TESTING SOCIOCULTURAL AND ETHNOCULTURAL MODELS OF EATING DISORDER SYMPTOMATOLOGY IN ASIAN INDIAN-AMERICAN WOMEN

By

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the dissertation of ANJU BHARGAVA find it satisfactory and recommend that it be accepted.

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Chair

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Abstract

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For years, the study of eating disorders has focused primarily on Caucasian women, and many believed that eating disorders rarely existed among minorities (Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000). Conflicting research findings on the prevalence and etiology of eating disorder symptomatology in Asian-Americans warrants clinical and research attention. Virtually no published studies have examined the relationship between ethnic identity, acculturation, acculturative stress, and eating disorder symptomatology among Asian Indian-Americans. The purpose of the present study was to 1) examine the relationship between ethnic identity, acculturation, acculturative stress, and eating disorder symptomatology; 2) investigate the prevalence of eating disorder symptomatology among Asian Indian-American women; and 3) evaluate whether a sociocultural model or ethnocultural identity confusion model best explains why this group of women might develop disordered eating. Relationships were also examined between the above-mentioned variables and demographic variables such as age, body mass index, generational status, and length of time residing in the United States. Participants anonymously completed five instruments including a basic demographic questionnaire, the Eating Attitudes Test-26 (Garner, Olmstead, Bohr, & Garfinkel, 1982), Krishnan and Berry's

(1992) Acculturation Attitudes Scales, the Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (Mena, Padilla, & Maldonado, 1987), and the Multigroup Ethnic Identity Measure (Phinney, 1992). The participants included in the data analysis were 147 Asian Indian-American women ranging in age from 18 to 71 years old. Data were analyzed with Pearson correlations and hierarchical multiple regression. A prevalence rate of 12.24% for eating disorder symptomatology was found among Asian Indian-American women. Results indicated that ethnic identity, assimilation, and separation were unrelated to eating disorder symptomatology. Results also indicated that integration, marginalization, body mass index, and acculturative stress were significantly positively correlated with eating disorder symptomatology. Of the key variables examined, acculturative stress was shown to be a unique predictor of eating disorder symptomatology after controlling for the above-mentioned demographic variables in the regression analysis. The present study provided evidence for both sociocultural and ethnocultural models of eating disorders. Limitations to the study, directions for future research, and implications for clinical practice are discussed.

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CHAPTER I

INTRODUCTION

Psychologists are realizing the impact of culture on children's development. This recognition reflects awareness that most of the knowledge about normative developmental processes is based on middle-class, European-American parents and their children. Although these models may have been relevant for European immigrants of the early 1900s, they may be less relevant for the recent immigrants from other continents (Patel, Power, & Bhavnagri, 1996). A research bias exists due to the lack of attention to minority populations. This is problematic because 25% of the United States population belongs to a minority group, a number that will increase to 50% by 2050 (Atkinson, Bui, & Sakurako, 2001). Given the increase in diversity in the United States due to immigration, it is important to understand developmental processes for immigrant families of specific ethnic origins (Patel et al., 1996).

Researchers may believe that Asian Indian-Americans are too small a group or have too few problems to warrant clinical attention. However, because Asian Indian-Americans are among the largest and fastest growing Asian American groups, they are an important group to study (Kar, Campbell, Jimenez, & Gupta, 1995/1996). The U.S. Bureau of Census (2000) data reports 10,242,998 Asians living in the United States. Immigrants from India are a group growing in number due to the U.S. Immigration Act of 1965. In 1990, there were 815,447 Indians living in the United States, and this population has almost doubled in 10 years. Asian Indians constitute 1,678,765 people living in the United States and are the third largest Asian group after Chinese and Filipino (U.S. Bureau of Census, 2000).

