with eating and weight? _____ lbs.

(IF APPROPRIATE, ASK ADDITIONAL QUESTIONS RE. HEIGHT AT PREONSET WEIGHT, RESTRICTIVE DIETING PRIOR TO ONSET)

NOTE: IF SUBJECT OTHERWISE APPEARS TO QUALIFY FOR A DIAGNOSIS OF A.N., BUT FAILS TO MEET WEIGHT CRITERION AT PRESENT, INQUIRE CLOSELY TO DETERMINE WHETHER SUBJECT MET WEIGHT CRITERION AT INITIATION OF TREATMENT FOR THIS EPISODE, AND NOTE THIS WEIGHT AND TIME PERIOD.
Diagnostic Interview - p. 13

FOR NON-EATING DISORDER SUBJECTS ONLY:
Have you ever been diagnosed as having an eating disorder? 1 2
IF "YES," NOTE INFORMATION RE. PAST DIAGNOSES, CIRCUMSTANCES OF REMISSION

If you could weigh anything you wanted to, _____ lbs. what would you like to weigh?

How do you feel about your present weight? __________

When you look at yourself, through your own eyes and using your own standards, would you say that you seem too heavy, too thin, or just about right to yourself? (1=heavy, 2=thin, 3=right)
IF SUBJECT SAYS "SOMETIMES TOO THIN, SOMETIMES JUST RIGHT," ETC., SO NOTE.

What do you think other people would say? 1 2 3
IF SUBJECT SAYS SOMETHING LIKE "THEY SAY 'TOO THIN,' BUT I'M NOT SURE THAT'S WHAT THEY REALLY THINK," SO NOTE.

Does the thought of gaining weight or becoming fat frighten you a great deal? 1 2
Do you feel frightened even when your weight is low?

NOTE: ASK THE NEXT TWO QUESTIONS ONLY OF THIN OR AVERAGE WEIGHT SUBJECTS:
Do you often feel that you are fat even when other people might think you look average or underweight? 1 2
Do you prefer to keep your weight quite a bit below what most other people would consider average for your age and height? 1 2

At the present time, are your menstrual periods regular? 1 2 3 4 5 6
(1=regular; 2=irregular or amenorrhea of less than 3 mos.; 3=amenorrhea 3 months or longer; 4=on hormones + regular before use of hormones; 5=on hormones + irregular before use of hormones; 6=hysterectomy/postmenopausal)

Are you currently taking hormones or birth control pills? 1 2
BULIMIA NERVOSA

Do you ever have episodes of binge-eating, when you eat a large amount of food in a relatively short period of time? (RATE "YES" ONLY IF OBJECTIVELY LARGE AMOUNT OF FOOD)

IF "NO," PROCEED TO NEXT SET OF ITEMS ON LEFT MARGIN, THIS SECTION.

How often do these episodes of binge-eating tend to occur? (0=never; 1=less than weekly; 2=weekly; 3=several times/week; 4=daily; 5=several times/day)

ALSO NOTE AVERAGE NUMBER, CIRCLING PER WEEK/MONTH:

Do you feel a loss of control over your eating at these times?

Do you sometimes try to conceal how much you are eating, or make sure that you are alone during these episodes?

Do you often try to lose weight?

Have you ever used any of the following measures as a means of losing? Over the last 3 months, how often have you used this measure? (0=never; 1=less than weekly; 2=weekly; 3=several times/week; 4=daily; 5=several times/day)

- self-induced vomiting
- laxatives (dose ____________)
- diuretics or water pills
- fasting at least 24 hrs.

Out of the average week, approximately how many days (if any), would you say that you are trying to stick to a severely restricted diet of 1000 calories per day or less? _____ days per week
Diagnostic Interview - p. 15

Do you exercise regularly, at least in part for the purpose of controlling your weight?

Frequency: _______________ days per week

Duration: _______________ hours per exercise day

Type(s): _______________

Does your weight often vary up and down by more than 10 pounds?

Do you think that your eating patterns are normal or abnormal? (1=abnormal)

Are you often afraid that you won't be able to stop eating voluntarily?

