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The Role of Alexithymia in Ethnic Groups on Eating-Related Attitudes and Behaviors

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**THE ROLE OF ALEXITHYMIA IN ETHNIC GROUPS ON
EATING-RELATED ATTITUDES AND BEHAVIORS**

by

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ABSTRACT

THE ROLE OF ALEXITHYMIA IN ETHNIC GROUPS ON EATING-RELATED ATTITUDES AND BEHAVIORS

Lisa M. Newman
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Alexithymia, a term referring to deficits in ability to describe and differentiate emotions, has been studied in a variety of Caucasian medical and psychiatric populations, including patients with eating disorders. Research suggests that alexithymia is more prevalent among the Caucasian eating disordered population than the general population. However, there is little research on the prevalence of alexithymia or its relationship to problematic eating-related attitudes and behaviors in African Americans. This study investigated and compared the occurrence of alexithymia and its effects on eating-related attitudes and behaviors in Caucasian and African American college women using the Toronto Alexithymia Scale-20 and the Eating Disorders Inventory, 2nd edition. Depression, measured by the Beck Depression Inventory, 2nd edition, and acculturation, measured by the African American Acculturation Scale-Revised, were also considered as variables hypothesized to affect the occurrence and presentation of alexithymia and eating-related pathology.

Data from 171 female students, 91 African American and 80 Caucasian, indicated that alexithymia was equally prevalent among the groups (12.1% of African Americans and 11.25% of Caucasians). Approximately 16.25% of Caucasian students and 6.6% of African American (6.6%) students were suspected of having a clinical eating disorder. In this sample, alexithymia was associated with psychological correlates of eating disorders,

such as depression, ineffectiveness, interpersonal distrust, maturity fears, poor impulse regulation, and social insecurity, but not with the cardinal features of eating disorders, such as drive for thinness, bingeing and purging, and body dissatisfaction. Ethnic differences were apparent in eating-related attitudes and behaviors. Despite being heavier, African American students had less body dissatisfaction and drive for thinness than Caucasian students. There was no significant difference in the prevalence of depressive symptoms for the ethnic groups in this study, with depression affecting 35% of the Caucasian and 21% of the African American samples. Results from this sample of university students suggested that African American students were as likely as Caucasian students to engage in bulimic behaviors, and to have difficulty recognizing and accurately responding to their emotional states, and differentiating affective from bodily sensations.

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CHAPTER I

INTRODUCTION

Nemiah and Sifneos first introduced the term alexithymia in 1970 to describe their clinical observations of psychosomatic patients. They noted that patients with classic psychosomatic diseases had a tendency to have an externally-oriented cognitive style, constricted imaginal capacities, and deficits in describing and being able to differentiate feelings (Nemiah, Freyberger, & Sifneos, 1976; Nemiah & Sifneos, 1970). Later, the concept of alexithymia was expanded to include difficulty distinguishing feelings from bodily sensations of emotional arousal.

Alexithymia has been studied across various medical and psychiatric patient populations and found to be prevalent in those with substance use, posttraumatic stress, eating disturbances, somatization, panic, functional gastrointestinal disorders, depression, and hypertension. Of particular interest to the current study is the relationship of alexithymia to eating disorders, which will be discussed in a later section.

The features that characterize alexithymia are theorized to reflect deficits in cognitive processing and regulation of emotions (Taylor, Bagby, & Parker, 1997). This theory is based on the view that emotional responding and regulation involves three interrelated systems: the neurophysiological, motor-expressive, and cognitive-experiential systems. The neurophysiological system is primarily an autonomic nervous system and neuroendocrine activation. The motor-expressive system involves the use of

This dissertation has been written according to the specific specifications and guidelines published by the American Psychological Association (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: American Psychological Association.

facial expressions, changes in posture and body language, and tone of voice. The third system, the cognitive-experiential system, involves the subjective awareness and verbal reporting of feeling states. It is thought that reciprocal interactions between these three systems, as well as input from interpersonal interactions, are critical to emotional regulation (Taylor, 2000). Subsequently, alexithymia is believed to be evidence of deficits in the cognitive-experiential component of the emotion response system and at the level of interpersonal regulation of emotion (Taylor, 2000). Being unable to identify and describe one's feelings limits a person's ability to communicate emotional distress to other people, and thus renders them unable to secure comfort and help from others when needed. Limited emotional sharing with others is also thought to contribute further to difficulty identifying emotions secondary to the limitations in feedback caused by the social isolation. Additionally, in alexithymic individuals, the modulation of emotions is limited by a constricted imagination, because the person makes less use of fantasy, dreams, interests, and play (Krystal, 1988; Taylor et al., 1997).

Alexithymia is theorized to be, at least partially, the product of arrested affective development. Lane and Schwartz (1987) conceptualized stages in normal affect development that included an epigenetic sequence. The sequence begins with the emergence of symbolization and acquisition of language and leads to the formation of increasingly complex emotions. The experience of emotions is gradually elevated from physical sensations and behavioral responses to awareness of blends of feelings and the ability to distinguish differences between emotions. Bucci (1997) modified the model proposed by Lane and Schwartz, adding recent knowledge from cognitive science and neuroscience, and relabeled it the Multiple Code Theory. In the Multiple Code Theory, it

is hypothesized that emotions are represented verbally and nonverbally, and the nonverbal emotion schemas, including symbolic processes and imagery, develop first (Bucci, 1997). Verbal emotion schemas follow and are organized by the symbolic formation of language. Bucci relates this model of development to alexithymia by proposing that alexithymic individuals may lack not only words for emotions, but also verbal and nonverbal symbols for somatic states. This may explain why alexithymia has been found to be more prevalent among people with certain types of somatic and psychosomatic illnesses.

Schaffer (1993; as cited in Taylor, 2000) studied the relationship between alexithymia and emotion regulation in a group of psychiatric outpatients using the Affect Regulation Scale (ARS). He developed the ARS to assess the strategies used to cope with distressing emotions, which might be aroused in certain situations. He found alexithymia to be positively correlated with maladaptive modes of emotion regulation, such as bingeing or headaches, and negatively correlated with more adaptive behaviors, such as thinking about and trying to understand one's feelings or talking to a supportive person.

Beckendam (1997; as cited in Taylor, 2000) replicated Schaffer's study, using the ARS, with a group of male parolees. He also found that alexithymia was associated with maladaptive styles of emotion regulation. Specifically, he found parolees with alexithymia more likely to engage in sexual and aggressive fantasies and behavior, such as reckless activities and alcohol use. Thus, the results of Schaffer and Beckendam's studies support the theory of alexithymia being related to deficits in emotional regulation.

Taylor and his colleagues sought to validate the construct of alexithymia by developing an instrument to measure it. They investigated several other self-report scales in existence at the time, including the Schalling Sifneos Personality Scale, the Revised Schalling Sifneos Personality Scale, and the MMPI Alexithymia scale, and found they lacked adequate reliability and/or validity (Bagby, Taylor, & Atkinson, 1988; Bagby, Parker, & Taylor, 1991; Norton, 1989; Parker, Taylor, Bagby, & Thomas, 1991; Taylor & Bagby, 1988). Therefore, using a combined empirical and rational scale construction, they developed the self-report Toronto Alexithymia Scale (TAS; Taylor, Ryan, & Bagby, 1985). They created a pool of 41 items that were representative of the construct, and using statistical methods, retained the 26 items that clustered into four factors theoretically congruent with the alexithymia construct (Taylor, 1994). The factors were (F1) Difficulty Identifying and Distinguishing Between Feelings and Bodily Sensations, (F2) Difficulty Describing Feelings, (F3) Reduced Daydreaming, and (F4) Externally-Oriented Thinking. They were able to establish internal consistency (.76 for males and .75 for females) with clinical and nonclinical samples, and good test-retest reliability over one-week, five-week, and three-month intervals (Bagby et al., 1988; Taylor, Bagby, Ryan, & Parker, 1990). Furthermore, they found that in a normal English-speaking adult population, the TAS was not related to intelligence or to sociodemographic variables (Parker, Taylor, & Bagby, 1989). As the construct was further refined, the scale was revised. Some factor analytic studies (reviewed in Parker, Bagby, Taylor, Endler, & Schmitz, 1993; Taylor, Bagby, & Parker, 1992) suggested that the first two factors were related and that the items assessing daydreaming may be theoretically inconsistent with the other facets of the alexithymia construct (Haviland, Hendryx, Cummings, Shaw, &

Macmurray, 1991; Taylor et al., 1985). These findings and problems with social desirability response bias for the daydreaming items led the researchers to revise the scale. The revised TAS (TAS-R) was composed of 23-items, with only two factors (Taylor et al., 1992). Subsequent research of the factor structure of the TAS-R indicated that a three-factor rather than a two-factor solution would be more appropriate. Thus, they revised the scale a second time to form the TAS-20, now in use. The three factors of the TAS-20 are (F1) Difficulty Identifying Feelings, (F2) Difficulty Describing Feelings to Others, and (F3) Externally-Oriented Thinking. The TAS-20 shows good internal consistency, convergent validity, and test-retest reliability over a three-week interval, and has a factor structure theoretically congruent with the alexithymia construct (Taylor, 1994).

Alexithymia and Depression

Researchers have found alexithymia to be strongly correlated with depression, as measured by the Beck Depression Inventory (BDI) (Bagby, Taylor, & Ryan, 1986). Correlations between depression and alexithymia have been reported to range from .44 to .60, depending on the study (Bagby et al., 1986; Carpenter & Addis, 2000). This prompted research into the validity of alexithymia, as measured by the TAS, as a separate construct from depression. Parker, Bagby, and Taylor (1991) researched the relationship and found that the BDI was significantly and positively correlated with the TAS factor measuring the awareness of feelings. However, they found almost no overlap of the significant factor loadings for each scale. They concluded from their findings that alexithymia and depression are separate constructs that may correlate closely, but can be measured independently (Parker et al., 1991). Hendryx, Haviland, and Shaw (1991)

found that depression was most strongly correlated with the original TAS factors Difficulty Identifying Feelings ($r = .515$) and Difficulty Communicating Feelings ($r = .394$). In Hendryx et al's (1991) sample of 110 freshmen medical students, 20 (18.2%) scored in the midrange on the original TAS (63-73) and 9 (8.2%) scored in the alexithymic range (≥ 74). However, when they entered anxiety into the LISREL model, they found anxiety a stronger predictor of these same two TAS factors, and a stronger correlate of the factor Difficulty Identifying Feelings (.459) than depression (anxiety measured using the State-Trait Anxiety Inventory; Hendryx et al. 1991). Hendryx et al. (1991) also concluded that alexithymia, as measured by the TAS, consists of several independent dimensions that do not converge as a single phenomenon. They suggested that the alexithymic symptoms of difficulty identifying and communicating feelings are stress-related and responses to anxiety and depression.

A number of subsequent studies have examined the relationship between alexithymia and depression, with mixed results. A Finnish study examined the factors associated with depression in 137 depressed outpatients, using the TAS-20 to measure alexithymia, the Structured Clinical Interview for DSM-III-R (SCID-I) to diagnose depression, the 21-item Beck Depression Inventory to assess the severity of depression, and the Symptom Checklist (SCL-90) to assess other psychiatric symptoms (Honkalampi, Saarinen, Hintikka, Virtanen, & Viinamaki, 1999). They also assessed life satisfaction using a scale from a Scandinavian study (Allardt, 1973; as cited in Honkalampi et al., 1999). Forty-one percent of the participants exceeded the established cutoff score of 60 on the TAS-20. Of these participants, significantly more were male, unmarried, and had less education than the nonalexithymic patients. Furthermore, there was a higher

prevalence of psychiatric symptoms, more severe depression, and life dissatisfaction in alexithymic participants. The researchers also found sleep disturbances to be independently associated with alexithymia in men, whereas severe depression was associated with alexithymia in women. These results suggest that the alexithymia-depression construct debate may be more important to consider when assessing alexithymia in women.

A year later, the same group of researchers published another study assessing the stability of the relationship between alexithymia and depression (Honkalampi, Hintikka, Saarinen, Lehtonen, & Viinamaki, 2000). They assessed 169 outpatients for a diagnosis of depression using the SCID-I, for severity of depression using the BDI, and for alexithymia using the TAS-20 at baseline and at six months later. At baseline, 39% of the patients had scores in the alexithymia range, but at follow-up the percentage dropped to 23%. At both assessments, alexithymia was positively correlated with moderate and severe depression. At baseline 23% of the variance in TAS-20 scores could be explained by BDI scores while at follow-up 42% of the variance could be explained by the BDI. Thus, a decrease in TAS-20 scores was associated with concurrent decreases in BDI scores. These findings led the authors to conclude alexithymic patients with depression are not a stable group, alexithymia is not a stable trait among depressed patients, and alexithymia may be responsive to psychiatric treatment.

In an Italian study designed to assess the criterion-related validity of a measure of alexithymia on the Diagnostic Criteria for Psychosomatic Research scale (DCPR-A; Fava et al., 1995; as cited in Porcelli & De Carne, 2001), researchers found a variable relationship between alexithymia and depression among patients with psychosomatic

illness. Porcelli and De Carne (2001) used the Depression subscale of the Hospital Anxiety and Depression Scale (HDS; Zigmond & Snaith, 1983; as cited in Porcelli et al., 2001) and the DSM-IV criteria to measure depressed mood, and the DCPR-A and a well-validated Italian translation of the TAS-20 (Vressi et al., 1996; as cited in Porcelli et al., 2001) to measure alexithymia in 190 outpatients with functional gastrointestinal disorders. They found that the DCPR-A but not the TAS-20 was significantly associated with the HDS and DSM-IV criteria. This led the authors to conclude that the differences in association found between alexithymia and depression may be due to differences in the methods of investigation rather than to the constructs per se (Porcelli et al., 2001).

In an American study examining the relationship of numbing to alexithymia, apathy, and depression in a group of 353 Vietnam combat veterans with Posttraumatic Stress Disorder, the researchers found interesting results. They measured numbing with the Glover Numbing Scale (Glover, Lader, Walker-O'Keefe, & Goodnick, 1994; as cited in Ramirez et al., 2001), depression with the BDI, apathy with the Apathy Evaluation Scale (Marin, 1991; as cited in Ramirez et al., 2001), and alexithymia using the TAS-20. Using a correlation matrix, the Ramirez et al. (2001) found all four self-report measures to be highly correlated. However, the principal component analysis with a varimax rotation found a five-factor solution that provided evidence for each of the constructs: numbing, alexithymia, apathy, and depression. The fifth factor was comprised of two items from the Glover Numbing Scale and one item from the Apathy Evaluation Scale. Thus, they concluded that the four constructs were unique and independent of each other, and that the items correctly identify the constructs they measure. They suggest that numbing, depression, alexithymia, and apathy are intercorrelated and may interact in

certain conditions, such a Posttraumatic Stress Disorder or Major Depressive Disorder, but that they can be assessed independently (Ramirez et al., 2001). These results, as applied to alexithymia, provide further empirical evidence that alexithymia and depression are correlated, but separate and distinct concepts.

Results from another factor analytic study of the TAS-20 and BDI cleared up more of the confusion over the relationship between alexithymia and depression (Hintikka, Honkalampi, Lehtonen, & Viinamaki, 2001). In a large sampling of the Finnish general population ($n = 1,888$) only 10% scored greater than 61 on the TAS-20, indicating the presence of alexithymia, and among those 88.3% had minimal or mild depression, and 11.7% had moderate to severe depression. They identified a six-factor solution to account for 48.6% of the total variance. The factors were (1) Negative Self-Attitude, (2) Deficient Emotional Awareness, (3) Physical Worry and Performance Impairment, (4) Externally Oriented Thinking, (5) Externally Oriented Interaction, and (6) Appetite and Weight Loss. For the 97 subjects with alexithymia and moderate to severe depression, the six-factor solution accounted for 39.5% of the total variance.

Overall, Hintikka et al. (2001) found only minor overlap concerning physical worries in a sample of the general population of Finland who were mostly nonalexithymic and nondepressive. However, in a subset of participants who were both alexithymic and depressive, only factor 1 remained the same, while loadings of items on the other five factors were highly overlapping. This led them to conclude alexithymic features measured by the TAS-20 and depressive symptoms measured by the BDI are both distinct and overlapping. They offered two possible explanations: (1) alexithymia is highly associated with depression, leading to inevitable overlap between items measuring

depression and alexithymia in persons who are moderately to severely depressed; and (2) depression and alexithymia are actually two distinct constructs and the TAS-20 needs further development for differentiation to be possible. They hypothesized that since the three factor structure they derived for the TAS-20 was somewhat different from the structure originally described by Bagby, Parker, and Taylor (1994) (the original factors of Difficulty Identifying Feelings and Difficulty Describing Feelings were subsumed under Deficient Emotional Awareness in the present study), that the alexithymia construct is stable in different populations, producing a modest reliability in factor structure of the TAS-20 (Hintikka et al., 2001).

In summary, research indicates a complicated relationship between depression and alexithymia. The constructs appear to be stable and distinct, but may overlap in some depressed samples. Furthermore, the relationship of the constructs may differ slightly in different cultures or populations. The possibility remains that the TAS-20 needs further development to make the distinction clearer, and that the BDI may include items that overlap with alexithymia. Regardless, it seems that studies examining the relationship of alexithymia to another construct may need to include a measure of depression, to measure the potentially strong effects of depression on TAS scores, since the two are so closely related.

Alexithymia and Eating Disorders

Alexithymia-Related Characteristics in Patients with Eating Disorders

Alexithymia has been studied across various medical and psychiatric patient populations and found to be prevalent in those with substance use, posttraumatic stress, eating disturbances, somatization, panic, functional gastrointestinal disorders, depression,

and hypertension. Of particular interest to the current study is the relationship of alexithymia to eating disorders. In the past, researchers proposed theories linking eating disorders with difficulties in perceiving and labeling the internal bodily sensations associated with emotions (Bruch, 1962). Others have noted the disruptiveness of strong emotions for individuals with eating disorders (Herman & Polivy, 1980; Swift & Letven, 1984). In a longitudinal study of adolescent girls, it was found that the inability to discriminate and label emotional states was a significant predictor of risk for the development of eating disorders (Leon, Fulkerson, Perry, & Early-Zadd, 1995). Thus, a number of studies have examined the relationship between alexithymia, which encompasses these concepts, and pathological attitudes and behaviors related to eating disorders.