Asian Indians began arriving in greater numbers to the United States after 1965. The exclusionary policy of 1917, The Barred Zone Act, was followed by the Asian Exclusion Act of

1924. Both prohibited Asian Indians from immigrating to the United States (Ibrahim, Ohnishi, & Sandhu, 1997). However, as a result of the U.S. Immigration Act of 1965 which allowed Asian Indian immigrants to enter the U.S., Indian-Americans became a population that is continuing to grow. Therefore, this population warrants research and clinical attention. Chinese-Americans and Japanese-Americans have been previously included in U.S. research because they started arriving in the United States around 1860 and 1880, respectively. Little attention has been given to the social and psychological adjustment difficulties that the newer Asian Indian immigrants may be encountering. Therefore, few Americans may know about Asian Indians' history, culture, struggles, and successes (Ramisetty-Mikler, 1993). Many believe that Asian-Americans, including Asian Indian-Americans, are professionally successful, are psychologically healthy, and are a "model minority" group (Segal, 1991).

Theoretical Explanations of Eating Disorders Among Women of Color

The sociocultural model provides a basis for expecting lower prevalence rates of eating disorders (EDs) among minority groups. The sociocultural model maintains that "women of color are at decreased risk for developing anorexia nervosa and bulimia nervosa because they are not part of a culture that overvalues an excessively thin body ideal" (Pike & Walsh, 1996, p. 270). In other words, if minority women are less acculturated to mainstream values and adhere to their country of origin's values, they are thought to be at a decreased risk for developing an ED. However, with the increasing prevalence rates of EDs among minority groups, the sociocultural model may actually help explain the development of EDs in minority women. In particular, Pike and Walsh maintain that racial identity and acculturation are mediators for ethnic groups, with those who are more acculturated to mainstream Westernized values at greater risk for developing EDs because they are not as protected as once believed.

Acculturation occurs when one culture comes in contact with another culture (Berry, Trimble, & Olmedo, 1986; Cuéllar, 2000; Farver, Bhadha, & Narang, 2002; Farver, Narang, & Bhadha, 2002; Phinney, 1990). It can be defined as the degree to which an ethnic group is identified with and integrated into the white majority culture. The process of acculturation can impact one's level of acculturative stress, which can be defined as stress related to a move from one's culture of origin toward another culture (Berry, 1998). Eating disorder symptomatology may be moderated by acculturative stress among minority women. Perez, Voelz, Pettit, and Joiner (2002) found that low acculturative stress was not correlated with body dissatisfaction and bulimic symptoms. They also found that there was a strong correlation between body dissatisfaction and bulimic symptoms among minority women with high acculturative stress.

Polivy and Herman (2002) provided another explanation for the development of EDs in ethnic minorities. They stated that "the widespread adoption of the dominant American cultural ideals (in American ethnic subcultures and indeed around the world) has meant that "ethnicity" no longer protects individuals from [anorexia nervosa] AN and [bulimia nervosa] BN" (p. 193). In other words, the more one adapts to American culture, the more susceptible one is to develop a common American disorder such as anorexia nervosa (AN) or bulimia nervosa (BN). Sociocultural theorists, such as Polivy and Herman, believe that EDs are a result of the increasing pressures for women in Western society to strive for thinness.

Another viewpoint is that minority groups who are less acculturated to U.S. culture may be more inclined to develop EDs because of ethnocultural identity confusion. Ethnic identity is an essential component to examine when studying women of color and eating pathology (Harris & Kuba, 1997). Ethnic identity can be defined as self-identification as a member of an ethnic group, a feeling of belonging to the group, attitudes toward the group, and level of ethnic

affiliation or involvement in the group (Phinney, 1990). After conducting a meta-analysis, Harris and Kuba found an existing relationship between conflicted identity and EDs among women of color. They suggested that one's culture of origin directs her self-image and characterization of beauty. This may be concerning for her when her culture of origin's definition of beauty is different than another culture's definition of beauty. They proposed that the traditional American standards of attractiveness and beauty may be oppressive for women of color whose own beauty standards are quite different from the majority culture. As a result an ED for these women can be described as "self-destructiveness related to a rejection of her ethnoculture" (Harris & Kuba, p. 342).

For years, the study of eating disorders (EDs) focused primarily on Caucasian women, and many believed that EDs rarely existed among minorities (Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000). Studies such as Cachelin et al.'s have found that EDs among college women are equally prevalent or more frequent among racial groups including Asian Americans (Dolan, Lacey, & Evans, 1990; Haudek, Rorty, & Henker, 1999; le Grange, Stone, & Brownell, 1998; Mumford, Whitehouse, & Platts, 1991; Sanders & Heiss, 1998). In her review of literature on body image and eating disorders among Asian and Asian-American women, Hall (1995) concluded that women, specifically those of color furthest from the Caucasian-European-American ideal, are more susceptible to low self-esteem, poor body image, and EDs because they differ from the Caucasian-European-American ideals of beauty. Very few studies have focused on eating disorders in Asian Indians (Lawrence, 1998).