On a scale of 1-10, how much do you value being thin? 1 2 3 4 5 6 7 8 9 10
**DIAGNOSTIC CHECKLIST**

(Except as noted, 1 = present, 2 = absent, 3 = past only)

### AUTOMATIC EXCLUSIONARY DIAGNOSES FOR ALL SUBJECTS

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Present/Absent/Past</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible schizophrenia or schizophreniform disorder (meets at least A and C)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Possible brief reactive psychosis (emotional turmoil and one of: incoherence/loosening of associations; grossly disorganized/catatonic behavior; delusions; follows recognizable stressor and lasts less than two weeks)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Possible psychotic disorder not otherwise specified</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Possible bipolar disorder</td>
<td>1 2</td>
</tr>
<tr>
<td>Estimated IQ less than 80</td>
<td>1 2</td>
</tr>
</tbody>
</table>

### EXCLUSIONARY DIAGNOSES ONLY IF FOCAL SYMPTOMATOLOGY IS ATTRIBUTABLE TO

#### Major depression

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Present/Absent/Past</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Depressed mood or loss of interest/pleasure</td>
<td>1 2</td>
</tr>
<tr>
<td>B. Five of the nine symptoms listed</td>
<td>1 2</td>
</tr>
<tr>
<td>C. Cannot be established that organic factor initiated/maintained</td>
<td>1 2</td>
</tr>
<tr>
<td>D. Not due to uncomplicated bereavement</td>
<td>1 2</td>
</tr>
<tr>
<td>E. No delusions or hallucinations for as long as two weeks in the absence of prominent mood symptoms</td>
<td>1 2</td>
</tr>
<tr>
<td>F. Not superimposed on schizophrenia, schizophreniform, delusional, or psychotic disorder NOS</td>
<td>1 2</td>
</tr>
</tbody>
</table>

#### Major depression present 1 2 3

#### Other focal symptomatology seem attributable to depression (1=yes, attributable) 1 2

#### Panic Disorder

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Present/Absent/Past</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. One or more panic attacks that were unexpected and not triggered by situations in which person was focus of others' attention</td>
<td>1 2</td>
</tr>
<tr>
<td>B. Four attacks within 4-week period, or one or more attacks followed by at least a month of persistent fear of another</td>
<td>1 2</td>
</tr>
</tbody>
</table>
Diagnostic Checklist - p. 2

C. At least 4 of the 13 symptoms listed during at least one
D. At least sometimes, the 4 or more symptoms developed suddenly and increased in intensity within 10 minutes of the first symptom
E. It cannot be established that an organic factor initiated/maintained Panic Disorder present
Other focal symptomatology seems attributable to panic disorder (1=yes)

Substance abuse
Possible alcoholism/drug abuse
Other focal symptomatology seems attributable to substance abuse

SUPPLEMENTARY/EXCLUSIONARY DIAGNOSES
RELEVANT TO SOCIAL PHOBIA (note for all Ss)

Avoidant personality disorder
At least four of the following:
A. Easily hurt by criticism or disapproval
B. No close friends/confidants (or only one) other than 1st degree
C. Unwilling to get involved unless certain of being liked
D. Avoids activities that involve significant interpersonal contact
E. Reticent in social situations for fear of saying something inappropriate/foolish, being unable to answer a question
F. Fears being embarrassed by blushing/crying/showing anxiety
G. Exaggerates potential difficulties/dangers/risks involved in doing ordinary things outside of usual routine
Avoidant personality disorder present (not an exclusionary criterion)

Avoidant disorder of childhood or adolescence
A. Excessive shrinking from contact with unfamiliar people for 6 mos. or longer, severe enough to interfere with social functioning
Diagnostic Checklist – p. 3

B. Desire for social involvement with familiar people, and generally warm satisfying relations with family and other familiar figures

C. Disturbance not sufficiently pervasive and persistent to warrant diagnosis of Avoidant personality disorder

Avoidant disorder of childhood or or adolescence present
(Is exclusionary criterion for diagnosis of social phobia only)

STUDY DIAGNOSES

Social phobia, generalized type
A. Persistent fear of three or more situations in which exposed to possible scrutiny by others and fears may act in humiliating/embarrassing way