As early as the 1960's, theorists noticed the presence of certain perceptual and conceptual disturbances in eating disordered patients (Bruch, 1962). Bruch noted severe body image disturbances, interoceptive disturbances (i.e. inaccuracies in identifying bodily and emotional states), and an overall sense of ineffectiveness in patients with anorexia nervosa. Because of these deficits, Bruch advised against the use of interpretive psychotherapy for anorexia nervosa and recommended that therapy focus on increasing patient awareness of and ability to identify their feelings and impulses (Bruch, 1962, 1982). Over time, psychometric instruments were developed for measuring such psychological deficits, including the Eating Disorders Inventory (EDI), and have been used in research with eating disordered patients. Research with the EDI has indicated that a number of psychological characteristics are associated with eating disorders. Among those are a lack of interoceptive awareness (Caspar, 1990; Garner, Olmstead, & Polivy,

1983; Leon et al., 1995), and interpersonal distrust, which refers to a reluctance to form close relationships and to share thoughts and feelings with others (Garner, 1991). These characteristics, because of their connection with difficulties identifying and communicating feelings, are the core cognitive deficits associated with alexithymia.

Most research to date focusing on the relationship between alexithymia and pathological attitudes and behaviors related to eating disorders indicates that alexithymia is significantly higher in eating disordered populations than in non-psychiatric populations. Among the eating disorders, anorexia nervosa is associated with the highest levels of alexithymia, followed by bulimia nervosa. Less research has focused on binge eating disorder and obesity, but there is evidence suggesting there is increased prevalence in these populations compared to non-psychiatric populations (de Zwann et al., 1995; Pinaquy, Chabrol, Simon, Louvet, & Barbe, 2003).

Relationship Between Eating Disorders and Alexithymia

Alexithymia is highly prevalent among the eating disordered population. Using the Toronto Alexithymia Scale, one group of researchers found that as many as 77.1% of patients with anorexia nervosa were alexithymic (Bourke, Taylor, Parker, & Bagby, 1992). Others have found the percentages to range from 48% to 63% for patients with anorexia nervosa and 40% to 63% in patients with bulimia nervosa (Cochrane, Brewerton, Wilson, & Hodges, 1993, de Groot, Rodin, & Olmstead, 1995; Jimerson, Wolfe, Franko, Covino, & Sifneos, 1994; Schmidt, Jiwany, & Treasure, 1993). Fewer studies have been published on the prevalence of alexithymia in binge eating disorder, although one such study does suggest that alexithymia is more prevalent in the binge

eating disordered population than in the general population (de Zwann et al., 1995). The results of these studies will be examined in the following paragraphs.

Troop, Schmidt, and Treasure (1995) did a factor analysis of the TAS and compared the factor scores of an eating-disordered sample to those of a non-eating-disordered sample. They found four factors of alexithymia as measured by the TAS: Inability to Identify Feelings, Paucity of Fantasy, Non-communication of Feelings, and Concrete Thinking. They found that individuals with restricting subtype anorexia (AN-R), bingeing and purging subtype of anorexia (AN-BP), and bulimia nervosa (BN) were less able to identify emotions than were controls. They also found that AN-R patients had a more diminished fantasy life than BN patients or controls. They did not find any significant differences between the groups on Concrete Thinking. However, they did find a trend towards significance on non-communication of feelings, with the eating-disordered groups expressing their feelings less than non-eating-disordered groups. Their findings suggest that treatment approaches, which promote the identification and expression of feelings, may be more useful in the treatment of eating disorders.

Cochrane et al. (1993) assessed alexithymia in eating-disordered patients using the TAS. They found no significant difference between various subtypes of eating-disordered patients, but did find that eating-disordered patients as a group were significantly higher on alexithymia than a college sample that was used in the Taylor et al. (1985) study.

A few years later Taylor, Parker, Bagby, and Bourke (1996) published a study examining the relationship between alexithymia and eating disorders in a group of women meeting DSM-III-R (1987) criteria for anorexia nervosa. Thirty of the women

had the restricting subtype of anorexia and 18 had what would now be considered the binge-purging subtype of anorexia nervosa. Taylor et al. assessed the anorexic group, a matched group of hospital employees, and an unmatched comparison group of undergraduate students using the EDI and the TAS-20. The anorexic group had significantly higher scores than the matched group on all the subscales of the EDI except for body dissatisfaction. The anorexic group also scored higher than the matched group on two of the three factors of the TAS-20, which were Difficulty Identifying Feelings (Factor 1) and Difficulty Communicating Feelings to other people (Factor 2). There were no significant group differences on Factor 3, which was Externally Oriented Thinking. Using an empirically derived TAS-20 cutoff score of greater than or equal to 61, 68.8% of the anorexic patients were classified as alexithymic, in contrast to 1% of the matched comparison group, 16.4% of the male students, and 11% of the female students.

Schmidt et al. (1993) also examined alexithymia and its various aspects in both bulimic and anorexic populations. They studied the presence of and change in alexithymia in patients with bulimia versus patients with anorexia. They found that patients with anorexia nervosa/restricting subtype (AN-R) had significantly higher scores on an alexithymia index, the Toronto Alexithymia Scale (TAS) than patients with bulimia nervosa. They found that 50% of their bulimic sample, 56% of their AN-R sample, and 48% of their anorexia nervosa/binge-purge subtype (AN-BP) scored above the established cutoff of 74 for alexithymia. They found that the eating disordered groups had higher TAS scores overall than student controls of similar age and social class, thus suggesting that alexithymia is a characteristic of eating-disordered individuals.

Within the same study, Schimidt et al. (1993) also examined the change in alexithymia following a 10-week drug treatment. They found that eating disordered behaviors improved significantly with the treatment, but that alexithymia did not. They found that 73% of the patients who were alexithymic before treatment continued to be alexithymic after treatment. These results suggest that drug treatment does not change alexithymic symptoms in eating-disordered patients. It can be argued that this makes intuitive sense, since alexithymia appears to be more of an ability to identify and express emotional states rather than an organic syndrome subject to biochemical change.

Alexithymia, Eating Disorders, and Depression

Research on the relationship between alexithymia and depression, and the relationship between alexithymia and eating disorders has converged as researchers attempt to gain a better understanding of the underlying and concurrent psychological factors associated with eating disorders. Depression is frequently comorbid with eating disorders (Willcox & Sattler, 1996), and eating disorders have been theorized to be a form of affective disorder by some researchers (Pope & Hudson, 1988). In studying alexithymia in patients with eating disorders, and assessing whether it changed with treatment and time, some researchers found that change in level of depression was related to changes in alexithymia in eating disordered patients. Results from a number of studies support the finding of a complex relationship between the three constructs.

Believing it related to alexithymia, Jimerson et al. (1994) considered the influence of depression in the relationship between eating disorders and alexithymia. They evaluated alexithymia in a group of patients with bulimia to determine whether severity of bulimic symptoms correlated with elevations in alexithymia ratings. They excluded

patients who were depressed because they believed alexithymia might be secondary to concurrent depression. They found TAS scores to be significantly higher in patients with bulimia than for controls. They also found that frequency of bingeing/purging behaviors was not significantly correlated with alexithymia ratings. The results of the Jimerson et al. study suggested that depression and alexithymia might be overlapping but separate psychological disturbances among women with bulimia nervosa. They found that, even when depression was controlled for, women with bulimia nervosa had more alexithymia than comparisons. They emphasized the need for additional studies to assess whether the presence of alexithymic characteristics may be predictive of response to treatment in patients with bulimia nervosa.

Sexton, Sunday, Hurt, and Halmi (1998) also examined alexithymia in relation to depression and personality disorders in a group of eating disordered inpatients. To do so, they examined the prevalence, stability, and clinical correlates of alexithymia in three eating disorder subtypes and a control group. The three eating disordered subtypes were anorexia nervosa-restricting subtype (AN-R, $n = 15$), anorexia nervosa-binge/purge subtype (AN-BP, $n = 16$), and bulimia nervosa-purging type (BN, $n = 22$). They used the Beck Depression Inventory, the original Toronto Alexithymia Scale (Bagby, Taylor, & Atkinson, 1988), the Structured Clinical Interview for DSM-III-R I and II (SCID I; Spitzer, Williams, Gibbon, & First, 1992), the EDI-2 (Garner, 1991), and the Dutch Eating Behavior Restrained Eating Scale (van Strien, Frijters, van Staveren, Defares, & Deurenberg, 1986; as cited in Sexton et al., 1998). They found that the AN-R and AN-BP groups were significantly higher than the control group on TAS total score. There was a nonsignificant trend for patients with bulimia to score higher than controls.

However, there were no differences among the three patient groups on the TAS total score. There was a high prevalence of depression, and a strong correlation between alexithymia and depression among the patient groups. They found that the patients' higher alexithymia scores were largely due to their higher levels of depression. However, even when depression was controlled for, patients with AN-R scored higher on the TAS total score and higher on the TAS factor, Difficulty Expressing Feelings to Others, than controls and patients with BN. Over the course of inpatient treatment, from admission to discharge, patients' levels of alexithymia (TAS total score) and Difficulty Identifying Feelings decreased. However, this finding was again accounted for by a decrease in depression. Sexton et al. (1998) found that level of depression, followed by the presence of Avoidant Personality Disorder, were the most predictive variables of TAS total score.

Focusing on an overlooked group of individuals with eating disorders, de Zwann et al. (1995) assessed alexithymia in obese subjects with and without binge-eating disorder (BED). They found that TAS scores did not significantly differ between the two groups, though they did find a slightly higher prevalence of alexithymia (defined as a TAS score of 74 or higher) in subjects with BED compared to subjects without BED. In their sample, age, body mass index, depression, and eating pathology did not predict TAS score.

A more recent study of 173 overweight and obese women wanting to lose weight found that BED was associated with higher levels of depression, anxiety, perceived stress, alexithymia, and emotional and external eating scores (Pinaquy et al., 2003). Of the 173 overweight and obese women in the study, 40 were identified as having BED. Demographic information, i.e. age, BMI, education, and socioeconomic stats, did not

differentiate BED and non-BED groups. However, emotional eating and perceived stress were found to be significant predictors of BED. Alexithymia was found to predict emotional eating in subjects with BED, while perceived stress and depression were predictors in subjects without BED.

Following Jimerson et al.'s (1994) research, studies have looked for treatment effects on alexithymia and eating-disordered symptoms, using short-term treatments. de Groot et al. (1995) studied alexithymia in a group of patients with bulimia who were enrolled in a day program for eating disorders. They were specifically interested in determining whether alexithymia among women with BN was a persistent trait, if it fluctuated with changes in depression or binge/purge episodes, or if it changed with intensive group psychotherapy.

de Groot et al. (1995) found that at admission into their day program, women with BN were significantly more alexithymic than the non-eating disordered sample. Sixty-one percent of the group with BN was alexithymic at pretreatment, while only 5% of the comparison group was alexithymic. The BN group was also significantly more depressed than the comparison group. At discharge from the treatment program, the BN group's TAS scores were significantly reduced from their pretreatment scores, but continued to be significantly higher than the control group. The BN group also continued to be more depressed than controls on post treatment measures. de Groot and his colleagues also found an interesting relationship between eating disorder symptoms and alexithymia, and between depression and alexithymia. They found that women with BN who were depressed at admission but not at discharge, and those who were not depressed at admission or discharge showed significant improvement in emotional awareness

following treatment. They also found a significant correlation between discharge TAS scores and discharge vomit frequency, and between discharge TAS and BDI scores. In a simple effects analysis, they found that only those patients who were abstinent of bingeing and purging at discharge had a significant reduction in TAS scores with treatment. These results suggest that alexithymia may be an underlying or a concurrent factor in eating disorder pathology.

Laquatra and Clopton (1994) examined the relationship between alexithymia and a number of behavioral and personality characteristics associated with disordered eating in a large, nonclinical sample of college women ($n = 308$), using the EDI (Garner & Olmstead, 1984; as cited in Laquatra & Clopton, 1994) and the TAS (Taylor, Ryan, & Bagby, 1985). They found evidence linking disordered eating, depression, and alexithymia. Over half the participants were dissatisfied with their body shape and believed themselves to be overweight. Common self-reported weight control strategies for the group included exercising, fasting, and strict dieting (i.e. less than 1,200 calories per day; 32%). Nearly half (49%) engaged in binge eating, with 24% of those reporting feelings of being out of control “often” or “always” while binge eating. All EDI subscales except for Perfectionism were significantly positively correlated with the overall TAS score and with the two TAS factors assessing the inability to identify and communicate feelings. There was a significant relationship between body weight and level of alexithymia, and the ability to identify and communicate feelings among subjects who were at least 10% overweight or 10% underweight. Underweight and overweight participants had higher overall TAS scores and more difficulty identifying and communicating feelings. The authors also found a significant relationship between

suicidal ideation, EDI variables, and affective deficits associated with alexithymia. They theorized that milder forms of alexithymia, like those found in their student sample, might be characterized by affective disturbances, but more severe forms of alexithymia might be characterized by both affective and cognitive disturbances.

A recent study by Mazzeo and Espelage (2002) sought to clarify potential mediating relationships among family functioning, childhood abuse, and disordered eating behaviors. They also included depression and alexithymia in their model. They surveyed 820 female university students using the Family Environment Scale (FES, Form R), Childhood Trauma Questionnaire (CTQ), the Toronto Alexithymia Scale (TAS-20), the Center for Epidemiological Studies Depression Scale (CES-D), the Eating Attitudes Test-26 (EAT-26), and the Bulimia Test (BULIT-R). The ethnic representation of their sample was as follows: 81.9% Caucasian, 6.2% Latina, 5.5% Asian American or Asian, 3.8% African American, 1.2% Native American, 0.6% biracial or other ethnicity. Results were not summarized by race or ethnicity. Using structural equation modeling, Mazzeo and Espelage found that the association among family conflict, family cohesion, childhood physical and emotional abuse and neglect, and college women's disordered eating behaviors were mediated by depression and alexithymia. They concluded that individuals who have difficulty identifying and describing their emotions may be more likely to engage in eating disordered behaviors. They also suggested that an intense focus on appearance in women who engage in disordered eating could be an attempt to cope with difficulties in identifying and describing their emotions. They suggested that emotion skills training to assist patients in detecting, understanding, and communicating

their feelings effectively could be an important addition to eating disorder prevention and treatment.

Summary of Issues

Overall, the research suggests that eating disordered populations have a higher prevalence of alexithymia and depression than non-eating disordered populations. Among patients with eating disorders, patients with anorexia tend to have higher scores on measures of alexithymia than patients with bulimia or binge eating disorder. Alexithymia has been found to affect 48% to 77.1% of patients with anorexia nervosa and 40% to 63% of patients with bulimia nervosa (Bourke et al., 1992; Cochrane et al., 1993, de Groot et al., 1995; Jimerson et al., 1994; Schmidt et al., 1993). Patients with bulimia and possibly patients with binge eating disorder tend to be more prone toward having alexithymia than is the general population. Research has found a link between alexithymia and depression in patients with eating disorders, and some studies indicate that alexithymia decreases with cognitive-behavioral treatment of depression in some patients. Treatment for eating disorders may also need to include emotion skills training to teach patients to become aware of, communicate, and deal with their feelings in a constructive manner.

Ethnicity and Eating Disorders

There has been mounting concern over the alarming increase in the prevalence of eating disorders in the past 10 years. In 1994, it was estimated that 8 million women in the United States alone had eating disorders (Pipher, 1994), and figures have likely grown in the years since. A recent study estimated that the lifetime prevalence rates are 1.4% for anorexia nervosa, 2.5% for bulimia nervosa, and 2.7% for binge eating disorder

in Caucasian women (Striegel-Moore et al., 2003). The same study estimated that 1.4% of African American women are affected by binge eating disorder (Striegel-Moore et al., 2003). In a University of Michigan study (as cited in Matto, 1997) it was found that 85% of women have a desire to lose weight and 95% overestimate their body size as compared to standard medical guidelines. Eating disorders are ten times more common in females than in males (Goleman, 1995). One study estimated that up to 64% of college women engage in disordered eating behaviors (Mintz & Betz, 1988). By the time girls reach age 18, 80% feel fat and believe they need to lose weight (Craighead, Craighead, Kazdin, & Mahoney, 1994). With so many people affected by eating disorders, it is important to understand what factors are contributing to the development and maintenance of the disorder.

By studying populations seemingly resistant to the traditional eating disorders, such as anorexia nervosa and bulimia nervosa, researchers and clinicians may understand what factors contribute to or reduce the vulnerability to the development of eating disorders. Furthermore, researchers may gain an understanding of how culture affects the presentation of eating disorders when they do occur. At this point, researchers have determined that anorexia nervosa and bulimia nervosa are far more prevalent among Caucasian women than among ethnic minority women, especially African American women (e.g. Striegel-Moore et al., 2003). However, binge eating disorder, a relatively new research category of eating disorders that appeared in the fourth edition of the Diagnostic and Statistical Manual of Psychiatric Disorders (American Psychiatric Association, 1994) and is characterized by the consumption of large quantities of food in a short time period, may actually be equally or more prevalent in the African American

population (Bruce & Agras, 1992; Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000; le Grange, Stone, & Brownell, 1998; le Grange, Telch, & Agras, 1997; Smith, Marcus, Lewis, Fitzgibbon, & Schreiner, 1998; Yanovski, Gormally, Leser, Gwirstman, & Yanovski, 1994; Yanovski, Nelson, Dubbert & Spitzer, 1993). Binge eating disorder, which is more common than anorexia and bulimia in both Caucasian and African American women (Striegel-Moore et al., 2003), is often associated with obesity rather than a driven pursuit of thinness, as seen in bulimia and anorexia nervosa. Thus, binge eating disorder may be more ego-syntonic, cause less distress, and go untreated until the individual presents for treatment for their obesity. Research indicates that few women with eating disorders have received treatment, and Black women with eating disorders are particularly unlikely to have received treatment (Striegel-Moore et al., 2003). Cachelin et al. (2000) found that in a community-based sample of women with BED, African American women were less likely than European American women to have received treatment for their eating disorder. They also found that among a sample of ethnically diverse women with eating disorders (including AN, BN, BED, and EDNOS) the majority had not received treatment, although more than one half had made treatment contact, with treatment for a weight problem being more common (Cachelin, Rebeck, Veisel, & Striegel-Moore, 2001). Furthermore, it is estimated that only 3 to 5% of minority women are seen in eating disorder clinics (M. Strober, June 20, 1999, D. Wilfley, June 20, 1999, personal communications; as cited in Cachelin et al., 2000).

Some researchers have suggested that having strong ethnic identity and cultural values, separate from mainstream Caucasian middle-class identity and values may serve as a protective factor for African Americans against the development of the more

classically defined eating disorders of anorexia and bulimia nervosa (Rodin, Silberstein, & Striegel-Moore, 1984). Current data suggest that African Americans are more tolerant of, and even prefer, a heavier female body type than do their European-American counterparts.