Based on prior research, it is unclear whether a sociocultural model or ethnocultural identity confusion model would best explain why Asian-American women develop EDs. The prevalence of EDs in this group of women is also unclear. Thus, given the conflicting findings

and threats to internal and external validity in previous research, further studies in this area are necessary. Understanding EDs in Asian-Americans is important to prevent misdiagnosis, and more importantly, to treat the disorder effectively. Because not all Asian countries are similar in attitudes and values, I examined only one Asian-American group—Indian-Americans. The purpose of the present study was to examine the relationship between ethnic identity, acculturation, acculturative stress, and eating disorder symptomatology among Asian Indian-American women.

CHAPTER II

REVIEW OF THE LITERATURE

In this literature review, the concepts of ethnic identity and acculturation, as well as their relationship to psychological distress, particularly eating disorder symptomatology, are discussed. A discussion of the developmental process for Asian Indian women and how this process contributes to psychological distress is provided. Two theories, ethnocultural identity confusion and the sociocultural theory, which provide evidence for the development of eating disorders among women of color are discussed. Studies are critiqued related to disordered eating among Asian-Americans compared to other racial groups. Because Asian-American ethnic groups differ from each other, studies are reviewed related to disordered eating in a particular Asian-American ethnic group, Asian Indians. Because so few studies exist that examine disordered eating of Asian Indian-Americans, studies of Asian Indians living in other countries are reviewed as well.

Ethnic Identity

Ethnic identity is a crucial aspect of ethnic minority individuals' psychological functioning and of self perception (Phinney, 1990). Ethnic identity can be defined as self-identification as a member of an ethnic group, a feeling of belonging to the group, attitudes toward the group, and level of ethnic affiliation or involvement in the group. When assessing ethnic identity, an individual's commitment to the natal country's values, beliefs, behaviors, conventions, and customs are observed (Dasgupta, 1998).

Phinney (1990) outlined a three-stage model of ethnic identity consisting of an unexamined ethnic identity, ethnic identity search, and achieved ethnic identity. Children and adults in the first stage have not been exposed to issues concerning ethnic identity. Thus, they

may prefer the values and beliefs of the dominant culture. On the other hand, they may not have thought through ethnic issues and may have obtained very positive ethnic attitudes from their parents or others and not show a preference for the dominant group. In the second stage, one encounters a significant experience which compels one to examine one's natal culture "through activities such as reading, talking to people, going to ethnic museums, and participating actively in cultural events" (Phinney, p. 503). Some people in this stage may reject the values and beliefs of the majority culture. Those who have reached the achieved ethnic identity stage have come to terms with the cultural disparity between their own group and the dominant group as well as come to terms with the lower status their group holds in U. S. society. Phinney's developmental model predicts higher self-esteem in those with an achieved ethnic identity.

Although other ethnic identity models exist, Phinney's (1990) model is utilized in this review because it is the most widely used in the ethnic identity literature. Assessing and understanding a client's ethnic identity is a vital component in the treatment of ethnic minorities. According to Harris and Kuba (1997), because proper diagnostic understanding and integrated theories do not exist for women of color, it is hard for clinicians to know how to treat women of color who have psychological disorders such as eating disorders. As a result, therapists must be multiculturally competent to create a therapeutic setting that is culturally sensitive to the needs of their eating disordered clients.

Asian Indian-American Identity Development

According to Ibrahim et al. (1997), in order to understand the process of ethnic identity development of Asian Indian-Americans, it is imperative to take into account the cultural diversity and the sociopolitical history of Asian Indians. Beliefs and values embedded in Asian Indian culture stem from 7,000 B.C. to the present. Due to Britain's colonial rule from the mid-

1700's to 1947, most Asian Indian immigrants are fluent in English and have been exposed to Western values. As a result, Asian Indian-Americans are likely to function biculturally (Farver, Bhadha, & Narang, 2002; Ibrahim et al.).