B. If Axis III or another Axis I disorder present, fear in A is unrelated to it; e.g., fear is not of having panic attack or exhibiting abnormal eating behavior

C. During some phase, exposure to phobic stimuli almost invariably provokes immediate anxiety

D. Phobic situations avoided/endured with intense anxiety

E. Avoidant behavior interferes with occupational functioning or usual social activities or relationships; or marked distress about having fear

F. Recognizes fear is excessive or unreasonable

G. If under 18, does not meet criteria for Avoidant disorder of childhood

Social phobia present

Anorexia nervosa
A. Refusal to maintain body weight over a minimal normal weight for age and height (suggested = 15% below expected)

B. Intense fear of gaining weight/becoming fat, even though underweight
C. Disturbance in way in which one's body weight, size, or shape is experienced (e.g., "feels fat" when emaciated or believes one area of

D. In females, absence of at least 3 consecutive menstrual cycles when otherwise expected to occur (count as amenorrhea if periods occur only with hormone administration)

Anorexia present

Subclassify as follows:

1 = restricting AN (weight controlled through dieting and/or exercise; if present, binges less than 1x/mo.; vomiting or laxative abuse may/may not be present)

2 = bulimic AN (binges at least 1x/2 wks, with or without purging; must be objectively large amount of food

3 = AN, but does not fit 1 or 2 above (e.g., intermediate binge frequency)

Bulimia nervosa

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

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

C. Regularly engages in self-induced vomiting, use of laxative/diuretics, strict dieting or fasting, or vigorous exercise to prevent weight gain

D. Minimum average of 2 binge episodes per week for at least 3 months

E. Persistent overconcern with body shape and weight

Bulimia nervosa present

DISPOSITION OF CASE

0 = not appropriate for study
1 = normal control subject
2 = social phobic subject
3 = restricting anorexic subject
4 = bulimic anorexic subject
5 = normal-weight bulimic subject

NOTES
APPENDIX B
Weight Tables

"Average" Weights for American Women

<table>
<thead>
<tr>
<th>Height</th>
<th>18-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
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<td>119</td>
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Note. Source: Abraham, Johnson, and Najjar (1979). No corrections were necessary for heel height or clothing weight.
"Ideal" Weights for Women

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<th>Height</th>
<th>18</th>
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Note. Source: Metropolitan Life Insurance Company (1983). Numbers shown represent the following modifications of the original height-weight table: The middle number of the "medium frame" weight range has been listed, the 1" originally added for heel heights has been subtracted, the 3 lbs. originally added for clothing weight have been subtracted, and 1 lb. has been subtracted for each year under age 25, according to recommended practice.
### Height and Weight Data for All Subjects

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APPENDIX C

Study Measures

ID # __________________________
Date: __________________________
Evaluato: ______________________

SUBJECT INFORMATION SHEET

Referring clinician: _______________________
Referring institution: _______________________
Referral diagnosis: ______________________

Current treatment status 0 1 2 3
(0=none; 1=outpt; 2=inpt; 3=other)

Age: __________ yrs.

Education: (1=some h.s.; 2=h.s. grad;
3=vo/tech grad; 4=some college; 5=college grad;
6=some grad school; 7=grad degree)

Occupation: __________ 1 2 3 4 5

Employment status: (1=FT; 2=PT;
3=student; 4=homemaker; 5=unemployed)

Father's occup: ______________________
Father's educ. (use scale above) 1 2 3 4 5 6 7

Mother's occup: ______________________
Mother's educ. (use scale above) 1 2 3 4 5 6 7

Marital status of subject (1=single;
2=married; 3=separated; 4=divorced;
5=widowed; 6=single, living w/ partner)

What is the problem or difficulty for which you have to the (HOSPITAL/CLINIC)?

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________
Subject Information Sheet - p. 2

Are you feeling better, or is the problem at its worst now?

.................................................................................................