The following two studies examined racial differences in desire for thinness. Rosen and her colleagues (1993) conducted a survey of Caucasian and African American males about their thinnest acceptable, ideal, and largest acceptable figure for a date, girlfriend, sexual partner, wife, mother, teacher, employer, grandmother, sister, and female friend. African American males always chose a larger ideal female body silhouette than did Caucasian men, and had larger minimally acceptable figures than did white males. Powell and Kahn (1995) found similar results in their study of racial differences in women's desires to be thin. They surveyed 202 college students: 38 African American females, 33 African American males, 59 Caucasian females, and 60 Caucasian males. Both men and women were presented with nine silhouettes of a female body ranging from underweight to overweight. The men were asked to pick the figure they found most attractive, then rate each silhouette on how likely they would be ridiculed by friends if they dated a woman of that size. They were also asked if they preferred women they dated to be thin. Women were asked to pick the figures that best matched their ideal, their perceived current body size and that which they thought most attractive to men. Although men expressed less willingness to date and more fear of ridicule as the silhouette size became larger than a 5, African American men were more willing to date females with a larger silhouette than Caucasian men, and felt less likely to be ridiculed. Among the women, there were no racial differences in the perception of

current body size, although Caucasian women chose significantly thinner ideal body size figures than did African American females. This suggests that like African American men, African American women are more accepting of and even prefer larger female body shapes than do Caucasians.

The results of a more recent study support previous findings. The authors examined affective and cognitive components of body image related to physical appearance, weight, and health among a sample of 120 university men and women composed of African Americans, Caucasians, and Hispanics, with 20 male and 20 female students in each ethnic category (Miller et al., 2000). Twenty-seven of the students were from a northeastern university and 93 were from a southwestern university. They tested for the effects of race/ethnicity and gender on body image measures while controlling for age, body size, social desirability, and socioeconomic status. Measures utilized were the Multidimensional Body-Self Relations Questionnaire, the Body Esteem Scale, the Balanced Inventory of Desirable Responding (version 6), and additional questions assessing feelings about eye color, mouth, skin color, skin texture, hair color, hair texture, hair thickness, and hair length. Miller et al. found that African Americans reported the greatest body satisfaction and the least overestimation of weight. Hispanics were equal to or higher than Caucasians on all indices of body image. There were also gender differences on global body image, weight concerns, and health.

In contrast to other studies examining racial difference the results of a study by Demarest and Allen (2000) suggest that African American women are not more body satisfied than Caucasians. These authors compared 40 Caucasian, 40 Hispanic, and 40 African American men and women on their estimation of their current figure, ideal

figure, the figure he or she thought would be most attractive to the opposite sex and the opposite sex figure that he or she found most attractive. They found that Caucasian women had the greatest distortion (i.e. chose thinner body shapes) in what they believed men found attractive. African American women had the most accurate view of what the men found attractive. However, there were no racial differences among the women's body satisfaction. Furthermore, younger participants (< 25 years old) had the most distorted views of the preferences of the opposite sex, believing men wanted someone thinner. Participants over the age of 30 were more accurate at guessing what the opposite sex found most attractive. The results of this study are directly relevant to the college population. That is, college students, the majority of whom are under age 25, may be more likely to overemphasize the importance of thinness in attracting mates, and thus, may be more driven to maintain a thinner body shape. Although research findings are mixed, the results of this study suggest that African American women, especially those in college, may be becoming more at risk for body image disturbances, such as eating disorders.

Rucker and Cash (1992) assessed multiple facets of body image and eating behaviors in 49 African American and 55 age and weight-matched Caucasian female students. Specifically, the authors examined body-image attitudes, body-image perceptions, weight concerns and eating behaviors, and judgments of the thinness-fatness of varying body sizes. Caucasian students reported greater body dissatisfaction on the EDI, more negative automatic body-image thoughts, more negative evaluations of their appearance in general, and more body-image avoidant behavior to control or conceal weight-related aspects of appearance than did African Americans. There was a

nonsignificant trend for African American women to have greater frequency of positive body-image thoughts. Caucasian women reported a greater fear of fatness, a stronger desire to be thin, more dieting concerns and overweight preoccupations, greater weight-fluctuation awareness, and higher weigh-in anxiety than did African American women. Caucasian women perceived silhouettes representing varying body sizes as fatter than did African American women. Despite these differences in perceptions and emphasis on weight, there were no racial differences in cognitive-behavioral investment in appearance. Interestingly, there were no racial differences on the EDI Bulimia scale, but when rescored to detect subclinical eating disturbances, the authors found that Caucasians did report more frequent bingeing than did African Americans.

If African American culture is more weight tolerant than mainstream European-American culture, it would seem reasonable to assume that African American women who identify with African American values are less susceptible to developing eating disorders in which pursuit of thinness is a core feature, i.e. anorexia nervosa and bulimia nervosa. In fact research indicates that acculturation to mainstream European-American values and standards may actually be associated with a higher risk of developing eating disturbances in African American women. Several studies have found that African American women who do develop eating disorders are more likely to be exposed to and adopt Western values concerning attractiveness and thinness (Striegel-Moore et al, 2000), and identify with majority culture (Abrams, Allen, & Gray, 1993; Pumariega, Gustavson, Gustavson, Motes, & Ayers, 1994). Furthermore, minority women who do have eating disorders tend to be similar to Caucasian patients in general, and in their eating disorder pathology (le Grange, Tech, et al., 1997). Wilfley and Rodin (1995) hypothesize that

more access to majority cultural values may lead to more sociocultural pressures towards thinness among minorities.

The same cultural standards that may protect African Americans from developing eating disturbances such as anorexia and bulimia nervosa may actually put them at risk for other health problems, such as obesity, which is in itself a risk factor for heart disease and diabetes (Jeffery, 1991; Rucker & Cash, 1992). In fact, research indicates that the prevalence of obesity is two to three times higher in African Americans than in Caucasians (Kuczmarski, Flegal, Campbell, & Johnson, 1994). A number of researchers have found that their African American samples were heavier than other ethnic groups, especially Caucasians (e.g. Cachelin, Veisel, et al., 2000; le Grange et al., 1998; Rhea, 1999; Smith et al., 1998; Wilfley, Schreiber, Pike, Striegel-Moore, Wright, & Rodin, 1996).

A number of researchers have attempted to link level of acculturation to body image and eating disturbances in an effort to explain why fewer African Americans develop eating disorders. Root (1990) suggests that ethnic minorities are even more susceptible to the standards of the dominant culture when the culture-of-origin is devalued by the dominant culture. Atkinson, Morton, and Sue (1979; as cited in Root, 1990) theorized that such devaluation of non-Western European originated groups has resulted in a new stage of ethnic identity development during adolescence. In an attempt to be accepted and valued by the dominant culture ethnic minority adolescents supposedly reject their culture-of-origin. Root (1990) suggests that during this stage, the individual is left without a stable sense of identity or a feeling of positive uniqueness. This creates a vulnerability to maladaptive methods of achieving identity and uniqueness,

during a developmental time in which the occurrence of eating disorders is more likely (Root, Fallon, & Friedrich, 1986; as cited in Root, 1990). Eating disorders have been identified as a maladaptive way of pursuing identity, power, specialness, validation, self-esteem, and respect. These are all themes that are significant in the lives of all oppressed people (Root, 1990). Thus, she cautions clinicians and researchers from viewing ethnic minorities as invulnerable to eating disorders due to the “protective factors” that exist in that racial/ethnic group (Root, 1990). This may be especially true in light of the evidence that binge eating disorder is equally prevalent among African Americans as among Caucasians. In fact, binge eating disorder may be a more typical expression of eating pathology in the African American sample, comparable to bulimia nervosa and anorexia nervosa in the Caucasian population.

Although the risk factors for the development of eating disorders are being younger, well-educated, heavier, and more identified with White middle-class values (Crago, Shisslak, & Estes, 1996), the following study indicates that middle-aged minority women are not immune to body image disturbances, even if they are not eating disordered. A study published in 1996 examined racial differences in eating disorder symptoms in a community-based sample of middle-aged Black and White women (Wilfley et al., 1996). They also studied the predictors of body image dissatisfaction in the groups. As in many other studies, they found that the African American sample had a significantly higher BMI and significantly lower socioeconomic status than the Caucasian sample. The groups were not significantly different in age ($M = 37.3$ for African Americans, $M = 38.9$ for Caucasians). Utilizing the EDI to measure eating disturbance behavior and related attitudes, initial findings indicated that among the 271 Black and

267 White females who were tested there were no significant racial differences on EDI subscales measuring Drive for Thinness, Bulimia, and Body Dissatisfaction. Initial analyses also demonstrated significant differences on the EDI subscales Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears; with African American females scoring higher than Caucasian females on these scales. However, when BMI was added to the analysis as a covariate, they found that Caucasian females had significantly higher rates of Body Dissatisfaction than African American females; but African American women continued to have significantly higher scores on the Maturity Fears and Interpersonal Distrust subscales. Socioeconomic status was not related to any of the core eating disturbance subscales: Drive for Thinness, Body Dissatisfaction, and Bulimia.

Bagley, Character, and Shelton (2003) recently surveyed a community sample of rural (60 African American and 145 Caucasian) and urban (109 African American and 59 Caucasian) women to identify differences in symptoms and correlates of eating disorders using the EDI-2, The Ways of Coping Scale, BDI-II, and the Culture Free Self-Esteem Inventory. They found that African American women had higher weights for their lowest, longest, highest, actual, stable, and ideal weights than did the Caucasian women. Caucasian women engaged in more dietary restraint and at earlier ages, and acknowledged purging more frequently than African American women. African women and Caucasian women used laxatives, diet pills, and diuretics equally. Both groups engaged in binge eating behaviors, although Caucasian women reported that their bingeing began at earlier ages than did African American women. African American women reported more feelings of ineffectiveness, worthlessness, and lack of control over their lives than Caucasian women.

In addition to ethnicity, education accounted for some differences in the results of Bagley et al.'s (2003) study. Less educated women (i.e. women having less than a college education) used more asceticism and less impulse regulation than the more educated women. Less educated women had greater difficulty interpreting bodily cues and managing impulses such as substance abuse, bingeing, etc. than the more educated participants, but the more educated group tended to be more interpersonally distrustful of others and more perfectionistic than the less educated group. The less educated group reported a higher self-esteem but was more depressed than the more educated group. The educated Black women were the least depressed of all the groups. Differences also emerged in urban versus rural samples. Urban women reported experiencing more stress, were more perfectionistic, and felt more ineffective than rural women. Rural Black women were more depressed than urban Black women. Urban women were more driven toward attaining a thin body type, reported greater satisfaction from bingeing, and used laxatives for weight control at an earlier age than did the rural sample. The results from the Bagley et al.'s study highlights the various factors that should be considered when investigating eating attitudes and behaviors, mood, and general psychological adjustment in African American and Caucasian samples. Geographic region, educational attainment, and ethnicity all influenced results. Overall, the study indicates that Black women do strive for thin body types, but are heavier and prefer a larger ideal body type than do White women. Results also suggest, that while Black women may purge less than White women, they use diet pills, laxatives, and diuretics for weight control just as frequently as White women.

An especially significant finding by Wilfley and her colleagues was that 34% of the African American and 38% of the Caucasian females had Body Dissatisfaction scores above the clinical cutoff, but that both groups had significantly lower Drive for Thinness scores than the normative college sample (Wilfley et al., 1996). The authors concluded that women, both African American and Caucasian, may become more dissatisfied with their bodies as they grow older due to weight gain, aging, or other developmental factors. However, they are less inclined to pursue thinness to the same degree or in the same way as college-aged females. It is also important to point out that, unlike most other studies of the normal population, the results of this study indicate that a significant number of African American women do experience body dissatisfaction, even though cultural factors have been hypothesized to buffer them from the majority culture's emphasis on thinness.

Wilfley and her associates also sought to identify predictors of body image dissatisfaction in an African American and a Caucasian female sample (Wilfley et al., 1996). They found that African American and Caucasian women in their sample did not differ significantly in their perceptions of the degree to which family members were dissatisfied with their weight. Such a finding seems to contradict the assumption that African American families are less critical of weight. There were, however, some perceptual differences related to body image in the African American and Caucasian women. Caucasian women were significantly more likely view themselves as heavier than their best friend and endorsed more negative attitudes about being overweight than African American women. This finding may suggest that African American women have more realistic perceptions and attitudes about their weight than Caucasian women.

Being more accepting of weight and less preoccupied with maintaining a slim figure may reduce stigma associated with overeating in the Caucasian population, may lead more African Americans to take pleasure in consuming foods, perhaps to excess. Such consumption in its extreme form is binge eating. The results of some studies suggest that African Americans are indeed equally as or more prone to developing binge eating disorder.

A population-based telephone survey of an ethnically diverse sample of women in the San Francisco area found a non-significantly higher prevalence of BED in both African American and Hispanic women (5%) than in Caucasian women (2%; Bruce & Agras, 1992). Comparable rates of BED in Caucasian and non-Caucasian samples have also been observed in clinical samples. One group of researchers found slightly higher rates of BED in African Americans (67%) than in Caucasians (50%) presenting for treatment, though the difference did not reach statistical significance (Yanovski et al., 1994). Similar rates of BED in obese Caucasian and African American samples were found in a previous study (Yanovski et al., 1993). Marcus (1994; as cited in Smith, 1995) also found that the proportion of treatment-seeking BED African American and Caucasian women mirrored the proportion of African American women in the general population, suggesting BED is as common among African American women as it is in Caucasian women. A number of studies support Marcus's (1994) conclusion.

le Grange et al. (1998) surveyed 9,971 Consumer Reports subscribers to examine attitudes about weight and appearance, disordered eating, and self-esteem in an ethnically diverse sample of dieting women. Ninety-two and a half percent of the women were Caucasian, 4% were Asian, 2.2% were African American, and 1.3% were Hispanic. Of

these groups, African Americans were the heaviest, were less likely to be married, and reported the highest rate of purging (19%). The Hispanic group (17%) followed the African American group in prevalence of purging, then Caucasians (12%) and Asians (10%). However, African Americans were least likely to have BMIs below 20 (4%), compared to Asians (9%), Hispanics (8%), and Caucasians (7%). Thirteen percent of the sample met criteria for BED, but there were no significant differences between the groups.

Abrams et al. (1993) surveyed 100 African American and 100 Caucasian students of similar social class using the EDI, the Hawkins and Clement's Binge Scale, The Restraint Scale, the Goldfarb Fear of Fat Scale, the Rosenberg Self-Esteem Inventory, the Beck Depression Inventory-21, the State-Trait Anxiety Inventory, and the Racial Identity Attitude Scale for Blacks. They found the African American students heavier but less dissatisfied with their body, less fearful of fat, engaging in less dietary restraint, and less likely to display binge-eating behavior than Caucasian students. Abrams et al. (1993) did not find a difference between the ethnic groups in purging behavior in general, but found Caucasian students (12%) twice as likely as African Americans (5%) to use self-induced vomiting for weight control. For both African American and Caucasian students, dietary restraint, fear of fatness, and drive for thinness were positively related to depression, anxiety, and low self-esteem (Abrams et al., 1993). For African American females, binge eating was not related to any of the psychological correlates they studied (Abrams et al., 1993). These researchers found that, unlike in the Caucasian student group, African American students' weight-loss efforts and body dissatisfaction were positively related to weight. African American students' efforts to lose weight tended to be more realistic and

less extreme. They found that African American students who endorsed attitudes reflecting rejection of their Black identity and idealization of white identity were more likely to also endorse attitudes about body image and related dietary behaviors that are associated with eating disorders (i.e. fear of fatness, drive for thinness, and dietary restraint).

In another study examining the prevalence of BED, obesity, and symptoms of depression in a very large ($n = 5,115$) community-based sample of male and female African Americans and Caucasians, it was found that African American participants were significantly younger, heavier, less educated, and more likely to be depressed and overweight than Caucasian participants (Smith, et al., 1998). Furthermore, results indicated that BED was equally prevalent among African American (2.2%) and Caucasian (2.0%) females, though the prevalence among African American men was lower than all race-gender groups. Smith et al. (1998) also found a significant correlation between weight and BED; with the prevalence of BED highest among overweight participants (2.9%) as compared to the overall cohort (1.5%). Furthermore, BED prevalence did not significantly differ between overweight Caucasian females, African American females, or overweight Caucasian males; nor was there an association between BED and age or education. However, among overweight participants, those with BED tended to weigh more and report more depressive symptoms. Thus, it appears that regardless of socioeconomic status, African Americans are susceptible to developing BED, and the risk is greater among those who are overweight. Furthermore, those who develop BED may be more likely to be depressed.

In another recent study, the authors compared a sample of eating disordered Hispanic, Asian, Caucasian, and African American women to an age, ethnic, and education-matched control group to determine if and what kind of role ethnicity and acculturation had on eating symptoms, psychiatric distress, and weight (Cachelin et al., 2000). These researchers found no differences between ethnic groups in probable type of eating disorder, nor did they find significant effects of ethnicity or type of disordered eating on the number of psychiatric symptoms among the eating disordered group. Differences did emerge in purge methods among the different ethnic groups, with African American women being more likely to use laxatives and Hispanic women being more likely to use diuretics, when compared to Caucasian women. There were no differences among the ethnic groups in likelihood of using self-induced vomiting for weight control. As in previous research, African Americans were significantly heavier than other ethnic groups.

Cachelin and colleagues also found an effect of acculturation in minority participants, though African Americans were not included in the analysis due to their definition of acculturation (Cachelin et al., 2000). Among Hispanic and Asian participants, they found the eating disordered minority participants to be more acculturated than the non-eating disordered minority participants. Results also indicated that acculturation, not ethnicity, accounted for the probability of seeking treatment. Although their definition of acculturation was not conducive to the study of this factor in relation to eating disorders in their African American sample, the finding that Hispanic and Asian women with disordered eating are more acculturated implies that acculturation may be a key variable to consider in the prevalence and presentation of disordered eating

in a number of ethnicities, including African Americans. It would logically follow that African Americans who are more acculturated, that is associate and identify with majority culture, are at more risk for eating disorders.