Ethnographic studies have shown that Indian immigrants develop and maintain characteristics of Western and Eastern culture. India's educational system has a distinct British orientation. As a result, most Asian Indian-Americans are fluent in English and have had exposure to Western values and beliefs. Most Asian Indians come to the United States in order to seek educational opportunities, professional opportunities, or as a dependent of someone who is seeking these opportunities. Due to their familiarity with English, their high levels of education, and their professional skills, many have been able to establish themselves successfully in American society (Segal, 1991). Asian Indian-Americans have been described as a driven, successful group that places importance on education and individual success (Patel et al., 1996). Asian Indians understand Western values, beliefs, and assumptions based on a colonized perspective. They did not allow the British to take their dignity, identity, or belief systems away from them (Ibrahim et al., 1997). In addition, as a result of their collectivist roots, Asian Indian-Americans adhere to traditional family values such as placing importance on family, elders, traditional gender norms, arranged marriages, and prohibiting independence of youth (Patel et al.). This mixing of western and eastern traditions, individualistic and collectivistic traits, is the result of 200 years of British influence in India.

Despite the British influence, modern India still adheres to the value of intergenerational families with authoritarian parents. However, changes are being made in India in the structure, role, and relationships of Indian families due to industrialization, urbanization, and economic changes in the past two decades. However, those Asian Indians who immigrated to the United

States preserve the attitudes, values, and styles of 1960's India. Asian Indian immigrants make strong attempts to keep their traditional culture alive through a number of ways, including frequent visits to India, attendance at Indian social gatherings, as well as through cultural associations and religious institutions (Dasgupta, 1998). Furthermore, Segal (1991) found that Indian Americans maintain their preference for Indian food, as well as their values regarding home, family, children, religion, and marriage.

According to Asian Indian psychologists, a major difference between Asian Indian and American cultural belief systems involves the conceptualization of self. In Indian families, the family and self are not separate concepts. Rather, the integrity of the family comes before individual needs and self-identity. Children bring honor to the family by being well-behaved, maintaining high academic achievement, and contributing to the needs of the family (Farver, Narang, & Bhadha, 2002).

For Asian Indian adolescents, the adolescent period, as conceptualized in the United States, is not acknowledged. Children continue to remain submissive to their parents even after marriage, employment, and leaving their parents' home. Asian Indian children growing up in the United States are faced with the task not only of transitioning into adulthood, but of forming their identity within Indian and American culture (Segal, 1991). Children, or second-generation immigrants, tend to assimilate into Western culture more than their parents. Therefore, intergenerational conflict and stress can arise in Asian Indian-American families between parents and children (Farver, Bhadha, et al., 2002; Farver, Narang, et al., 2002; Ramisetty-Mikler, 1993).

Asian Indian children experience two different cultures when growing up in the United States. At home with their family, they are expected to abide by traditional values and beliefs. On the other hand, at school, they are trying to be accepted by their peers (Segal, 1991). As a

result of these conflicting environments, Asian Indian children may encounter "increased family conflict, heightened anxiety, low self-esteem, and poor school performance" (Farver, Narang, et al., 2002, p. 338). Some salient issues that young Asian Indians encounter growing up include dating, marriage, individualism, obeying their parents, and familial responsibility.

The Acculturation Process for Asian Indian-Americans

Acculturation occurs when one culture comes in contact with another culture (Berry, Trimble, & Olmedo, 1986; Cuéllar, 2000; Farver, Bhadha, & Narang, 2002; Farver, Narang, & Bhadha, 2002; Phinney, 1990). It can be defined as the degree to which an ethnic group is identified with and integrated into the white majority culture. In regards to the present review, acculturation involves Asian Indians adopting the beliefs and values of American culture. Phinney (1990) states that ethnic identity and acculturation are related concepts, "in which the concern is with individuals and the focus is on how they relate to their own group as a subgroup of the larger society" (p. 501). They are distinct concepts as well. Acculturation focuses on behaviors and values, whereas ethnic identity emphasizes identification with a group. In a linear model of ethnic identity and acculturation, a strong ethnic identity corresponds with low acculturation to mainstream society and a low ethnic identity corresponds with a high degree of acculturation. The two-dimensional model of acculturation suggests four possible outcomes instead of two. Berry et al. (1986) identified four possible outcomes: (a) strong identification with both groups signifies integration or biculturalism; (b) identification with neither group signifies marginality; (c) identification only with the majority culture signifies assimilation; and (d) identification only with one's own ethnic group signifies separation. Those who fall in the marginalized category are thought to be more susceptible to psychological and adjustment disorders as compared to those who are integrated, assimilated, or separated (Cuéllar, 2000).