When would you say you first began having problems with
(INsert PROBLEM)?
Age in years at time of onset: _______ yrs

Length of time since onset (COUNT FROM FIRST ONSET; DO
NOT SUBTRACT REMISSIONS): • _______ yrs

Treatment history for focal presenting problem

Length of current, continuing outpatient _______ mths.
treatment for this problem

Length of past outpatient treatment for _______ mths.
this problem (EXCLUDE SESSIONS INC. ABOVE)

Length of current hospitalization for _______ days/
this problem (CIRCLE DAYS OR WEEKS) weeks

Number of past hospitalizations for this _______ times
problem (INCLUDE MED. HOSPITALIZATIONS
IF DIRECTLY RELATED TO FOCAL PROBLEM,
E.G., ELECTROLYTE IMBALANCE)

Length of longest past hospitalization _______ days/
for this problem (CIRCLE DAYS OR WEEKS) weeks

Treatment history for other psychiatric problems

Have you ever sought treatment for OTHER 1 2
emotional/psychological problems? (l=yes)

Type of problem: ________________________________

Diagnosis (if known): ____________________________

Length of outpatient treatment for _______ mths.
other problems (COMbine ACROSS
DIFFERENT PROBLEMS AND TIME PERIODS;
EXCLUDE PERIoods OF THERAPY IN WHICH
FOCAL PROBLEM WAS IMPORTANT TARGET)

Number of hospitalizations for other _______ times
psychiatric problems
[Normal Control]

INFORMATION SHEET

Age: _______ yrs.

Sex: ___ M ___ F

Year: ___ Fresh. ___ Soph. ___ Jr. ___ Sr. ___ Grad.

Approximate GPA: ________

Ethnic background (Please indicate proportions - e.g., 1/2 Japanese + 1/2 Caucasian)

___ Japanese
___ Chinese
___ Korean
___ Filipino
___ Hawaiian
___ Caucasian
___ African
___ Middle Eastern
___ Other (please specify: ____________________)

Please indicate whether you have ever formally received any of the following diagnoses from a physician or mental health professional:

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<th></th>
<th>Yes, in the Past</th>
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Information Sheet - p. 2

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<td>Substance abuse disorder</td>
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Please indicate whether **you** think you have ever had one of the following disorders:

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PLEASE NOTE

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

252-305

University Microfilms International
You are invited to participate in a research project investigating the relationship between cognition, emotion, and behavior in college women.

If you decide to participate in the study, you will first be asked to complete a number of questionnaires about your feelings and attitudes. You will then be asked to sign up for a second, individual testing session that will take place between one and two weeks after you have filled out the questionnaires. You should not take part in the questionnaire portion of the project unless you are also intending to take part in the individual testing session.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential. All of the material that is collected will be coded with a number, and stored separately from a list identifying you by name. Only authorized research team members will have access to any of the information that is collected. No material will be presented publicly in any form that would make it possible for your identity to be determined.

None of the studies involved in this project entails the use of any painful or risky procedures.

In exchange for your participation in this study, you will receive extra credit points which will be applied toward your final grade in a designated course in which you are enrolled at the University of Hawaii this semester. These extra credit points may or may not change the actual letter grade that you receive in your class.

Your decision whether or not to participate will not prejudice your current standing in your class in any way. If you do decide to participate, you will still be free to discontinue participation at any time without prejudice.
If you have any questions, please ask us. If you have any additional questions later, please telephone Dr. Kelly Vitousek at 956-7644, or write to Dr. Kelly Vitousek, Department of Psychology, University of Hawaii, 2430 Campus Road, Honolulu, Hawaii 96822.

You are making a decision whether or not to participate. Your signature indicates that you have read the information provided above and have decided to participate.

Name (Please print) ___________________________ Name (Signature) ___________________________

Telephone number(s) and times during the day when you can be reached, if necessary, to schedule testing sessions
INVESTIGATORS:

Principal Investigator: Kelly Vitousek, Ph.D.
Address: Kapiolani Counseling Center
Phone Number: 973-8368
Co-investigators: Neal Anzai, MD; Linda Ewald, MA

TITLE:
"Cognitive Variables in the Eating Disorders"

EXPECTED LENGTH OF INVOLVEMENT IN STUDY:

Participation in the study will involve between one and three one- to two-hour interviews, as will be explained by the principal investigator. I will not be required to participate in all three sessions if I do not choose to.