Lester and Petrie (1998) examined the relationship between the physical, psychological, and societal correlates of eating disorders (body mass, body satisfaction, depression, self-esteem, internalization of U.S. societal values concerning attractiveness, and identification with White culture) and bulimic symptoms in African American women. They sampled 123 African American college women from two large predominately White universities and one predominately White southwestern junior college. They used the African American Acculturation Scale-Short Form, Beliefs About Attractiveness Scale-Revised, Body Parts Satisfaction Scale, Rosenberg Self-Esteem Scale, and the Bulimia Test-Revised. Lester and Petrie found that body mass, body dissatisfaction, and low self-esteem were the best predictors of bulimic symptoms. They found that sociocultural variables, internalization of U.S. values concerning attractiveness and identification with White culture, were unrelated to bulimic symptoms. However, greater internalization of societal ideals of beauty was associated with higher levels of depression, lower self-esteem, and more body dissatisfaction. In their study, African American women reported bulimic symptoms at a comparable rate to that found in a primarily Caucasian sample of college women previously sampled. Lester and Petrie's study found more similarities than differences in the correlates and symptoms of eating disorders in African American and Caucasian college women.

In summary, African American women have historically remained relatively resistant to the development of eating disorders such as bulimia nervosa and anorexia

nervosa, as these disorders are typically based on body dissatisfaction and drive for thinness. In fact, research indicates that African American women tend to have a more positive body image (Miller et al., 2000; Rucker & Cash, 1992), and prefer heavier figures than do Caucasians (Powell & Kahn, 1995). These cultural attitudes may reduce stigma associated with obesity, which is more prevalent among African Americans than among Caucasians. With obesity often being associated with overeating, and binge eating in its extreme, it is not then surprising to find that binge eating disorder may be equally or more prevalent in African Americans (Bruce & Agras, 1992; Cachelin et al., 2000; le Grange et al., 1998; le Grange et al. 1997; Smith et al., 1998; Yanovski et al., 1994; Yanovski et al., 1993). With the prevalence of eating disorders on the rise, gaining a greater understanding of the causes, contributing factors, and the differing presentations of eating pathology in different ethnic populations becomes necessary so that clinicians may become more educated as to the relative influence of culture in the development of eating disorders in minority patients.

Alexithymia, Ethnicity, and Eating Disorders

The research to date has mostly ignored the existence of alexithymia in the African American population. Two unpublished dissertations have studied alexithymia in African American samples, although not in relation to eating disorders. Ayalon (2002) studied alexithymia in the context of exploring racial variations in illness behaviors. Ayalon (2002) using the 26 item TAS in a college sample of 147, found no overall differences in the prevalence of alexithymia in the African American versus Caucasian samples, but did find significant differences on the Daydreaming subscale of the TAS, which is no longer included in the TAS-20. African American participants in her sample

reported less engagement in daydreaming (Ayalon, 2002). She concluded that alexithymia represents individual differences independent of sociocultural variables, and also criticized the TAS as not representing a single construct.

Clemente (1999) also studied alexithymia in a diverse sample of college students using the TAS. She examined alexithymia in the context of studying affect regulation strategies in a high-risk population. Her sample was comprised of 54 African American females, 49 Latinas, and 17 Black (non-African American) females. The TAS was included as a measure of mediating variables that affect adaptation and resiliency in women who have been exposed to multiple risk factors. Clemente (1999) found that resilient individuals had a higher capacity to differentiate and identify feelings from somatic states, tended to express their emotions, and were more likely to seek emotional support from others than were non-resilient women. Thus, non-resilient women had higher scores on alexithymia. She found that the inability to identify feelings was highly correlated with impairment in the capacity to self-soothe. In Clemente's sample, almost half of the women scored above the clinical cut-off for alexithymia on the TAS. She found few ethnic differences with regards to TAS scores. However, she did find that Latinas tended to use externally oriented thinking (TAS subscale) more than Black women.

Dinsmore and Mallinckrodt (1996), in the only published study on the topic of alexithymia in African Americans, examined the relationship between alexithymia, eating disorders, and racial identity in a group of African American college women. Believing alexithymia to possibly mediate the relationship between eating disorders and racial identity attitudes, they hypothesized that alexithymia and the possibly the presence of

eating disorders, would show differing degrees of correlation with racial attitude categories. The racial identity categories they used were: Preencounter, in which individual deny negative feelings about their experiences about the dominant culture in hopes of gaining acceptance to it; Encounter, in which one acknowledges aspects of the self that were previously denied; Immersion, in which the individual explores feelings about themselves, their cultural identity, and the dominant culture; and Internalization, characterized by individuality, flexibility, and emphasis on self-exploration. The authors expected the relationship between alexithymia and racial identity attitude to be positive and strongest among individuals with Preencounter attitudes, followed by Encounter attitudes and Immersion attitudes respectively. They expected significant negative correlations between internalized racial identity attitudes and alexithymia.

Dinsmore and Mallinckrodt (1996) utilized the Eating Attitudes Test-26 (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) to measure symptoms of eating disorders, the TAS-20 to measure alexithymia, and The Racial Identity Attitude Scale B-Short Form (RIAS-B; Parham & Helms, 1981) to measure racial identity attitudes in 45 young women (mean age = 26.1 years). Participants identifying themselves as African American were given packets containing the questionnaires and stamped envelopes, and allowed to take the packets home to determine whether they wished to participate. The packets were distributed in Black studies classes and campus student unions.

The results of the study indicated a positive skew on measures of alexithymia, eating disorders, Preencounter attitudes, and Immersion attitudes, suppressing the strength of the correlations. There were also ceiling effect problems for the internalization score of the Racial Identity Attitude Scale. The authors did find

significant associations between alexithymia components and Preencounter, Encounter, and Immersion attitudes, with progressively decreasing correlations respectively. The relationship between internalization attitudes and alexithymia were the lowest and were negative, as predicted. However, there were no significant correlations observed between eating disorders and alexithymia components or between eating disordered symptoms and racial identity attitudes.

From their results, Dinsmore and Mallinckrodt (1996) concluded that attitudes consistent with Preencounter anti-Black attitudes and dominant culture are associated with problems in identifying and expressing feelings, and with more external thinking. This may be due to the need to deny strong affect in order to preserve a low profile and harmonious positions within the dominant culture (Dinsmore & Mallinckrodt, 1996). African American women with encounter attitudes are questioning the need of defining themselves by the dominant culture's ideal, and thus may have problems with identifying and expressing feelings, but not with external thinking. African American women with Immersion attitudes prefer relying on external influences rather than internal experience and thus have an externally oriented thinking style, but no problems identifying or expressing feelings. At the Internalization stage of ethnic identity, African American women have no difficulties identifying and expressing emotions, and value the internal over the external mode of thinking and experiencing.

Despite interesting results between racial identity and alexithymia, no relationship was found between eating pathology and racial identity. This may have been due to dichotomous categorization of the sample into eating disordered and non-eating disordered based on whether the participant scored above the clinical cutoff on a

relatively short, face valid measure of eating pathology (EAT-26). Other problems with the study, such as small sample size, ceiling effects on internalization scores of the RIAS-B, and procedural problems (allowing participants to complete measures at home) may have further obscured meaningful findings between eating pathology and racial identity attitudes. These methodological flaws may have also obscured or influenced other findings as well. Since this is the only published study of the relationship between alexithymia, racial identity (a concept similar to acculturation), and eating disorders, there is great need for additional studies examining this area. The current study sought to do so with a larger sample, a more comprehensive measure of eating pathology (i.e. EDI-2), and a frequently used measure of acculturation (i.e. AAAS-R).

Rationale for Subclinical Populations

A number of researchers have found that individuals from minority groups are much less likely than Caucasians to seek treatment for psychological problems (Becker, Franko, Speck, & Herzog, 2003; Dew, Dunn, Bromet, & Scheulberg, 1988; Ruef, Litz, & Schlenger, 2000; Wilfley, Pike, Dohm, Striegel-Moore, & Fairburn, 2001). There are a number of reasons this may be the case, one of which may be low referral rates. Holden and Robinson (1988) found the referral rates of non-Caucasian eating disordered patients notably lower than those of Caucasians. Some clinics had ratios of one non-Caucasian patient to 33 Caucasian patients (Holden & Robinson, 1988). Based on observations from other areas of medicine, a number of explanations have been generated for the lower referral rates for eating disorders in minorities, including referral bias, lack of access to medical care, and differences in treatment seeking behavior (Hazuda, Stern, Gaskill, Haffner & Gardner, 1983; Racynski et al., 1994). Thus, given the low prevalence of

minorities seeking mental health services, particularly for eating disorders, it is more practical to utilize a subclinical population.

Many more individuals, especially college students, suffer from dysfunctional eating and dieting practices than are diagnosable clinically eating disordered. Between 27.0% and 66.11% of college women engage in binge eating, which is major risk factor for the development of bulimia nervosa (Edwards-Hewitt & Gray, 1993; Rand & Kuldau, 1991; Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). Purging behaviors, such as self-induced vomiting, have been reported to occur in 12.2% to 14.6% of college women (Meilman, von Hippel, & Gaylor, 1991; Striegel-Moore et al., 1989). One study reported that 30.3% of college women engaged in restrained eating (Rand & Kuldau, 1991). Another study reported that 50% of undergraduate women who were underweight based on height and weight classifications considered themselves to be overweight (Haberman & Luffey, 1998). The relative availability of research participants with subclinical levels of eating pathology as compared to patients with clinical eating disorders has led numerous researchers studying the topic of eating pathology to utilize participants, such as college students, who have subclinical eating disordered behaviors. Researchers using college students and other individuals with subclinical forms of eating pathology have found their results to be applicable to the eating disordered population.

Hypotheses

Hypothesis #1: The prevalence of alexithymia in the African American college sample will differ from the prevalence of alexithymia in the Caucasian sample.

Hypothesis #2: The African American college sample will have lower scores than the Caucasian sample on EDI-2 subscales measuring the core characteristics of eating

disorders (Drive for Thinness, Bulimia, Body Dissatisfaction, and Interoceptive Awareness).

Hypothesis #3: Individuals with higher scores on the EDI-2 subscales measuring the core characteristics of eating disorders (Drive for Thinness, Bulimia, Body Dissatisfaction, and Interoceptive Awareness) will have higher levels of alexithymia than will persons with lower scores on any of these EDI-2 subscales.

An additional goal of the study was to explore potential relationships between alexithymia and variables related to eating disorders by ethnicity.

CHAPTER II

METHOD

Participants

After obtaining approval through the Institutional Review Board at three schools, participants were recruited at an ethnically integrated university and a historically Black university, both with a high number of commuter students. Participants were female university students who self-identified as Caucasian or African American, over the age of 18, who were enrolled in a psychology course at their respective schools. Participants were informed that participation in the study was voluntary and that they could withdraw from the study at any time without penalty. Then, they were informed of the nature of the study and the amount of class credit they would receive. A total of 91 African American and 80 Caucasian students were recruited for participation in this study, which is just under the proposed 200 and under the 190 Cohen (1992) recommends for detecting a medium size effect at an alpha level of $p = .01$ using ANOVA procedures.

Instruments

Toronto Alexithymia Scale-20 (TAS-20)

The 20-item Toronto Alexithymia Scale (TAS-20), a copyrighted instrument, was developed as a revision to the TAS-R in 1992 (Bagby, Parker, & Taylor, 1994). It is designed to measure three facets of alexithymia: Difficulty Identifying Feelings, Difficulty Describing Feelings, and Externally-Oriented Thinking. Using a group of college students, Bagby et al. (1994) found the scale had an internal consistency (Cronbach's alpha) of .81 and a test-retest reliability of .77 for three weeks.

To determine its validity, the authors (Bagby, Taylor, & Parker, 1994) compared the scores on the TAS-20 to those of the Psychological Mindedness Scale, Need for Cognition Scale, NEO Personality Inventory, and Beth Israel Hospital Psychosomatic Questionnaire. The TAS-20 demonstrated convergent and concurrent validity by negatively correlating with psychological mindedness (-0.68) and the need-for-cognition (-0.55), measures of analytical thinking and interest in the reasons for human behavior respectively (characteristics thought to be lacking in the alexithymic individual). The TAS-20 was negatively correlated with openness to experience (-0.49), particularly on the subscales measuring openness to feelings (-0.55) and openness to fantasy (-0.30), on the NEO. This was expected since the hallmarks of alexithymia are difficulty detecting emotions and a poor fantasy life. The TAS-20 was positively correlated with neuroticism (0.27), consistent with reports that persons with alexithymia are anhedonic and prone to negative affective experiences, with a reduced ability to feel pleasurable emotions. The best evidence of concurrent and consensual validity was strong correlations between external observers' rating of alexithymic characteristics in a clinical population and the TAS-20.

Beck Depression Inventory-II (BDI-II)

The Beck Depression Inventory, 2nd edition, (BDI-II), copyrighted by the Psychological Corporation, (Beck, Steer, & Brown, 1996) was developed in 1994 as a revised, modernized version of the amended Beck Depression Inventory (BDI-IA; Beck, Rush, Shaw, and Emery, 1979). The BDI-II is a 21 item self-report questionnaire, designed to detect and measure the severity of depression in persons age 13 or older. The instrument's psychometric characteristics were investigated using four psychiatric

outpatient clinics, two in urban locations and two in suburban locations, and one college-student control group. The test was found to be internally consistent (coefficient alphas .92 for outpatients and .93 for college students) and has high test-retest reliability (.93) for one week. The content validity of the BDI-II is based upon its development from the depressive symptoms listed as criteria in the DSM-IV (1994). Its construct validity is based on the correlation of .93 between the BDI-IA and the BDI-II for two outpatient samples. Its convergent and discriminant validity are based upon its correlations with other tests measuring similar constructs: Beck Hopelessness Scale (.68), Scale for Suicidal Ideation (.37), Beck Anxiety Inventory (.60), Hamilton Rating Scale for Depression (.71), and Hamilton Rating Scale for Anxiety (.47). The scale also has excellent factorial validity (BDI-II Manual; Beck, Steer, and Brown, 1996).

Eating Disorder Inventory-2 (EDI-2)

The EDI-2, copyrighted by Psychological Assessment Resources (1991), is a widely used self-report measure of the symptoms commonly associated with eating disorders (Garner, 1991). It consists of eight clinical subscales and three provisional subscales, each representing different psychological traits or symptom clusters presumed to be relevant in the understanding and treatment of eating disorders (Garner, 1991). The EDI-2 is an improved version from the EDI, originally introduced in 1983. The EDI assessed attitudes and behaviors related to eating, weight, and shape on the subscales Drive for Thinness, Bulimia, and Body Dissatisfaction, and psychological traits or organizing constructs on the subscales Ineffectiveness, Perfection, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears. The EDI-2 retained the original 64 items

and 8 subscales, and added 27 items to assess three new constructs, which are still considered provisional subscales: Asceticism, Impulse Regulation, and Social Insecurity.

To preserve the integrity of the EDI-2, all items were administered in this study. However, only the following subscales will be used as dependent variables (see Appendix B for descriptions of additional EDI-2 subscales).

Drive for Thinness Subscale. The Drive for Thinness subscale measures the relentless pursuit of thinness, the cardinal feature of bulimia nervosa and anorexia nervosa. The items that comprise this subscale assess fear of gaining weight, preoccupation with weight, and excessive concern with dieting (Garner, 1991). The scale has been tested on eating disordered and nonpatient female comparison groups. Internal consistency reliability estimates for the eating disorder samples were (Cronbach's alpha) .83 for a combined group of patients ($n = 889$) with anorexia nervosa, binge-purge and restricting subtypes, or bulimia nervosa (Garner, 1991); and .86 for a smaller eating disordered sample ($n = 155$) (Garner & Olmsted, 1984; as cited in Garner, 1991). The internal consistency reliability estimates for nonpatient female comparison groups ranged from .81 to .91 (Garner, 1991). Test-retest reliability estimates are .85 for one week ($n = 70$; Welch, 1988, as cited in Garner, 1991), .92 for three weeks ($n = 70$; Wear & Pratz, 1987, as cited in Garner, 1991), and .72 for one year ($n = 282$; Crowther et al., 1990; as cited in Garner, 1991). Furthermore, the Drive for Thinness subscale is highly correlated with the EAT (range = .77 to .89; Berland, Thompson, & Linton, 1986; Garner, Olmstead & Polivy, 1983a; Gross, Rosen, Leitenberg, & Willmuth, 1986; Raciti & Norcross, 1987; all as cited in Garner, 1991). The mean Drive for Thinness score for a group of

combined eating disordered patients is 14.5 ($SD = 5.6$, $n = 889$), and 5.5 ($SD = 5.5$; $n = 205$) for a female nonpatient comparison group (Garner, 1991)

Bulimia Subscale. The Bulimia subscale measures the tendency to think about and engage in binge eating, a symptom that may present in any of the eating disorders. It is the presence of binge eating that differentiates the binge-purge subtype from the restricting anorexic subtype of anorexia nervosa. Furthermore, research indicates that bulimic symptoms are often present in individuals who do not meet all the criteria for a formal eating disorder diagnosis (Pyle, Halvorson, Neuman, & Mitchell, 1986; as cited in Garner, 1991). Internal reliability estimates for the Bulimia subscale range from .86 ($n = 889$; Garner, 1991) for a combined sample of patients having restricting anorexia nervosa, binge/purge anorexia nervosa, or bulimia nervosa, to .88 for a smaller sample of patients with eating disorders ($n = 155$; Garner & Olmstead, 1984; as cited in Garner, 1991). For nonpatient female comparison groups, internal consistency reliability estimates range from Cronbach's alpha = .69 to .83 (Garner & Olmsted, 1984; Raciti & Norcross, 1987; Vanderheyden et al., 1987; Shore & Porter, 1990; all as cited in Garner, 1991). The test-retest reliability estimate for nonpatient samples is .79 for one week (Welch, 1988; as cited in Garner, 1991), .90 for three weeks (Wear & Pratz, 1987; as cited in Garner, 1991), and .44 for one year (Crowther et al., 1990; as cited in Garner, 1991). Bulimia subscale scores correlate at .26 with total EAT score, and at .72 for the Bulimia and Food Preoccupation subscale of the EAT (Garner, 1991). The mean scores for the Bulimia subscale are 10.5 ($SD = 5.5$) for a combined eating disordered sample, and 1.2 ($SD = 1.9$) for a female nonpatient comparison group (Garner, 1991).