Those with an integrated style of acculturation are thought to have more positive psychological outcomes (Berry et al.)

Farver, Narang, et al. (2002) assessed acculturation, ethnic identity, and family conflict of 180 (99 girls, 81 boys) Asian Indian adolescents born in the United States with one of their immigrant parents (149 mothers, 31 fathers) living in the Los Angeles metropolitan area. Participants were recruited from Asian Indian student clubs, Asian Indian organizations, and high schools in communities with a high Asian Indian population. In order to measure acculturation, Farver, Narang, et al. adapted the Acculturation Rating Scale for Mexican Americans-II (ARSMA-II; Cuéllar, Arnold, & Maldonado, 1995) to use with Asian Indians by changing the word Mexican to Asian Indian. The scale consists of 30 items with two subscales: cultural orientation to Asian Indian culture (17 items) and Anglo culture (13 items). This is a limitation to the study because the construct validity of the ARSMA-II for Indian populations has not been determined. Any conclusions drawn from the data are difficult to interpret because it is unclear if the authors were actually able to measure acculturation of Asian Indians with this instrument. Instead, the authors could have used an acculturation instrument that has been normed for use with Asian populations such as the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Rickard-Figueroa, Lew, & Vigil, 1987). The 20-item Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) was used to measure ethnic identity. Four dimensions of ethnic identity were assessed: positive ethnic attitudes and sense of belonging; ethnic identity achievement, including both exploration and resolution of identity issues; ethnic behaviors or practices; and other-group orientation (Phinney, 1992). Family conflict was measured with the Issues Checklist (Prinz, Foster, Kent, & O'Leary, 1979), which assesses the frequency of discussions of 44 issues that may arise in home life (e.g., telephone calls,

homework). Adolescents were also administered the State-Trait Anxiety Inventory modified for children (Spielberger, Gorsuch, & Lushene, 1970) and the Self Description Questionnaire (Marsh, Parker, & Smith, 1983) to measure anxiety and self-esteem, respectively. The State-Trait Anxiety Inventory consists of 20 items, which the participants rated on a 3-point Likert scale. The Self Description Questionnaire consisted of 20 items that were rated as true or false. This measure gives a global self-esteem score, as well as scores for physical appearance and social behavior. Farver, Narang, et al. found higher levels of conflict in families in which the parents had a separated or marginalized acculturation style. They also found that adolescents who had an integrated or assimilated acculturation style reported higher self-esteem than adolescents who had a separated or marginalized acculturation style. However, given the sample used in the study, the results may not be generalizable outside of educated, middle class Asian Indians in Los Angeles. Because of the ethnic diversity in Los Angeles, it is very easy for immigrant populations to continue to buy items from their homeland, retain their language, and socialize solely within their own ethnic group. Cities such as Los Angeles and New York City are unique because the largest Asian Indian communities reside there, which allows them to recreate their culture in those cities. In addition, it was problematic that many more mothers than fathers were included in the study because the acculturation process for Asian Indian-American women and men may be very different.

Based on their findings and on current research on acculturation attitudes and psychological functioning, Farver, Narang, et al. (2002) believe that integration is the preferred mode of acculturation for Asian Indian parents and their adolescents in order to have a healthy family and healthy psychological functioning. Farver, Bhadha, et al.'s (2002) study on acculturation and psychological functioning provided evidence to support Farver, Narang, et al.'s