PURPOSE:

I agree to participate as a subject in the following project:

"The relationship between my thoughts and feelings and my eating and weight-related behavior".

The purpose of this study is to help researchers better understand how eating disorders are related to what one thinks and feels.

PROCEDURES:

I understand that the project will include the following research procedures:

Participating in an interview, filling out questionnaires, and participating in brief psychological tests.

RISKS:

I understand that the possible risks and discomforts may be as follows:

Because the study is mainly limited to the completion of questionnaires, the possibility of risk or great discomfort
is very slight. However, the tasks may cause mild anxiety. I will be free to stop participating in the project at any time, and this will not affect the care I receive.

BENEFITS:

I also understand that the possible and desired benefits of my participation in this study are: □

Although no direct benefit is implied, many participants in similar studies have reported finding the experience to be interesting and beneficial, indicating that they have enjoyed the opportunity to talk about their personal experience with an eating or weight disorder. I understand, however, that participation in this research may not necessarily benefit my present health condition.

ALTERNATIVE THERAPY:

I am aware that the following alternative procedures could be of benefit to me: □

Not participating in the project. There are no anticipated risks or benefits to this alternative.

CONFIDENTIALITY:

I understand that all information about me will be strictly confidential. I am, however, for study purposes, willing to have results from this study published or shared with other interested parties if I am not personally identified. I understand, however, that information about me (which will not include my name or other identifying information) from this study may be given to other physicians, research institutions and/or federal authorities for study purposes.

FINANCIAL RISKS/COMPENSATION FOR RESEARCH-RELATED INJURIES:

I understand that I will not have to pay any costs in addition to the usual cost of medical care as a result of being part of this study. I also understand that if injury or illness results from the research, there is no compensation.
Research Consent Form - p. 3

NEW FINDINGS:
I understand that any important new information discovered during the term of the project will be given to me if that information will make a difference to my willingness to continue in this study.

VOLUNTARY CONSENT AND CERTIFICATION:
I take part in this study of my own free will and I can stop at any time for any reason and this will not make a difference in the care I receive. I also understand that if I have any question about my treatment or any other matter relating to this project, I may call the researchers listed in the beginning of this form and I can discuss any question which I might have. I understand that my consent does not take away any of my legal rights in case of negligence or carelessness of anyone working on this project.

I verify that I have read the above or that it has been read to me and that my permission is freely given. A copy of this consent form has also been given to me.

SIGNATORIES:
I agree/do not agree to take part in this study.

1. 
   Patient/Subject's Name ___________________________ Signature ___________________________ Date ___________________________
   (Type or print)

2. 
   Researcher's Name or Researcher's Representative  Signature ___________________________ Date ___________________________
INVESTIGATORS:

Principal Investigator:  Kelly Vitousek, Ph.D.
Address:  Kapiolani Counseling Center
Phone Number:  973-8368
Co-investigators:  Neal Anzai, MD; Linda Ewald, MA

TITLE:
"Cognitive Variables in the Eating Disorders"

EXPECTED LENGTH OF INVOLVEMENT IN STUDY:

Participation in the study will involve between one and three one- to two-hour interviews, as will be explained by the principal investigator. My ward will not be required to participate in all three sessions if my ward does not choose to.

PURPOSE:

I agree to have my ward participate as a subject in the following project:

"The relationship between my thoughts and feelings and my eating and weight-related behavior".

The purpose of this study is to help researchers better understand how eating disorders are related to what one thinks and feels.

PROCEDURES:

I understand that the project will include the following research procedures:

Participating in an interview, filling out questionnaires, and participating in brief psychological tests.
RISKS:

I understand that the possible risks and discomforts may be as follows:

Because the study is mainly limited to the completion of questionnaires, the possibility of risk or great discomfort is very slight. However, the tasks may cause mild anxiety. My ward will be free to stop participating in the project at any time, and this will not affect the care my ward receives.

BENEFITS:

I also understand that the possible and desired benefits of my ward's participation in this study are:

Although no direct benefit is implied, many participants in similar studies have reported finding the experience to be interesting and beneficial, indicating that they have enjoyed the opportunity to talk about their personal experience with an eating or weight disorder. I understand, however, that participation in this research may not necessarily benefit my ward's present health condition.