Body Dissatisfaction Subscale. The Body Dissatisfaction subscale measures an individual's degree of dissatisfaction with shape and size of areas of the body that are typically of concern to patients with eating disorders; stomach, hips, thighs, buttocks. Extreme dissatisfaction with one's body is conceptualized as an important aspect of the "body image disturbance" associated with eating disorders (Garner & Garfinkel, 1981; Garner, Garfinkel, & Bonato, 1987; Thompson, 1990; all as cited in Garner, 1991). Furthermore, body dissatisfaction is seen as the motivation of the weight controlling behaviors seen in patients with eating disorders (Garner, 1991). Internal consistency reliability estimates are .92 ($n = 889$, Garner, 1991) and .86 ($n = 155$; Garner & Olmsted, 1984; as cited in Garner, 1991) for eating disordered samples. For nonpatient female comparison groups, the estimates range from Cronbach's alpha = .91 to .93 depending on the study (Garner & Olmsted, 1984; Raciti & Norcross, 1987; Vanderheyden et al., 1987; Shore & Porter, 1990; all as cited in Garner, 1991). Test-retest reliability estimates for nonpatient samples are .95 for one week (Welch, 1988; as cited in Garner, 1991), .97 for three weeks (Wear & Pratz, 1987; as cited in Garner, 1991), and .75 for one year (Crowther et al., 1990; as cited in Garner, 1991). The Body Dissatisfaction subscale score correlates at .44 with the EAT total score for eating disordered patients (Garner, 1991). The mean Body Dissatisfaction subscale scores are 16.6 ($SD = 8.3$) for a combined eating disordered sample and 12.2 ($SD = 8.3$) for a female nonpatient comparison group (Garner, 1991).

Interoceptive Awareness Subscale. Interoceptive Awareness refers to the confusion and apprehension in recognizing and accurately responding to emotional states, and differentiating affective from bodily sensations. Selvini-Palazzoli (1974; as cited in

Garner, 1991) labeled the profound distrust of internal states in patients with anorexia nervosa as “intrapsychic paranoia.” It is conceptually very similar to alexithymia. For two eating disorder samples, internal consistency reliability estimates are both at .83 (Garner, 1991; Garner & Olmsted, 1984; as cited in Garner, 1991). Internal reliability estimates for nonpatient female comparison groups range from Cronbach’s alpha = .78 to .81 (Garner & Olmstead, 1984; Raciti & Norcross, 1987; Vanderheyden et al., 1987; Shore & Porter, 1990; all as cited in Garner, 1991). Test-retest reliability for nonpatient samples is estimated at .67 for one week (Welch, 1988; as cited in Garner, 1991), .85 for three weeks (Wear & Pratz, 1987; as cited in Garner, 1991), and .41 for one year (Crowther et al., 1990; as cited in Garner, 1991). Interoceptive Awareness subscale scores are correlated at .51 with the EAT total score. The mean Interoceptive Awareness subscale scores are 11.0 ($SD = 6.9$) for patients with eating disorders and 3.0 ($SD = 3.9$) for female nonpatient comparisons (Garner, 1991).

Psychometric properties of the EDI-2. The EDI-2 was normed on 889 eating disordered patients and 770 non-eating disordered female college students. The manual also provides norms for the male college sample, 14 to 18 year-old nonpatient high school males and females, and 11 to 18 year-old nonpatient female students. Within the eating disordered sample, there were 129 patients with AN-R, 103 patients with AN-BP, and 657 patients BN.

The EDI-2 has excellent reliability. Internal consistency reliability coefficients for the original EDI subscales range between .83 and .92 for the eating disordered sample (Garner & Olmstead, 1984; as cited in Garner, 1991). Internal consistency reliability estimates for provisional subscales range from .70 to .80 for the eating disordered sample,

and from .44 to .80 for the nonpatient college female comparison sample. Retest reliabilities range between .79 and .95 for all subscales except Interoceptive Awareness (.67) for one week; from .77 to .96 for three weeks; and from .41 to .75 for one year.

The validity of the EDI-2 was based on several criteria. Items were selected from the original item pool if they significantly differentiated between the anorexic and nonpatient female college samples. Items also had to be more highly correlated with their intended subscale than with other subscales, and they also had to form a subscale with a coefficient of internal consistency above .80 for the anorexic samples. The item-total scale correlations averaged .63. The EDI also met the following validity criteria: 1) correlations between subscale scores for patients with anorexia nervosa and their clinicians' ratings, 2) subscale means for a small group of patients who had recovered from anorexia nervosa were like those of the female college sample and lower than those of patients who had not recovered from anorexia nervosa; 3) significant discrepancies between patients with AN-R and AN-BP on the Bulimia subscale, and 4) convergent and discriminant validity indicated by the pattern of correlations among EDI subscales and other measures which had differing degrees of conceptual overlap with EDI subscales.

African American Acculturation Scale-Revised (AAAS-R)

The AAAS-R (see Appendix A) was originally published in 1994 as the African American Acculturation Scale (AAAS, Landrine & Klonoff, 1994). It was developed to measure the degree to which Black Americans are immersed in their own culture (traditional), participate in the traditions of their own culture and of the dominant White culture (bicultural), or participate in the cultural traditions, values, beliefs, assumptions, and practices of the dominant White society (acculturated). In developing the AAAS, the

authors selected eight dimensions that were shown empirically relevant to African American culture: (1) Traditional African American Religious Beliefs and Practices, (2) Traditional African American Family Structure and Practices, (3) Traditional African American Socialization, (4) Preparation and Consumption of Traditional Foods, (5) Preference for African American Things, (6) Interracial Attitudes, (7) Superstitions, and (8) Traditional African American Health Beliefs and Practices. With these dimensions in mind, the authors developed several items reflective of African American culture. They also asked seven African Americans from diverse geographical regions to generate a list of beliefs, practices, rituals, foods, games, and superstitions held by African Americans but not by Whites, and mostly unknown to Whites. Any items listed by three or more people, including the researchers, were included in the scale. The result was 189 items, comprising eight subscales, to be rated on a 7-point Likert-type scale.

The 189-item questionnaire was normed on a community sample of 118 African American adults across a range of ages, social classes, education levels, and geographic areas, and whose scores were compared to 37 Whites, 13 Latinos, and 10 Asian Americans (Landrine & Klonoff, 1994). Fifty-seven items from the original item pool were dropped because they did not distinguish between African Americans and non-African Americans, and another 58 items were dropped because 50% or more African Americans did not agree with the statement (i.e. rate the item 4 or higher in agreement). The 74 retained items distinguished African Americans from non-African Americans at a .05 significance level.

The original AAAS had good reliability and validity (Landrine & Klonoff, 1994). The internal consistency of the eight subscales ranged from (Cronbach's alphas) .71 to

.90. The split-half reliability was $r = .93$. The measure significantly discriminated between African American and non-African Americans at $p \leq .001$, with the mean total AAAS score an average 141.47 points higher than non-African Americans ($t = 13.03, p \leq .0001$). Subscales were found to be theoretically sensible, with all subscales having moderate to strong correlations with the total scale score (range of .72 to .82). The authors established concurrent validity by supposing that African Americans who lived in Black neighborhoods would be more traditional members of their culture, due to the constant exposure to it, and demonstrating this using the scale. Using this criterion, they found that Black neighborhood and other residence subjects differed on the weighted linear combination of the eight subscales at the $p \leq .01$ level. There was also a significant discrepancy between mean total AAAS scores for the Black neighborhood subjects and other residence subjects, with Black neighborhood subjects scoring higher by 50.22 points than the latter ($p < .003$). Furthermore, the authors found no evidence for differences in subscale scores by city of origin, education level, current income, or gender. They did find differences for social class of family of origin, but none of the eight follow up one-way ANOVAs was significant, making it impossible to interpret the findings. Overall, the authors found that total scores for African Americans fell into a wide range (i.e. 200 points), suggesting that the differences seen in the totals score correspond to differences in the African American levels of acculturation (Landrine & Klonoff, 1994).

In a cross-validation study of the 74-item AAAS comparing a sample of middle class African American adults ($n = 175$), recruited from a variety of organizations to the original subject pool, significant differences were found on three of the eight subscales

(37.5%; Landrine & Klonoff, 1995). Using Principle Components Analysis, the authors used the data to construct a short form, which also had good reliability and validity. The shortened, 33 item version of the AAAS correlated highly ($r = .94$) with the longer version of the scale, but the Health Beliefs and Practices subscale of the original AAAS was lost in the factor analysis. This subscale may be relevant to health practices such as eating habits and dieting practices, and therefore, the shortened version was not utilized in this study.

Klonoff and Landrine (2000) revised and improved the AAAS based on survey data from 520 Black adults varying in age and socioeconomic status using the AAAS, a question about alcohol consumption, and demographic questions. The first step in the revision process was to drop 26 items that any participant in any previous studies found objectionable, including three items of the Family Values and Practices subscale, two items from the Preferences subscale, and all 10 items from the Foods subscale. The remaining 48 items were factor analyzed using a principal components analysis with a rotation for orthogonal factors. Of the 10 factors with eigenvalues of greater than or equal to 1.00, the first eight were retained because 47 of the 48 factors loaded heavily on those factors, with the remaining item loading on none. Eight factors accounted for 58.9% of the variance: Religious Beliefs and Practices, Preference for Things African American, Interracial Attitudes, Family Practices, Health Beliefs and Practices, Cultural Superstitions, Segregation, and Family Values.

Klonoff and Landrine's (2000) efforts resulted in the AAAS-R, a 47-item acculturation scale for African Americans. Based on data from 520 subjects, each new subscale has high internal consistency reliability (Cronbach's alphas = .67 to .89). The

entire scale has internal consistency reliability of .93 and a split-half reliability of .79. The correlation between the AAAS-R and the 74 item AAAS was $r = .97$. To establish concurrent validity, the authors divided the subjects into three segregation groups based on their segregation subscale scores, and found all segregation groups differed in scores on all seven AAAS-R subscales in the expected direction: Highly segregated participants scored higher (more traditional), and low segregated participants score lower (more acculturated) on the subscales. Thus, participants who grew up or reside in Black neighborhoods who were more exposed to Black culture and people, were more culturally traditional (i.e. less acculturated) than were their peers who grew up or live in integrated or White neighborhoods. The AAAS-R differentiated between African Americans and non-African Americans when original AAAS scores from the 1994 sample were recalculated. The final test of validity was the investigation of the relationship between current levels of acculturation and current alcohol use among Blacks. Based on the literature they reviewed, they expected Black abstainers to be more culturally traditional than Black drinkers, and that drinkers and abstainers would differ on the Religious Beliefs & Practices and the Family Values subscales. The results were as predicted ($p < .0015$). Furthermore, there were no differences in total AAAS-R scores according to education, income, age, or social class. There were, however, gender differences, with Black women scoring significantly higher (i.e. more traditional) than Black men on six of the eight subscales. Overall, research indicates that the AAAS-R is a valid and reliable method of assessing level of acculturation in African Americans.

Procedure

Participants were given information about the study, a description of their expected role for participating in the study, the possible risks and benefits of participating, and the option to discontinue participation at any time. The data were collected anonymously. Once consent was obtained, packets containing the TAS-20, BDI-II, EDI-2, and AAAS-R were given to African American students and packets containing the TAS-20, BDI-II, and EDI-2 were given to Caucasian American students for completion. The order of the tests was counterbalanced to eliminate test order bias. Participants were required to complete the surveys in the designated area (a classroom reserved for research purposes), and return them to the researcher prior to receiving research credit.

CHAPTER III

RESULTS

Statistical Analysis

Statistical Power

Because the number of statistical analyses conducted in this study increased the chance of falsely rejecting the null hypothesis, alpha was lowered to .01 from the traditional value of .05, according to Cohen's (1992) recommendations. Efforts were also made to avoid the inability to detect significant differences due to an insufficient sample size. To detect a medium effect size Cohen's (1992) recommendation is that a total of 190 subjects, 95 per group, be used to detect a significant difference at the $p = .01$ level for two groups using ANOVA procedures. Despite a lengthy period devoted to data collection, data for only 171 participants were available for analysis.

Statistical Approach

Descriptive statistics were computed on the demographic variables of age, BMI, and the assessment measures, i.e. TAS-20, BDI-II, EDI-2 subscales, and AAAS-R, for the overall sample and by ethnic group. Then, several comparisons were made to determine whether there were any differences in the ethnic groups. When appropriate, chi-square analyses were conducted to determine whether the groups differed in the percentage of participants classified in various categories, i.e. based on BMI, BDI-II scores, and TAS-20 scores. Between group differences on demographic data (age and BMI) and on scales of interest, including the 11 EDI-2 subscales, BDI-II scores, and TAS-20 scores were determined through the use of a MANOVA, and followed up by univariate ANOVAs. Wilks' Lambda was used to determine significance of the

MANOVA. ANCOVAs were conducted, removing variance due to depression and BMI, to determine whether there were differences between the ethnic groups on alexithymia and eating disturbances.

A correlation matrix was used to determine the relationship between the total alexithymia score, as measured by the TAS-20, the four EDI-2 subscales of interest, Body Dissatisfaction, Drive for Thinness, Interoceptive Awareness, and Bulimia, BMI, and depression for each ethnic group, along with the inclusion of acculturation scores for the African American group only. Correlation coefficients were analyzed for multicollinearity, and corrected if necessary by removing the redundant variable. A partial correlation method was used to determine the relationship between alexithymia and the four EDI-2 subscales for both ethnic groups while partialing out the effect of the relationship between level of depression and alexithymia. Because BMI may also affect EDI-2 scores, a partial correlation was also used to partial out the effect of BMI on the relationship between alexithymia and the four EDI-2 subscales. Correlation coefficients derived from variance removed due to BDI -2 scores on the relationship between alexithymia and EDI-2 scores, were converted to z scores using Fisher's r to z conversion formula: $z = .5[\ln(1+r)-\ln(1-r)]$. The obtained z scores were compared using the formula of $z_1-z_2/\sqrt{[(N_1-3)-(N_2-3)]}$ to detect differences between correlation coefficients derived by partial correlation.

A MANOVA, followed by univariate ANOVAs, was used to assess any potential differences between African American students obtained from the two different sites. Again, Wilks' Lambda was used to determine significance of the MANOVA. Lastly, an exploratory analysis, using a correlation matrix on the eight clinical subscales and three

Table 1

Sample Characteristics

Variables	Overall Sample		Caucasian		African American	
	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>
Age	168	22.28 (5.72)	79	22.57 (6.36)	89	22.02 (5.10)
BMI	169	24.12 (4.97)	80	23.04 (3.95)	89	25.08 (5.58)
BDI-II	169	10.57 (8.96)	79	11.70 (9.66)	90	9.58 (8.23)
TAS-20	171	43.68 (11.31)	80	44.00 (10.90)	91	43.40 (11.71)
DT	171	4.80 (5.66)	80	6.18 (6.26)	91	3.58 (4.79)
B	171	1.32 (1.91)	80	1.56 (2.23)	91	1.11 (1.57)
BD	171	9.37 (7.81)	80	11.08 (8.17)	91	7.88 (7.21)
I	171	2.46 (3.94)	80	2.78 (4.30)	91	2.19 (3.61)
P	171	7.01 (4.22)	80	6.71 (4.54)	91	7.28 (3.92)
ID	171	3.23 (3.43)	80	2.48 (3.44)	91	3.89 (3.30)
IA	171	2.60 (3.57)	80	2.81 (3.64)	91	2.42 (3.51)
MF	171	3.05 (3.06)	80	2.85 (3.16)	91	3.23 (2.97)
A	170	4.42 (2.89)	80	4.21 (3.03)	90	4.59 (2.76)
IR	170	2.41 (3.73)	80	2.46 (4.09)	90	2.36 (3.40)
SI	170	3.49 (3.58)	80	3.11 (3.76)	90	3.83 (3.40)

Key: Body Mass Index (BMI), Beck Depression Inventory (BDI-II), Toronto Alexithymia Scale (TAS-20), Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Ineffectiveness (I), Perfectionism (P), Interpersonal Distrust (ID), Interoceptive Awareness (IA), Maturity Fears (MF), Asceticism (A), Impulse Regulation (IR), Social Insecurity (SI).

research subscales of the EDI-2, the TAS-20, BDI-II, the eight subscales of the AAAS-R, and BMI were conducted for the purposes of interest and direction for future studies.

Sample Characteristics

A total of 174 participants, 140 from an ethnically integrated university and 34 from a primarily African American university, were recruited for participation in the study. However, 3 male participants were mistakenly included in the study and their data were omitted from analysis, leaving 171 remaining (140 from the integrated university and 31 from the predominately African American university). Of these participants, 91 were African American and 80 were Caucasian. See Table 1 for an overall description of the sample. A MANOVA, including age, BMI, BDI-II, TAS-20, and all EDI-2 subscales, revealed a statistically significant difference between the ethnic groups, $F(15, 147) = 6.08, p < .001$, Wilks' Lambda = .62. Follow up ANOVAs found statistically significant differences on BMI and the EDI-2 subscales Drive for Thinness, Body Dissatisfaction, and Interoceptive Awareness (see Table 2 for summary).

Ethnic Differences on Demographic Information

The average age for all the participants ($n = 168$) who provided their age was 22.28 years. The average age of African American participants was 22.02 ($SD = 5.10$) years, and this sample ranged from 18 to 45 years old. Caucasian participants had a mean age of 22.57 ($SD = 6.36$), and a range of 18 to 49. There was no significant difference between the groups in age, $F(1,161) = .223, p = .637$.

BMI was calculated for all participants who provided information about their weight and height ($n = 169$). Using the metric formula of weight divided by height² participants were categorized into four groups by their BMI: less than 18.5 equal

Table 2

Mean Differences Between African American and Caucasian Female Participants

Variable	Caucasian		African American		ANOVA		
	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>	<i>F-value</i>	<i>df</i>	<i>p value</i>
Age	79	22.57 (6.36)	89	22.02 (5.10)	.223	1, 161	.637
BMI	80	23.04 (3.95)	89	25.08 (5.58)	7.952	1, 161	.005**
BDI-II	79	11.70 (9.66)	90	9.58 (8.23)	1.544	1, 161	.216
TAS-20	80	44.00 (10.90)	91	43.40 (11.71)	.068	1, 161	.795
DT	80	6.18 (6.26)	91	3.58 (4.79)	7.004	1, 161	.009**
B	80	1.56 (2.23)	91	1.11 (1.57)	1.294	1, 161	.257
BD	80	11.08 (8.17)	91	7.88 (7.21)	7.290	1, 161	.008**
IA	80	2.81 (3.64)	91	2.42 (3.51)	.196	1, 161	.658

Note: Body Mass Index (BMI), Beck Depression Inventory (BDI-II), Toronto Alexithymia Scale (TAS-20), Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Interoceptive Awareness (IA).
 Significant: ** $p < .01$

underweight, 18.5 to 24.9 equal normal weight, 25 to 29.9 equal overweight, and 30 or greater equal obese. African American participants ($n = 89$) had a mean BMI of 25.08 (range 18 to 45, $SD = 5.10$), and Caucasians ($n = 80$) had a mean BMI of 23.04 (range 15.40 to 36.80, $SD = 6.36$). The African American group was significantly heavier than the Caucasian group, $F(1, 161) = 7.952, p = .005$. A chi-square analysis indicated no significant differences in the likelihood of the groups being categorized in each of the four BMI categories, $\chi^2(3, n = 169) = 6.27, p = .10$ (refer to Table 3).