belief. Farver, Bhadha, et al. examined 85 (45 girls, 40 boys) Asian Indian adolescents born in the U. S., as well as one of their immigrant parents (70 mothers, 15 fathers). Participants were recruited in an identical manner as in Farver, Narang, et al.'s study. All participants individually completed questionnaires about family demographic information, self-identification, acculturation, and religiosity. Acculturation was measured by modifying items from the Bicultural Involvement Questionnaire (Szapocznik, Scopetta, Kurtines, & Aranalde, 1978) to account for cultural and linguistic differences in the Asian Indian culture. To measure religiosity, the authors used six statements that were similar to a longer religiosity measure used by Antosz (1990). The adolescent participants also completed the Adolescent Self-Perception Profile (Harter, 1993) to assess self-esteem, which consists of 45 statements rated on a 4-point Likert scale. The following eight variables were produced from the Adolescent Self-Perception Profile and used in the analyses: scholastic competence, social acceptance, athletic competence, physical appearance, romantic appeal, conduct morality, close friendships, and self-worth. They found that Asian Indian-American adolescents with an integrated acculturation style scored higher on the self-perception profile than separated or marginalized adolescents. The authors found differences between the male and female adolescents. Studies, across different cultures, have shown that women tend to be more identified with their home country than men, which has been attributed to socialization differences between males and females (Farver, Bhadha, et al.). Thus, based on past research, Farver, Bhadha, et al. believed that the acculturation mode of separation, rather than assimilation or integration, would be more likely to occur among first or second generation adolescent girls, who are reared by immigrant parents from traditional cultures like India. Rather, they found that adolescent females were more likely to have a marginalized style as compared to males, who were more likely to have an integrated acculturation style. In

other words, these females did not involve themselves with either culture, which suggests that they may be more susceptible to psychological and adjustment disorders as mentioned previously (Cuéllar, 2000; Farver, Bhadha, et al.). Thus, the acculturation period for Asian Indian-American women may be more stressful than for Asian Indian-American men. However, the results of Farver, Bhadha et al.'s study should be interpreted with caution because the limitations of their study are similar to the limitations in Farner, Narang, et al.'s study in regards to methodology and the instruments used to measure particular constructs.

Psychological Concerns Among Asian Indian-Americans

Kar, Campbell, Jimenez, and Gupta (1995/1996) surveyed 264 first generation parents and 225 second generation college students. Participants for the study were recruited in two ways. The parent participants were recruited by printing questionnaires in *India West*, a weekly publication for Asian Indians in California. The parents were asked to complete the questionnaires anonymously and return them to the senior author of the study, with the possibility of receiving a cash reward of either $100 or $200. The questionnaires for the student population were distributed at Indian student associations on several campuses in Southern California. The authors used separate questionnaires for the parent participants and college students. Both questionnaires consisted of over 115 items that assessed the following: "(1) socio-demographic background including immigration history, (2) acculturation, identity, and assimilation, (3) quality of life, life satisfaction, and aspirations and concerns, (4) health status, risks and behavior, (5) intergenerational dynamics and areas of conflicts and congruence, (6) health care utilization, and (7) communication and social participation" (p. 29-30). The questionnaires consisted of items taken from various measurements such as a life quality scales (McDowell & Newell, 1987; Robinson & Shaver, 1991), the Self Anchoring Striving Scale

(Cantril, 1965), acculturation items (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987; Padilla, 1980), and items from the Center for Disease Control's Behavioral Risk Factor Surveillance System. There were a number of problems with the authors' methodology. First, their sample was a convenience sample which may not have been representative of the population that they were trying to study. Second, the participants may have encountered language barriers or difficulty answering the long questionnaires that they were given. Third, the questionnaires that the authors used were not reliable, valid, or normed to use with Asian Indian populations. Results indicated that although Asian Indian-Americans have a high socioeconomic status, they experience concern surrounding identity issues, assimilation issues, intergenerational conflicts, gender-role conflicts, and interracial conflicts. The researchers also found that the students suffered from a high level of psychological distress. Specifically, psychological distress and depression were twice as high among the college students than among the parents.