ALTERNATIVE THERAPY:

I am aware that the following alternative procedures could be of benefit to my ward:

Not participating in the project. There are no anticipated risks or benefits to this alternative.

CONFIDENTIALITY:

I understand that all information about my ward will be strictly confidential. I am, however, for study purposes, willing to have results from this study published or shared with other interested parties if my ward is not personally identified. I understand, however, that information about my ward (which will not include my ward's name or other identifying information) from this study may be given to other physicians, research institutions and/or federal authorities for study purposes.
FINANCIAL RISKS/COMPENSATION FOR RESEARCH-RELATED INJURIES:

I understand that I will not have to pay any costs in addition to the usual cost of medical care as a result of my ward being part of this study. I also understand that if injury or illness results from the research, there is no compensation.

NEW FINDINGS:

I understand that any important new information discovered during the term of the project will be given to my ward if that information will make a difference in his/her willingness to continue in this study.

VOLUNTARY CONSENT AND CERTIFICATION:

My ward takes part in this study of my ward's own free will. My ward can stop at any time for any reason and this will not make a difference in the care my ward receives.

I also understand that if I have any question about my ward's treatment or any other matter relating to this project, I may call the researchers listed in the beginning of this form and I can discuss any question which I might have. I understand that my consent does not take away any of my ward's legal rights in case of negligence or carelessness of anyone working on this project.

I verify that I have read the above or that it has been read to me and that my permission is freely given. A copy of this consent form has also been given to me.
SIGNATORIES:

I agree/do not agree to take part in this study.

1. Patient/Subject's Name (Type or print)  Signature  Date

2. Guardian's Name* (Type or print)  Signature  Date

*Obtain name and signature of guardian or legally authorized representative if subject is a minor or incompetent.

Relationship to Guardian

3. Researcher's Name or Researcher's Representative  Signature  Date
You are invited to participate in a research project investigating cognitive and emotional factors in social anxiety. The study is being conducted by Linda Ewald, M.A., who is a graduate student in the Department of Psychology at the University of Hawaii.

Participation in the project will involve an individual testing session, lasting between 2 and 3 hours, that will consist of a brief interview, two perceptual tasks, and completion of several questionnaires. It will also involve filling out an additional set of questionnaires that will be mailed to you prior to the testing session.

The study does not entail the use of any painful or risky procedures, and does not include drugs or medical assessments. It is not intended to conflict with or substitute for treatment.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential. All of the material that is collected will be coded with a number, and stored separately from a list identifying you by name. Only authorized research team members will have access to any of the information that is collected. No material will be presented publicly in any form that would make it possible for your identity to be determined. Your privacy will also be protected during any telephone contacts for the scheduling of the assessment session; if the research staff member who calls you needs to leave a message for you, she will indicate only that she is calling from the University of Hawaii.

If you have any questions, please call Linda Ewald at 735-2378, or write to her at the Department of Psychology, University of Hawaii, 2430 Campus Road, Honolulu, Hawaii 96822.
Consent Form - p. 2

You are making a decision whether or not to participate. Your signature indicates that you have read the information provided above and have decided to participate. You may withdraw at any time without prejudice after signing this form should you choose to discontinue participation in this study.

____________________________  _______________________
Name (Please print)                      Signature

____________________________
Date
### Group Means on AES Attribution Subscales for Noninterpersonal Items

<table>
<thead>
<tr>
<th>Subscale</th>
<th>AN (n=18)</th>
<th>BN (n=15)</th>
<th>SP (n=16)</th>
<th>NC (n=18)</th>
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<tr>
<td>M</td>
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<td>SD</td>
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<td><strong>Success-Socially Confident</strong></td>
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**Note.** Possible range of scores for all subscales is 1 - 7.
Frequency Count of Subjects Responding Greater Than "1" on AQ Noninterpersonal Items

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<td>1 (06%)</td>
<td>3 (20%)</td>
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<td>6 (40%)</td>
<td>1 (06%)</td>
<td>9 (50%)</td>
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<td>4.6 (29%)</td>
<td>2.8 (18%)</td>
<td>5.0 (28%)</td>
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References


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