Table 3

Percentage of Participants in Each BMI Category, by Ethnicity

BMI Category	Caucasian Students	African American Students
Underweight	5.0%	4.5%
Average Weight	66.3%	55.1%
Overweight	22.5%	21.3%
Obese	6.3%	19.1%

Ethnic Differences in Alexithymia

There were no significant differences in mean TAS-20 scores for each ethnic group, $F(1, 161) = .068, p = .795$ (See Table 1 for means). An analysis of covariance was conducted on TAS-20 scores, controlling for BDI-II scores, to determine whether there were differences between the ethnic groups for alexithymia, and again no differences were found, $F(1, 166) = .303, p = .53$. A chi-square revealed that Caucasian and African American students were equally likely to be categorized as Nonalexithymic,

Borderline Alexithymic, and Alexithymic, $\chi^2(2, n = 171) = .034, p = .983$. See Table 4 for percentages of participants scoring in each category on the TAS-20.

Table 4

Percentage of Participants Scoring in TAS-20 Categories

TAS- Category	All Students	Caucasian Students	African American Students
Nonalexithymic	71.9%	72.5%	71.4%
Borderline Alexithymic	16.4%	16.25%	16.5%
Alexithymic	11.7%	11.25%	12.1%

Because alexithymia was the main variable of interest a Cronbach's alpha was computed on TAS-20 items to ensure that participants were attentive to item content throughout the survey, Cronbach's alpha = .84. The standardized item alpha for the total sample was .83. The TAS-20 had good internal consistency for Caucasian students ($n = 78$; Cronbach's alpha = .83) and African American students ($n = 90$; Cronbach's alpha = .84).

Additionally, the internal consistency of the TAS-20 factors was explored and descriptive statistics were conducted. The TAS-20 factors include Difficulty Identifying Feelings (Factor 1), Difficulty Describing Feelings (Factor 2), and Externally Oriented Thinking (Factor 3). TAS-20 Factor 1 had a Cronbach's alpha of .88 ($n = 169$) for all participants, .89 ($n = 78$) for Caucasian participants, and .87 ($n = 91$) for African American students. Factor 2 had a Cronbach's alpha of .78 ($n = 170$) for all participants,

.74 ($n = 80$) for Caucasian students, and .81 ($n = 90$) for African American students. Factor 3 had a Cronbach's alpha of .56 ($n = 171$) for all participants, .62 ($n = 80$) for Caucasian participants, and .50 ($n = 91$) for African American participants. The mean scores for the factors are reported for the overall sample and by ethnic group in Table 5. Additional analyses of the TAS-20 factors were not completed due to an insufficient sample size and the probability of increasing Type I error.

Table 5

Mean TAS-20 Factor Scores by Ethnic Group

	Factor 1 <i>Mean (SD)</i>	Factor 2 <i>Mean(SD)</i>	Factor 3 <i>Mean(SD)</i>
Overall Sample	13.55 (6.08)	12.78 (4.79)	17.32 (4.12)
Caucasian	13.59 (6.14)	12.38 (4.32)	17.98 (4.28)
African American	13.53 (6.07)	13.14 (5.16)	16.75 (3.91)

Ethnic Differences on EDI-2 Subscales

Descriptive statistics were computed on the EDI-2 subscales for the overall sample and by each ethnic group and are reported in Table 1. Differences between the groups on Bulimia and Interoceptive Awareness, $F(1, 161) = 1.29, p = .257$ and $F(1, 161) = .196, p = .658$ respectively, did not reach statistical significance. There were, however, a significant differences between the groups on level of Drive for Thinness, $F(1, 161) = 7.00, p = .009$, and Body Dissatisfaction scores, $F(1, 161) = 7.29, p = .008$. An additional difference was found on Interpersonal Distrust, $F(1, 161) = 7.32, p = .008$, in

Table 6

Ethnic Differences on EDI-2 Subscale Scores, without BMI Variance

Variable	Caucasians	African Americans		df	F value
	<i>Estimated Mean(SE)</i>	<i>Estimated Mean(SE)</i>	<i>Mean Difference</i>		
DT	6.69 (.57)	3.19 (.54)	3.5	(1, 166)	19.35**
B	1.66 (.21)	1.05 (.20)	.62	(1, 166)	4.39*
IA	2.94 (.40)	2.35 (.38)	.59	(1, 166)	1.12

Note: Differences not calculated on Body Dissatisfaction due to a violation of homogeneity of slopes assumption. Key: Drive for Thinness (DT), Bulimia (B), Interoceptive Awareness (IA).
Trend: * $p \leq .05$, Significant: ** $p \leq .01$

Table 7

Ethnic Differences on TAS-20 and EDI-2 Subscale Scores, without BDI-II Variance

Variable	Caucasian	African American		df	F value
	<i>Estimated Mean(SE)</i>	<i>Estimated Mean(SE)</i>	<i>Mean Difference</i>		
DT	5.82 (.58)	3.75 (.54)	2.07	(1, 166)	6.74**
B	1.53 (.22)	1.14 (.20)	.39	(1, 166)	1.73
BD	10.72 (.80)	7.97 (.75)	2.75	(1, 166)	6.25**
IA	2.58 (.38)	2.60 (.33)	-.02	(1, 166)	.00
TAS-20	43.24 (1.05)	44.16 (.99)	.921	(1, 166)	.40

Key: Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Interoceptive Awareness (IA), Toronto Alexithymia Scale (TAS-20).
Trend: * $p \leq .05$, Significant: ** $p \leq .01$

exploratory analyses. Caucasian students scored significantly higher than African American students on Drive for Thinness, Body Dissatisfaction, and Interpersonal Distrust (see Table 2 for means).

Analyses of covariance were also conducted on the variables Drive for Thinness and Body Dissatisfaction while holding constant BMI scores, then BDI-II scores, and then both BMI and BDI-II scores to determine whether observed differences in ANOVA procedures remained between the two ethnic groups. This revealed a significant difference between mean scores on Drive for Thinness for the African American and Caucasian groups, when variance due to BMI was controlled, $F(1, 166) = 19.35, p < .001$ (see Table 6). There was a significant difference between the groups on mean Drive for Thinness scores which remained when the variance due to BDI-II scores ($\eta^2 = .138, 13.8\%$) was also removed, $F(1, 166) = 6.74, p = .010$. See Table 7 for a summary of means. When both BMI and BDI-II scores were entered together as covariates, statistical significance remained for Drive for Thinness scores among the two ethnic groups, $F(1, 163) = 15.29, p < .001$ (see Table 8 for a summary of means). In each case, with variance due to BMI, BDI-II, and both BMI and BDI-II scores removed, Caucasian participants

Table 8

Ethnic Differences on TAS-20 and EDI-2 Subscale Scores, without BDI-II and BMI Variance

Variable	Caucasians	African Americans		<i>df</i>	<i>F value</i>
	<i>Estimated Mean(SE)</i>	<i>Estimated Mean(SE)</i>	<i>Mean Difference</i>		
DT	6.33 (.54)	3.36 (.51)	2.97	(1, 163)	15.29**
B	1.63 (.21)	1.07 (.20)	.56	(1, 163)	3.55
IA	2.70 (.36)	2.56 (.34)	.14	(1, 163)	.08

Note: BD not included due to a violation of the homogeneity of slopes assumption.

Key: Drive for Thinness (DT), Bulimia (B), Interoceptive Awareness (IA).

Trend: * $p \leq .05$, Significant: ** $p \leq .01$

had higher scores than African American participants on Drive for Thinness.

ANCOVA analyses revealed that when BMI was controlled, there was a trend toward a statistically significant difference between mean Bulimia scores, $F(1,166) = 4.39, p = .038$, with Caucasian participants averaging slightly higher than African American students (See Table 6 for a summary of means). However, there was no significant difference between the ethnic group on mean Bulimia scores, when variance due to BDI-II scores ($\eta^2 = .106, 10.6\%$) was removed from the interaction, $F(1, 166) = 1.73, p = .191$ (See Table 7 for a summary of means). When both BMI and BDI-II scores were entered together as covariates in the model, there was no significant difference between ethnic groups on Bulimia scores, $F(1,163) = 3.55, p = .061$ (See Table 8 for a summary of means).

An ANCOVA was not performed for mean differences on the variable Body Dissatisfaction, with BMI held as a covariate, due to a violation of the homogeneity of slopes assumption, which suggests that Body Dissatisfaction scores vary as a function of BMI scores making results from an ANCOVA not meaningful. However, it was possible to do the procedure while covarying BDI-II scores. With BDI-II scores entered as a covariate, there was a significant difference between the ethnic groups on Body Dissatisfaction scores, $F(1, 166) = 6.25, p = .01$, with Caucasian participants scoring higher than African American participants (see Table 6). Variance due to BDI-II scores accounted for 12.8% of the variance in the interaction between ethnicity and Body Dissatisfaction scores ($\eta^2 = .128$).

There was no significant difference between mean Interoceptive Awareness scores for the ethnic groups, when BMI was controlled for, $F(1, 166) = 1.12, p = .292$

Table 9

A Comparison of High DT Scorers and Low DT Scorers

Variable	High DT Scorers			Low DT Scorers			F	df	Significance (p value)
	N	Mean	SD	N	Mean	SD			
Age	18	21.56	4.50	150	22.37	5.85	.32	1,166	.571
BMI	19	26.12	5.06	150	23.86	4.91	3.54	1,167	.062
DT	19	16.84	2.01	152	3.29	3.88	223.45	1,169	.000**
B	19	2.79	2.53	152	1.14	1.75	13.53	1,169	.000**
BD	19	18.39	7.25	152	8.25	7.14	33.79	1,169	.000**
I	19	7.16	7.15	152	1.88	2.88	36.66	1,169	.000**
P	19	9.16	5.10	152	6.74	4.03	5.69	1,169	.018*
ID	19	3.90	4.41	152	3.15	3.29	.81	1,169	.370
IA	19	6.74	5.04	152	2.09	2.98	34.35	1,169	.000**
MF	19	4.26	4.01	152	2.90	2.90	3.39	1,169	.067
A	19	7.95	2.74	151	3.97	2.59	39.41	1,168	.000**
IR	19	6.11	4.90	151	1.94	3.30	23.87	1,168	.000**
SI	19	5.68	4.91	151	3.22	3.30	8.36	1,168	.004**
BDI-II	18	17.17	11.03	151	9.78	8.38	11.62	1,167	.001**
AAAS-R	6	244.50	22.98	85	213.09	38.27	3.91	1,89	.051*
TAS-20	19	45.63	12.89	152	43.43	11.12	.64	1,169	.426

Trend: * $p \leq .05$, Significant: ** $p \leq .01$, Key: Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Ineffectiveness (I), Perfectionism (P), Interpersonal Distrust (ID), Interoceptive Awareness (IA), Maturity Fears (MF), Asceticism (A), Impulse Regulation (IR), Social Insecurity (SI), African American Acculturation Scale (AAAS-R).

and when BDI-II scores were controlled, $F(1, 166) = .002, p = .962$ (See Tables 5 and 6 for means). There was no significant difference between ethnic groups when both BMI and BDI-II scores were entered together into analysis as covariates, $F(1, 163) = .075, p = .784$ (see Table 8).

Participants with Potential Eating Disorders

To assess the level of clinically significant preoccupation with attaining thinness, participants' scores on the Drive for Thinness subscale were classified according to a cutoff score of 14 (Garner, 1991). When categorized, 13 participants (16.3%) in the Caucasian sample and 6 participants (6.6%) in the African American sample are suspected of having clinically significant eating disorders. According to chi-square analysis, there was a trend for more Caucasian students to be classified as potentially eating disordered compared to African American students, $\chi^2(1, n = 171) = 4.02, p = .039$. See Table 9 for mean scores for High and Low Drive for Thinness scorers. High Drive for Thinness and Low Drive for Thinness scorers were similar in age, $F(1, 166) = .322, p = .571$; BMI, $F(1, 167) = 3.54, p = .062$; TAS-20 scores, $F(1, 169) = .636, p = .426$; and on the exploratory EDI-2 scales Interpersonal Distrust, $F(1, 169) = .808, p = .370$, and Maturity Fears, $F(1, 169) = 3.39, p = .067$. There were significant differences between High Drive for Thinness and Low Drive for Thinness scorers on BDI-II scores, $F(1, 167) = 11.62, p = .001$; Bulimia, $F(1, 169) = 13.53, p < .001$; Body Dissatisfaction, $F(1, 169) = 33.79, p < .001$; and Interoceptive Awareness, $F(1, 169) = 34.352, p < .001$. These groups also differed on exploratory EDI-2 subscales: Ineffectiveness, Asceticism, Impulse Regulation, and Social Insecurity.

Ethnic Differences on Depression

Approximately 35% of the Caucasian and 21% of the African American students scored in the clinically depressed range of the BDI-II. The mean scores on the BDI-II for African American students ($M = 9.58$, $SD = 8.23$) and for Caucasian students ($M = 11.70$, $SD = 9.66$) were not significantly different, $F(1, 161) = 1.544$, $p = .216$. However, a chi-square analysis indicated a trend toward significance with more Caucasian participants likely to be categorized as having mild depression, $\chi^2(3, n = 169) = 9.15$, $p = .03$. Table 10 summarizes the percentages of participants scoring in each BDI-II category organized by ethnic group.

Table 10

Percentage of Participants in BDI-II Categories by Ethnic Group

BDI-II Category	Caucasian Sample	African American Sample
Minimal	64.6%	78.9%
Mild	20.3%	6.7%
Moderate	7.6%	11.1%
Severe	7.6%	3.3%

Relationship between TAS-20, BDI-II, and EDI-2

All Participants. Data from all participants was used in combination to determine overall relationships between alexithymia, key eating disorder indicator scales on the EDI-2, depression, and demographic variables. See Table 11 for a summary. Alexithymia, as measured by the TAS-20, was significantly correlated with Interoceptive

Awareness and depression ($r = .577, p = .000$). Positive trends were found between TAS-20 scores and Drive for Thinness and Body Dissatisfaction. Exploratory analysis revealed significant positive correlations between TAS-20 scores and EDI-2 subscales Ineffectiveness, Interpersonal Distrust, Maturity Fears, Impulse Regulation, and Social Insecurity. There was an additional trend between TAS-20 scores and the scores on the EDI-2 subscale Asceticism. BDI-II scores were significantly correlated with all but one of the EDI-2 subscales: Drive for Thinness, Body Dissatisfaction, Ineffectiveness,

Table 11

Correlations Between TAS-20 Scores and EDI-2 Subscale Scores, All Participants

	Key EDI-2 Subscales			
	DT	B	BD	IA
TAS-20	.153*	.071	.163*	.469**
N =	171	171	171	171
BDI-II	.385**	.137*	.373**	.482**
N =	169	169	169	169

	Exploratory Analyses of Other EDI-2 Subscales						
	I	P	ID	MF	A	IR	SI
TAS-20	.497**	.018	.543**	.366**	.140*	.394**	.506**
N =	171	171	171	171	170	170	170
BDI-II	.658**	.277**	.445**	.405**	.355**	.518**	.547**
N =	169	169	169	169	168	168	168

Trend: $*p < .05$, Significant: $**p < .01$

Key: Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Interoceptive Awareness (IA), Ineffectiveness (I), Perfectionism (P), Interpersonal Distrust (ID), Maturity Fears (MF), Asceticism (A), Impulse Regulation (IR), Social Insecurity (SI), Beck Depression Inventory (BDI-II), Toronto Alexithymia Scale (TAS-20).

Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, Impulse Regulation, and Social Insecurity. There was a trend towards a positive relationship between Bulimia and BDI-II scores.

Caucasian Group. For the Caucasian group, TAS-20 scores were significantly correlated with Interoceptive Awareness and BDI-II scores ($r = .570, p = .000$; see Table 12). Exploratory analyses among the Caucasian sample found significant correlations between TAS-20 scores and the following variables: Ineffectiveness, Interpersonal Distrust, Maturity Fears, Asceticism, Impulse Regulation, and Social Insecurity.

Table 12

Correlations Between TAS-20 Scores and EDI-2 Subscale Scores, Caucasian Group

	Key EDI-2 Subscales			
	DT	B	BD	IA
TAS-20	.107	.137	.179	.481**
N=	80	80	80	80
BDI-II	.272*	.142	.390**	.437*
N=	79	79	79	79

	Exploratory Analyses of Other EDI-2 Subscales						
	I	P	ID	MF	A	IR	SI
TAS-20	.508**	-.014	.494**	.503**	.270**	.458**	.573**
N=	80	80	80	80	80	80	80
BDI-II	.638*	.252*	.473**	.508**	.446**	.583**	.613**
N=	79	79	79	79	79	79	79

Trend: * $p < .05$, Significant: ** $p < .01$

Key: Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Interoceptive Awareness (IA), Ineffectiveness (I), Perfectionism (P), Interpersonal Distrust (ID), Maturity Fears (MF), Asceticism (A), Impulse Regulation (IR), Social Insecurity (SI), Beck Depression Inventory (BDI-II), Toronto Alexithymia Scale (TAS-20).

See Table 12 for a summary of relationships between TAS-20 and EDI-2 subscale scores for the Caucasian group. Depression, as measured by the BDI-II, was also highly correlated with BMI ($r = .273, p = .008$), and with most of the EDI-2 subscales in the Caucasian group: Drive for Thinness, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, Impulse Regulation, and Social Insecurity (see Table 12). Only the EDI-2 subscale Bulimia was not correlated with BDI-II scores in the Caucasian sample.

African American Group. For the African American sample, TAS-20 scores were significantly correlated with Interoceptive Awareness and BDI-II scores ($r = .593, p = .000$; see Table 13). However, within the African American group, there was also a trend associated with TAS-20 scores and Drive for Thinness. There was no correlation between TAS-20 and Bulimia for African American or Caucasian participants. Exploratory analyses found TAS-20 scores significantly correlated with Ineffectiveness, Interpersonal Distrust, Maturity Fears, Impulse Regulation, and Social Insecurity among African Americans in this study (see Table 13). In the African American group, depression (BDI-II) scores were significantly correlated with Drive for Thinness, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, and Social Insecurity (see Table 12). The only EDI-2 subscale not correlated with depression in the African American sample was Bulimia.

Table 13

*Correlations Between TAS-20 Scores and EDI-2 Subscale Scores,
African American Group*

	Key EDI-2 Subscales			
	DT	B	BD	IA
TAS-20	.203*	-.007	.147	.460**
N=	91	91	91	91
BDI-II	.504**	.102	.319**	.528**
N=	90	90	90	90

	Exploratory Analyses of Other EDI-2 Subscales						
	I	P	ID	MF	A	IR	SI
TAS-20	.492**	.053	.618**	.253**	.027	.338**	.459**
N=	91	91	91	91	90	90	90
BDI-II	.089	.334**	.497**	.313**	.281**	.441**	.522**
N=	90	90	90	90	89	89	89

Trend: *p < .05, Significant: ** p < .01

Key: Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Interoceptive Awareness (IA), Ineffectiveness (I), Perfectionism (P), Interpersonal Distrust (ID), Maturity Fears (MF), Asceticism (A), Impulse Regulation (IR), Social Insecurity (SI), Beck Depression Inventory (BDI-II), Toronto Alexithymia Scale (TAS-20).

Partial Correlations

Partial correlations between TAS-20 and the four key EDI-2 subscales were conducted while holding constant BDI-II scores, then BMI scores, and then both BDI-II and BMI scores. These analyses were conducted first with all data sets, and then by ethnic group to determine whether there were differences in how depression and body mass affected the relationship between alexithymia and eating-related attitudes and behaviors for Caucasians versus African American participants. When BDI-II scores were controlled for in the overall analysis, TAS-20 scores correlated significantly only

with Interoceptive Awareness ($r = .270, p < .001$). TAS-20 scores were not significantly correlated with Drive for Thinness ($r = -.081, p = .148$), Bulimia ($r = -.009, p = .456$), or Body Dissatisfaction ($r = -.057, p = .231$). When BMI was held constant, the TAS-20 was positively and significantly correlated with several of the key EDI-2 subscales: Drive for Thinness ($r = .191, p = .007$), Body Dissatisfaction ($r = .230, p = .001$), and Interoceptive Awareness ($r = .487, p < .001$). With BMI held constant, TAS-20 scores were not significantly correlated with Bulimia scores ($r = .086, p = .133$) for the overall participant group. With variance due to both BDI-II and BMI scores removed, TAS-20 scores remained significantly correlated only with Interoceptive Awareness scores ($r = .294, p < .001$).

Partial correlations were conducted with the Caucasian and African American samples, first removing variance due to BMI only. When controlling for BMI in the Caucasian sample, TAS-20 scores were significantly correlated with Interoceptive Awareness ($r = .516, p < .001$) and Body Dissatisfaction scores ($r = .248, p = .014$). When controlling for BMI in the African American sample, TAS-20 scores were significantly correlated with Drive for Thinness ($r = .274, p = .005$), Body Dissatisfaction ($r = .237, p = .013$), and Interoceptive Awareness ($r = .468, p < .001$).

When partial correlations were conducted removing only variance due to BDI-II scores, TAS-20 and key EDI-2 subscale scores were correlated in the following ways with Caucasian and African American samples: only correlation coefficients for TAS-20 and Interoceptive Awareness scores were significant for the Caucasian sample ($r = .318, p = .002$) and near significant for the African American sample ($r = .216, p = .021$).

Partial correlations conducted to remove variance due to BMI and BDI-II scores

on the relationship between TAS-20 and key EDI-2 subscale scores yielded similar results, with only correlation coefficients for TAS-20 and Interoceptive Awareness remaining significant for the Caucasian sample ($r = .387, p < .001$) and near significant for the African American sample ($r = .228, p = .017$).

Comparison of Correlations

In order to detect differences in the relationship between alexithymia and the key EDI-2 subscales (Drive for Thinness, Bulimia, Body Dissatisfaction, and Interoceptive Awareness), and to standardize fluctuations in variance, correlation coefficients were converted to z scores using Fisher's r to z conversion formula. When z scores were analyzed for comparison purposes, no significant differences were found for Drive for Thinness ($z = .536, p > .05$), Bulimia ($z = .996, p > .05$), Body Dissatisfaction ($z = -.132, p > .05$), or Interoceptive Awareness ($z = .704, p > .05$) scales (See Table 14).

Table 14

Differences in Relationship Between TAS-20 and EDI-2 Subscale Scores by Ethnic Group

	Caucasian		African-American		Difference	
	<i>r</i>	<i>z</i>	<i>r</i>	<i>z</i>		
DT	-.0478	-.0478	-.1307	-.1315	.5360	$p > .05$
B	.0706	.0707	-.0844	-.0846	.9955	$p > .05$
BD	-.0560	-.0561	-.0354	-.0354	-.1323	$p > .05$
IA	.3178	.3292	.2159	.2194	.2194	$p > .05$

Key: Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Interoceptive Awareness (IA).

Exclusive Analyses of African American Participants

Sample Characteristics by School. African American students from the ethnically integrated university and the predominantly Black university were compared using a MANOVA across all variables, including age, BMI, BDI-II, TAS-20, EDI-2 subscales and AAAS-R subscales, and a trend towards a statistically significant difference was found, $F(16, 68) = 1.84, p = .04$, Wilks' Lambda = .74. Follow up univariate ANOVAs revealed differences on the variables of age, $F(1, 83) = 6.89, p = .01$, and acculturation scores (AAAS-R), $F(1, 83) = 8.34, p = .005$. There was a trend towards a significant difference between the groups on the EDI-2 scale Interpersonal Distrust, $F(1, 83) = 2.63, p = .05$. Students from the predominately Black university were older ($M = 23.84$ years, $SD = 5.38$) than African American students from the integrated university ($M = 21.05$ years, $SD = 4.70$); and had higher AAAS-R scores ($M = 230.71, SD = 28.40$) than African American students from the ethnically integrated university ($M = 207.13, SD = 40.27$). This indicated that African American students attending a traditionally Black school had more traditional (i.e. African American) cultural values and preferences. Students from the ethnically integrated university, however, had higher scores on the EDI-2 scale Interpersonal Distrust ($M = 4.35, SD = 3.51$) than those from the predominately Black university ($M = 3.00; SD = 2.67$).

African American Acculturation Scale Scores. Descriptive statistics were computed for the AAAS-R for those participants who completed the instrument, i.e. African Americans. The mean score on the AAAS-R was 215.17 ($SD = 38.18$). Scores ranged from a low of 127 to a high score of 291, with higher scores indicating more traditional African American cultural values. The AAAS-R had good internal

consistency with this sample, Cronbach's alpha = .85, Standardized item alpha = .86.

Cronbach's alpha on the AAAS-R subscales ranged from .45 to .83 (see Table 15).

Relationship Between AAAS-R and EDI-2 Subscales. Among African American students, acculturation, as measured by the AAAS-R, was positively correlated with Drive for Thinness ($r = .348, p = .002$) and Bulimia ($r = .286, p = .014$). The AAAS-R subscale Religious Beliefs and Practices correlated negatively with Maturity Fears ($r = -.300, p \leq .01$) and with SI ($r = -.316, p \leq .01$), with trends toward a positive correlation

Table 15

AAAS-R Subscale Internal Consistency Estimates

Subscales	Cronbach's alpha	N
Religious Beliefs and Practices	.80	86
Preference for Things AA ¹	.79	89
Interracial Attitudes	.83	87
Family Practices	.45	90
Health Beliefs and Practices	.61	90
Cultural Superstitions	.62	90
Racial Segregation	.75	84
Family Values	.51	90

Note ¹: AA = African American

with Bulimia and a negative correlation with Interpersonal Distrust (see Table 16 for correlations). Other AAAS-R subscales that showed a trend towards significant positive correlations with the Bulimia subscale of the EDI-2 were: Religious Beliefs and Practices, Cultural Superstitions, and Family Values. The Health Beliefs and Practices subscale of the AAAS-R correlated positively with Drive for Thinness ($r = .458, p \leq .01$)

and Body Dissatisfaction ($r = .296, p \leq .01$), and there were trends toward positive correlations with Asceticism and Impulse Regulation. Additional correlations and trends can be seen in Table 16.

Table 16

Relationship Between AAAS-R Subscales and EDI-2 Subscales

EDI-2 Subscales	AAAS-R Subscales							
	Religious Beliefs & Practices	Preferences For Things AA	Interracial Attitudes	Family Practices	Health Beliefs & Behaviors	Cultural Superstitions	Racial Segregation	Family Values
DT N =	.069 86	.187 89	.114 87	.256* 90	.458** 90	.187 90	.112 84	.203 90
B N =	.223* 86	.132 89	.015 87	.161 90	.194 90	.230* 90	.188 84	.227* 90
BD N =	.009 86	.055 89	.042 87	.131 90	.296** 90	.135 90	.148 84	.159 90
IA N =	-.014 86	.068 89	.064 87	.117 90	.149 90	.124 90	.165 84	.230 90
I N =	-.049 86	-.053 89	.039 87	.172 90	.150 90	-.019 90	.089 84	.112 90
P N =	-.034 86	.160 89	.091 87	.048 90	.116 90	.096 90	-.144 84	.206 90
ID N =	-.255* 86	.021 89	-.022 87	.156 90	-.101 90	-.117 90	.128 84	.041 90

Table 16 (Continued)
Relationship Between AAAS-R Subscales and EDI-2 Subscales

EDI-2 Subscales	AAAS-R Subscales							
	Religious Beliefs & Practices	Preferences For Things AA	Interracial Attitudes	Family Practices	Health Beliefs & Behaviors	Cultural Superstitions	Racial Segregation	Family Values
MF	-.300**	-.110	.005	.192	.024	-.090	.080	.129
N=	86	89	87	90	90	90	84	90
A	.073	.048	.050	.131	.246*	.050	.074	.075
N=	85	88	86	89	89	89	83	89
IR	-.090	.189	.270*	.213*	.215*	.041	-.036	.193
N=	85	88	86	89	89	89	83	89
SI	-.316**	-.075	.191	.053	-.007	-.073	-.033	.229*
N=	85	88	86	89	89	89	83	89

Trend: * $p \leq .05$, Significant: ** $p \leq .01$

Key: Drive for Thinness (DT), Bulimia (B), Body Dissatisfaction (BD), Interoceptive Awareness (IA), Ineffectiveness (I), Interpersonal Distrust (ID), Perfectionism (P), Maturity Fears (MF), Asceticism (A), Impulse Regulation (IR), Social Insecurity (SI).

CHAPTER IV

DISCUSSION

Alexithymia, a term first introduced by Nemiah and Sifneos in 1970, refers to a deficit in the ability to identify, differentiate, and communicate one's emotions. This deficit has been linked to many clinical disturbances, and has been found to be prevalent in persons with substance use, posttraumatic stress, eating disturbances, somatization, panic, functional gastrointestinal disorders, depression, and hypertension. This research has been mostly limited to the study of Caucasian samples, although there have been some published studies of Asian, Asian American, Hispanic, Portuguese, Italian, and Spanish ethnic groups. With only one exception, the research investigating the link between alexithymia and eating disorders has not been evaluated in an African American sample.

Research with Caucasian groups has suggested that patients with eating disorders have a higher prevalence of alexithymia than the general population (Bourke et al., 1992). In Caucasians, alexithymia appears most prevalent in persons having anorexia nervosa (Bourke et al., 1992) and bulimia (Cochrane et al., 1993, de Groot et al., 1995; Jimerson et al., 1994; Schmidt et al., 1993) respectively, and there is indication of increased prevalence in patients with binge eating disorder compared to nonpsychiatric populations (de Zwann et al. 1995; Pinaquy et al., 2003).

Thus, the present study was conducted to explore the relationship between alexithymia and eating-related attitudes and behaviors in African American versus Caucasian female undergraduate students. The goal of the study was to determine

whether there are racial differences and to expand on the one study in this area by Dinsmore and Mallinckrodt (1996).

Since depression is often comorbid with eating disorders and is strongly related to alexithymia in Caucasian samples, the second goal of the study was to explore its role in the interface between alexithymia and eating disorders in the African American population. A female college sample was chosen because research shows that eating disorders and subclinical presentations of eating disorders are more prevalent in college student populations, particularly in women. The universities chosen for recruitment included one predominantly African American university and one ethnically integrated university. Measures that were used were: the 20 item Toronto Alexithymia Scale (TAS-20) to assess alexithymia, the Beck Depression Inventory (BDI-II) to assess depression, and the Eating Disorder Inventory, 2nd Edition (EDI-2) to assess eating related attitudes and behaviors that are typically associated with eating disorders. These instruments were chosen because they were some of the most valid, reliable, and widely used means of assessing their respective constructs. An additional scale, the African American Acculturation Scale- Revised (AAAS-R), was also included to take into account the role that acculturation is thought to play in the vulnerability to and presentation of eating disorders in the African American population.

Contributions of the Investigation

Although there are limitations to this study, which will be discussed later in this section, it is believed to contribute to the literature on alexithymia and eating disorders, particularly because little research has focused on these concepts in combination in the African American population. Much of the research on alexithymia either does not report

information about the ethnicity of the sample studied or includes too few African American participants for meaningful analysis. This gap in the literature leaves researchers and clinicians alike wondering whether research on undefined ethnic groups, who are primarily comprised of Caucasian Americans, is applicable to other ethnic groups.

Findings of Main Interest

First and foremost, this study sought to determine whether there are differences in the prevalence of alexithymia in African American and Caucasian college women, and proposed that there would be differences. However, no differences in the prevalence of alexithymia were found in the samples, and the groups were equally likely to be categorized as Nonalexithymic, Borderline Alexithymic, or Alexithymic according to their TAS-20 score. Furthermore, as observed in previous studies, there was a significant correlation between alexithymia and depression, as measured by the TAS-20 and the BDI-II, and this correlation was similar among African American ($r = .59$) and Caucasian American participants ($r = .57$). No significant differences on TAS-20 scores were observed, even when the effects of depression (BDI-II scores) was controlled. Subsequently, the results of the current study suggest that Caucasians and African American college students may be equally likely to experience alexithymia, as well as depressive symptoms. However, more research is needed to corroborate this finding.

The second hypothesis of the current study was that the African American college sample would have lower scores than the Caucasian college sample on EDI-2 subscales measuring the core characteristics of eating disorders: Drive for Thinness, Bulimia, Body Dissatisfaction, and Interoceptive Awareness. Differences between the groups were

found for the Drive for Thinness and Body Dissatisfaction subscales of the EDI-2, even when variance due to depression and body mass was removed, with Caucasian students scoring higher than African American students. This finding is consistent with the findings of previous studies indicating that African American students, despite being heavier than Caucasians on average, are typically more satisfied with their bodies and less concerned about attaining and maintaining a thin figure. There were no significant differences observed in this study, however, between the groups on the Bulimia and Interoceptive Awareness subscales of the EDI-2. These results suggest that African American students are just as likely as Caucasian students to engage in bingeing and purging symptoms, and are as likely to experience confusion and apprehension in recognizing and accurately responding to their emotional states, and differentiating affective from bodily sensations. Results from this study with regards to symptoms of binge eating are consistent with previous research investigating ethnic differences in the prevalence of binge eating disorder, which indicates that there is equal to greater prevalence of binge eating behaviors in African Americans compared to Caucasians (Bruce & Agras, 1992; Yanovski et al., 1994; Yanovski et al., 1993).

Little support was found for the third hypothesis, which stated that individuals with higher scores on the EDI-2 subscales measuring the core characteristics of eating disorders, that is Drive for Thinness, Bulimia, Body Dissatisfaction, and Interoceptive Awareness, would have higher levels of alexithymia than would persons with lower scores on any of these EDI-2 variables. Alexithymia, as measured by the TAS-20, was significantly correlated with only one of the EDI-2 scales of focus, Interoceptive Awareness. No significant relationship was found between alexithymia and bulimic

symptoms, although there was a trend towards significance for Drive for Thinness and Body Dissatisfaction. When variance due to BMI and depression scores was removed, only the relationship between alexithymia and Interoceptive Awareness remained significant for the Caucasian group and near significance for the African American group. The correlation (.47) between the TAS-20 and the Interoceptive Awareness scale indicate that there is a close link between the two. However, Interoceptive Awareness did distinguish between those students scoring in the eating disorder range of the Drive for Thinness subscale of the EDI-2, whereas the TAS-20 did not. Additional research looking at the constructs measured by the TAS-20 and Interoceptive Awareness subscale of the EDI-2 might clarify the relationship between the two measures. It is possible that the Drive for Thinness and Body Dissatisfaction subscales might also have been related to alexithymia in a more clinical, or even a more subclinical college sample than was recruited in the present study.

Additional Findings

Exploratory analysis, however, showed several significant correlations between alexithymia and other EDI-2 subscales that were not a direct focus of the current study. There were significant positive correlations between alexithymia and the EDI-2 subscales of Ineffectiveness, Interpersonal Distrust, Maturity Fears, Impulse Regulation, Social Insecurity, and there was a trend towards significance for Asceticism. These findings suggest that people who have difficulty identifying and communicating their emotions may have a number of inter- and intrapersonal difficulties that are also associated with, but not cardinal features of, eating disorders. In the current sample, level of alexithymia was associated with feelings of insecurity, poor self-esteem, emptiness, high motivation

for achievement and success, fear of adult responsibilities, unrewarding relationships, and a propensity for impulsivity and recklessness in behavior and emotional expression.

Many of the symptoms listed are associated with general psychopathology, including depression, as evidenced by the correlations between BDI-II and all but one of the EDI-2 scale scores in this study. Other studies have also found a link between eating disorders and depression (e.g. Willcox & Sattler, 1996). This makes sense conceptually, as people who have difficulty understanding their emotions may also have difficulty regulating their emotions, and consequently, their behaviors. Being out of touch with one's own feelings may also make it difficult to relate and appropriately respond to the feelings of others, and difficult to communicate one's feelings with others, contributing to interpersonal strain and negative interpersonal experiences. Research has indicated that difficulty in communicating emotion is associated with decreased probability of seeking social support from friends or family (Carpenter & Addis, 2000). Failure to seek support and negative experiences with others likely gives rise to emotional distress and confusion, which may possibly be internalized into a negative self-concept, all of which are precursors to depression. The results of this study support prior findings that alexithymia is comorbid in a variety of psychological conditions.

Similar to the findings for alexithymia in this group, depression was equally prevalent among the African American and Caucasian samples. Depression was found to affect 35% of the Caucasian and 21% of the African American samples. There was a trend for more Caucasian students to be categorized in the Mild range of depression on the BDI-II. Results from this study suggest that African American and Caucasian college

students are equally vulnerable to the development of depression, a disorder frequently comorbid with eating disorders and alexithymia.

Being a student at a primarily Black college and more immersed in Black culture did not seem to serve as protective factors for African Americans who participated in this study, as African American students from the ethnically integrated and predominately Black universities were similar for prevalence of alexithymia, depression, and across most of the subscales of the EDI-2. The only difference that emerged, with regards to correlates of eating disorders, was that African American students from the ethnically integrated school had higher scores on the Interpersonal Distrust subscale. Higher Interpersonal Distrust scores may indicate greater reluctance to form close relationships and to share thoughts and feelings with others. This finding might be expected since African American students at an ethnically integrated school are likely to have more interactions with Caucasian and other ethnically defined students, and thus, more likely to experience racial prejudice, which may make them more wary of disclosure and close relationships with others. Other differences between the two African American samples were in age, with students from the predominately Black school being older, and in acculturation scores, with students from the predominately Black school being more traditional aligned with African American culture and values.

Level of acculturation differentiated between schools for African American students attending a predominately Black and an ethnically integrated school, which is consistent with previous findings (Klonoff & Landrine, 2000). Although the overall AAAS-R scale had a good internal consistency (Cronbach's $\alpha = .85$), the subscales ranged from .45 to .83. Several of the subscales are comprised of only 4 items, which

may account for poor internal consistency on some subscales. Also, the AAAS-R is a relatively new instrument, originally developed in 1994 and revised in 2000, and there is little research on its psychometric properties with a wide variety of samples. Therefore, more research is needed on the reliability and validity of this scale. However, since the overall scale has good internal consistency, attempts were made to interpret the correlations with the EDI-2 subscales.

It was surprising to find that the AAAS-R correlated positively with the EDI-2 subscales Drive for Thinness and Bulimia, indicating that the African American students who were more immersed in Black culture scored higher on scales measuring symptoms and correlates of eating disorders. Specifically more traditional African American students had higher Drive for Thinness and Bulimia scores than African American students who were bicultural or more immersed in White culture. In this sample of African Americans, being more immersed and identified with African American culture did not serve as protective factor against characteristics that are associated with eating disorders. In fact, the opposite seemed to be the case, with less acculturated African American students reporting a greater emphasis on attaining a thin physique, and more bingeing and purging symptoms. In analysis of the correlations between the AAAS-R subscales and EDI-2 subscales, it was found that having more traditional African American views about Health Beliefs and Practices was associated with a higher drive for thinness and body dissatisfaction. It is possible to speculate that African American students who endorsed more items on the Health Beliefs and Practices of the AAAS-R may be more body and health conscious, and have become aware of the risks of being overweight and seek to reduce their weight to a healthy range, accounting for the

relationship to the EDI-2 scales, Drive for Thinness and Body Dissatisfaction. There were trends for the EDI-2 Bulimia subscale to correlate with the AAAS-R subscales Religious Beliefs and Practices, Cultural Superstition, and Family Values. It is unclear how bulimic symptoms are related to these subscales. However, it is possible that the African American students in this study who endorsed more traditional African American values with regards to family and religion may also engage in social gatherings in which consumption of food serves a role in socialization. Subsequently, eating and overeating may be linked with a variety of other factors than just hunger. Additional research in the areas of acculturation and ethnic identity are needed to understand how these issues impact the mental health of minority populations.

Summary

In summary, if the samples used in this study can be considered representative of the typical Caucasian and African American college sample, results suggest that there may not be any differences in the prevalence of alexithymia or depression in African American versus Caucasian American college students. Overall, Caucasian students expressed greater dissatisfaction with their bodies and a greater desire to be thin than do African American students, who tend to be heavier. There were no differences observed in the relationship between alexithymia and the correlates of eating disorders for the two ethnic groups, suggesting that the groups may be more similar than different in how alexithymia relates to eating attitudes and behaviors. In both African Americans and Caucasians, alexithymia was highly correlated with depression and with the EDI-2 subscale Interoceptive Awareness. Being more aligned with traditional African American values did not seem to be a protective factor for the current sample of African

American students, and instead, traditional African American values were associated with more body dissatisfaction, emotion regulation difficulties, perfectionism, and drive for thinness.

Limitations of the Current Study

A total of 171 female college students, 91 African American and 80 Caucasian, were included in this study, just under Cohen's recommended 190 for a medium effect using an ANOVA at $p = .01$. Subsequently, despite adequate power, there is the possibility that additional participants could have resulted in more robust findings on some variables especially if the effect size were smaller than predicted.

The sampling in this study may not have been representative of the typical college population with regards to the prevalence of clinical and subclinical eating disordered attitudes and behaviors. Previous studies have indicated that subclinical eating disordered behaviors, which are destructive eating behaviors and attitudes that do not meet full criteria for clinical eating disorders, are rampant on college campuses. Between 27.0% and 66.11% of college women engage in binge eating, which is major risk factor for the development of bulimia nervosa (Edwards-Hewitt & Gray, 1993; Rand & Kuldau, 1991; Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). Purging behaviors, such as self-induced vomiting, has been reported to occur in 12.2% to 14.6% of college women (Meilman, von Hippel, & Gaylor, 1991; Striegel-Moore et al., 1989). One study reported that 30.3% of college women engaged in restrained eating (Rand & Kuldau, 1991). Another study reported that 50% of undergraduate women who were underweight based on height and weight classifications considered themselves to be overweight (Haberman & Luffey, 1998). In this study only 16.25% in the Caucasian

sample and 6.6% in the African American sample are suspected of having clinically significant eating disorders. However, this may be an underestimate since students were categorized as potentially eating disordered according to their Drive for Thinness score, and a preoccupation with dieting and thinness is not necessarily present in binge eating disorder.

The sample used in this study also differed demographically from what was expected for a typical college sample. It was expected that most students would be in the age range of 18 to 22 years old. However, this college sample was somewhat older, with the average age being about 22 years. Although the ethnic groups were similar in age, the age of participating women ranged widely, from 18 to 45 years. The age range in this study may represent the diversity in the student body of the university from which the majority of participants were surveyed. However, eating disordered behavior is more common among young adult college women, making it possible that this somewhat older college sample would be less body dissatisfied or preoccupied with weight and dieting behaviors. This age variance may have contributed to the lowered observed frequency of body image disturbances and restrained eating behaviors in this sample. Additionally, the universities sampled may differ from other universities in that both are attended by a large number of students who commute to school, and one is a predominantly Black university.

Furthermore, this study made use of self-report instead of objective measurement of height and weight, introducing some degree of error. It is possible that some students were inaccurate in their report of their height and weight due to misinformation, a desire to portray themselves as taller, shorter, heavier, or thinner, or a myriad of other reasons.

Research has explored the bias in self-reported weight and height, and indicates that women in general, (Betz, Mintz, & Speakmon, 1994; Pirie, Jacobs, Jeffery, & Hannan, 1981, Wing, Epstein, Ossip, & LaPorte, 1979), female restrained eaters (Cash, Grant, Shovlin, & Lewis, 1992; McCabe, McFarlane, Polivy, & Olmsted, 2001, Shapiro & Anderson, 2003), and overweight and obese individuals (Cash, Counts, Hangen, & Huffine, 1989; Cash et al., 1992; Rowland, 1990) tend to underreport their weight to some degree. Despite some inaccuracies in self-reported weight and height in particular groups, overall people are accurate in reporting their weight (Cash, Counts, Hangen, & Huffine, 1989; Shapiro & Anderson, 2003; Stewart, Jackson, Ford, & Beaglehole, 1987; Stunkard and Albaum, 1981; Wing, Epstein, Ossip, & LaPorte, 1979). Studies generally indicate that self-reported height and weight are adequate for research purposes (Stunkard & Albaum, 1981; Brooks-Gunn, Burrow, & Warren, 1988). Based on these findings, it is believed that the self-reported height and weight in this sample is fairly accurate, but only the inclusion of actual measurement of height and weight could ensure complete accuracy.

In addition to the utilization of self-reported weight and height, this study relied exclusively upon self-report instruments. With self-report instruments, the observations are based solely on the accuracy of the participants' self-observation and report, and may be biased by misperceptions or misinformation about themselves, or by a desire to portray themselves in a particular manner (i.e. positive or negative impression management). Given that denial is particularly common among persons with eating disorders, those students with problematic eating patterns, may minimize their eating, weight control habits, or actual weight. The study might be improved by the inclusion of

corroborating data from clinicians, especially in regards to disturbances in mood, communication of affect, and eating.

Recommendations for Future Research

There is a paucity of research on alexithymia in the African American ethnic group across all areas of psychology, including eating disorders. This study suggested additional studies looking at larger and more varied samples are needed. Future studies should include community and college samples to determine whether the prevalence and presentation of alexithymia is indeed equivalent in African Americans and Caucasians. Other ethnic groups are also needed for comparison purposes, to determine what role, if any, ethnic and cultural differences contribute to difficulties in identifying and communicating feelings. Future research might also focus on how alexithymia presents in African American men, and how it compares to the presentation and prevalence in African American women. It would be interesting to know how alexithymia relates to body image and eating patterns in African American men versus women. Future research might focus on alexithymia in different age groups, and how it relates to the development and presentation of disturbed eating attitudes and behaviors. Once more is known about the prevalence and presentation of alexithymia in African American populations, additional research examining the relationship between alexithymia and eating disorders can be conducted.

Additional research might also clarify whether there are ethnic differences on the factors of the TAS-20. Due to the number of comparisons already being conducted, it was not feasible to conduct an in depth investigation of how scores on the TAS-20 factors differed or were related in the ethnic groups in the current study. Future studies

investigating alexithymia in an African American sample might consider comparing TAS-20 factor scores to those of Caucasian Americans and other ethnic groups to determine whether there are ethnic differences in the ability to describe, differentiate, or communicate emotions, and to determine whether there are differences in externally-oriented thinking. Studies investigating alexithymia in African Americans using the TAS-20 might also consider looking at how the factors relate to correlates of eating disorders, as measured by the EDI-2, and to depression. Because alexithymia was related to many symptoms of psychological dysfunction, as measured by the EDI-2 subscales, it may also be of interest to investigate how alexithymia as a construct, as well as specific TAS-20 factors, relates to other related forms of psychopathology. Additional research is needed on the prevalence and presentation of alexithymia in specific diagnostic groups, such as individuals with bulimia nervosa, anorexia nervosa, binge eating disorder, and eating disorder not otherwise specified. There is a need for more information on how alexithymia affects a person's ability to function emotionally within themselves and with others, and to determine how this interacts with the development of disturbances in eating and body image.

It would also be of interest, once more is known about the prevalence and presentation of alexithymia in the African American group, to investigate the relationship between alexithymia and eating-related attitudes and behaviors using different measures, which may focus on and measure differently symptoms and correlates of eating disorders. This might also be important for future studies intending on replicating or expanding upon the present study, especially since there were unexpected findings in how acculturation related to eating-related attitudes and behaviors. It would be important to

consider how alexithymia relates to acculturation, and how acculturation relates to eating-related attitudes and behaviors using different measures of acculturation. Since this study relied exclusively upon self-report measures, it would be important for future research to also use objective measures, such as diagnostic interviews by clinicians, to determine the presence and type of clinical eating disorder and depression.

Summary and Conclusions

The findings of this study suggest that there may not be differences in the prevalence of alexithymia or depression in African American versus Caucasian American college students. Caucasian students in this study expressed greater dissatisfaction with their bodies and a greater desire to be thin than did African American students, who tended to be heavier. Because differences were not observed in the relationship between alexithymia and the correlates of eating disorders for the two ethnic groups, it is possible to theorize that the groups may be more similar than different in how alexithymia relates to eating attitudes and behaviors. In both groups, alexithymia was positively correlated with depression and with the EDI-2 subscale, Interoceptive Awareness. Being more aligned with traditional African American values did not seem to be a protective factor for the current sample of African American students. Instead, traditional African American values were associated with more body dissatisfaction, emotion regulation difficulties, perfectionism, and drive for thinness.

To summarize, the limitations and scope of the current study leave many possibilities for future research and a number of unanswered questions. This study used a relatively healthy sample of adult women who were enrolled in college, and used only self-report measures. It is yet unknown whether the results of this study will generalize

to other female college samples. The overall prevalence of alexithymia in African American women in the general population is unknown. Furthermore, questions remain about the prevalence and presentation of alexithymia in African American men and among African Americans of different ages. It would be interesting to find out how alexithymia relates to the development of pathological eating behaviors and disturbances in body image in African American children and adolescents, and how this development continues into maturity and old age. Questions remain for how alexithymia presents in clinically eating disordered populations, especially those who have been identified using structured diagnostic interviews. There are many areas in which alexithymia remains unexplored with regard to African Americans, and additional research is truly needed, as it will be not only of scientific and social interest, but clinically useful as well.

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APPENDIX A

BELIEFS AND ATTITUDES SURVEY
(AAAS-R)

Below are some beliefs and attitudes about religion, families, racism, Black people, White people, and health. Please tell us how much you personally agree or disagree with these beliefs and attitudes by circling a number. There are no right or wrong answers; we simply want to know your views and your beliefs.

	I Totally Disagree Not True At All	2	3	4	5	6	7	Sort of Agree Sort of True	Strongly Agree Absolutely True
01. I believe in the Holy Ghost.	1	2	3	4	5	6	7		
02. I like gospel music.	1	2	3	4	5	6	7		
03. I believe in heaven and hell.	1	2	3	4	5	6	7		
04. The church is the heart of the Black community.	1	2	3	4	5	6	7		
05. I have seen people "get the spirit" or speak in tongues.	1	2	3	4	5	6	7		
06. I am currently a member of a Black church.	1	2	3	4	5	6	7		
07. When I was young, I was a member of a Black church.	1	2	3	4	5	6	7		
08. Prayer can cure disease.	1	2	3	4	5	6	7		
09. What goes around, comes around.	1	2	3	4	5	6	7		
10. I used to sing in the church choir.	1	2	3	4	5	6	7		
11. Most of the music I listen to is by Black artists.	1	2	3	4	5	6	7		
12. I like Black music more than White music.	1	2	3	4	5	6	7		
13. I listen to Black radio stations.	1	2	3	4	5	6	7		
14. I try to watch all the Black shows on TV.	1	2	3	4	5	6	7		
15. The person I admire most is Black.	1	2	3	4	5	6	7		
16. I feel more comfortable around Blacks than around Whites.	1	2	3	4	5	6	7		
17. When I pass a Black person (a stranger) on the street, I always say hello or nod at them.	1	2	3	4	5	6	7		
18. Most of my friends are Black.	1	2	3	4	5	6	7		
19. I read (or used to read) <i>Essence</i> or <i>Ebony</i> magazine.	1	2	3	4	5	6	7		
20. I don't trust most White people.	1	2	3	4	5	6	7		
21. IQ tests were set up purposefully to discriminate against Black people.	1	2	3	4	5	6	7		
22. Most Whites are afraid of Blacks.	1	2	3	4	5	6	7		

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|---|---|---|---|---|---|---|---|
| 23. Deep in their hearts, most White people are racists. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. Whites don't understand Blacks. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. Most tests (like the SATs and tests to get a job) are set up to make sure that Blacks don't get high scores on them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. Some members of my family hate or distrust White people. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. When I was young, I shared a bed at night with my sister, brother, or some other relative. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. When I was young, my parent(s) sent me to stay with a relative (aunt, uncle, grandmother) for a few days or weeks, and then I went back home again. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29. When I was young, my cousin, aunt, grandmother or other relative lived with me and my family for awhile. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30. When I was young, I took a bath with my sister, brother, or some other relative. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31. Some people in my family use Epsom salts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 32. Illnesses can be classified as natural types and unnatural types. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 33. Some old Black women/ladies know how to cure diseases. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 34. Some older Black women know a lot about pregnancy and childbirth. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 35. I was taught that you shouldn't take a bath and go outside. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 36. I avoid splitting a pole. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 37. When the palm of your hand itches, you'll receive some money. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 38. There's some truth to many old superstitions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 39. I eat black-eyed peas on New Year's Eve. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 40. I grew up in a mostly Black neighborhood. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 41. I went to (or go to) a mostly Black high school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 42. I went to a mostly Black elementary school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 43. I currently live in a mostly Black neighborhood. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 44. It's better to try to move your whole family ahead in this world than it is to be out for only yourself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 45. Old people are wise. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 46. I often lend money or give other types of support to members of my family. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 47. A child should not be allowed to call a grown woman by her first name, "Alice." The child should be taught to call her "Miss Alice." | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

APPENDIX B

DESCRIPTIONS OF ADDITIONAL EDI-2 SUBSCALES

Ineffectiveness Subscale. The Ineffectiveness subscale assesses feelings of inadequacy, insecurity, worthlessness, emptiness, and lack of control over one's life (Garner, 1991). It is similar to the concepts of poor self-esteem and negative self-evaluation, but also includes feelings of emptiness and aloneness. These feelings are often a source of distress for persons with eating disorders.

Perfectionism Subscale. The Perfectionism subscale assesses the degree to which one believes that personal achievements are paramount. People diagnosed with eating disorders are often described as perfectionistic, and this tendency may precipitate the development of eating disorders such as bulimia nervosa and anorexia nervosa (Slade, 1982; as cited in Garner, 1991).

Interpersonal Distrust Subscale. The Interpersonal Distrust subscale taps feelings of alienation, the reluctance to form close relationships with others, and the reluctance to express thoughts or feelings to others.

Maturity Fears Subscale. The Maturity Fears subscale measures the desire to retreat to the security of childhood (Garner, 1991), which is hypothetically related to the fears of psychological and biological experiences associated with adult weight (Crisp, 1965, 1980; as cited in Garner, 1991). This desire has been observed in eating disorders associated with extreme dietary restriction, i.e. anorexia nervosa and bulimia nervosa (Crisp, 1965, 1980; as cited in Garner, 1991).

Provisional Subscales. The Asceticism subscale is designed to measure the tendency to seek virtue through pursuit of spiritual ideals, such as self-denial, self-

sacrifice, self-restraint, and self-discipline (Garner, 1991). The Impulse Regulation subscale measures one's propensity for impulsivity, substance abuse, recklessness, hostility, interpersonal destructiveness, and self-destructiveness (Garner, 1991). The Social Insecurity subscale measures the degree to which one views social relationships as tense, disappointing, unrewarding, insecure, and of poor quality (Garner, 1991). Characteristics measured by these subscales have been noted among some patients with eating disorders.

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