In Kar et al.'s (1995/1996) study, intergenerational conflict and psychological distress occurred in response to the differences in values between parents and students regarding dating/marriage preferences of the students. The female college students reported dating preferences as the primary source of conflict with their parents significantly more than male students. Likewise, the female college students reported marriage preferences as the primary source of conflict with their parents twice as frequently as males. Asian Indian-American parents tend not to view dating and marriage as an individual responsibility or personal freedom of choice. When raising their children, Asian Indian-American parents attempt to control dating practices and uphold traditional gender roles, with stricter rules for adolescent girls as compared to boys (i.e., a double standard). In India, males are usually allowed more independence, personal autonomy, and educational opportunities than females (Farver, Bhadha, et al., 2002). In

addition, Asian Indian parents may watch their daughters more closely than their sons. There may be added pressure for women to marry another Indian because they hold the responsibility of preserving the natal country's traditions (Dasgupta, 1998).

Dasgupta (1998) examined gender equality, dating practices, and intergenerational conflict among Asian Indian immigrants and their second-generation children. Participants in Dasgupta's study included 46 families from New York, New Jersey, and Connecticut. The sample consisted of 43 fathers (all employed) and 41 mothers (most employed, 10 housewives) who were not born in the United States, as well as 29 sons and 34 daughters (all but one were students) of which 55% were foreign-born. Dasgupta's participants were given three questionnaires including the short version of the Attitudes Toward Women Scale (AWS; Spence, Helmreich, & Stapp, 1973), a dating scale (DAT; Bardis, 1962), and the Institute for Personality and Ability Test, Anxiety Scale (IPAT; Cattell & Scheier, 1961). The AWS consists of 25 questions rated on a 4-point scale. Dasgupta reported that the test had been shown to have face validity for Asian Indian populations and has been used in Asian Indian populations. The DAT assesses an individual's acceptance of dating. It has not been used previously with Asian Indian populations. The Anxiety Scale of the IPAT has been used with Asian Indian populations in India, but not with Asian Indian immigrant populations outside of India. Dasgupta also used dialogue from discussions at parent-youth forums held in New Jersey in 1992 as part of her qualatative analysis. Dasgupta found that the children born in the U. S. had more liberal views regarding women's societal roles than the children born in India. She also found that dating practices were a significant source of intergenerational conflict between parents and children. Results indicated that in Asian Indian-American families, mothers and daughters had

significantly higher anxiety levels than their male counterparts. This finding provides evidence of increased psychological distress that Asian Indian-American women encounter.

There are clear gender role differences between Asian Indian males and females that derive from ancient Confucian doctrines. According to the doctrine, women have three paths: "first she must be subject to her father, then to her husband, and then to her son" (Ibrahim et al., 1997, p. 38). The domain outside of the home is taken care of by the men, and the domain inside of the home is taken care of by the women. Conflict and stress can arise when women reject these male cultural values. Conflict and stress can also arise when women of different developmental stages live within one family/home. Furthermore, an Asian Indian woman living in the United States may view herself more liberally as compared to how she may view herself if she was living in India.

In addition to low self-esteem, heightened anxiety, familial conflict, and gender role conflict, the pressure to conform to American standards may result in the development of eating disorders in Asian Indian-American girls. For these girls, demands to achieve impossible standards of physical beauty may come from western culture as well as from internalized pressure from the Indian community (Ahmed, 1999). Other sociocultural factors may affect the development of eating disorders in Asian Indian-Americans as well. According to Katzman and Lee (1996), the transition period (e.g., changing social classes, countries, gender roles) for women may result in eating disturbances as a means of coping with the disengagement occurring when an individual loses her original community with whom she identifies.

For years, the study of eating disorders (EDs) focused primarily on Caucasian women, and many believed that EDs rarely existed among minorities (Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000). Studies such as Cachelin et al.'s have found that EDs among college

women are equally prevalent or more frequent among racial groups including Asian Americans (Dolan, Lacey, & Evans, 1990; Haudek, Rorty, & Henker, 1999; le Grange, Stone, & Brownell, 1998; Mumford, Whitehouse, & Platts, 1991; Sanders & Heiss, 1998). In her review of literature on body image and eating disorders among Asian and Asian-American women, Hall (1995) also concluded that women, specifically those of color furthest from the Caucasian-European-American ideal, are more susceptible to low self-esteem, poor body image, and EDs because they differ from the Caucasian-European-American ideals of beauty. They are a group worth further study in the area of EDs.

Eating Disorders in the United States

In the late 1960s, there was a rise in anorexia nervosa (AN) in Western societies, with the disorder occurring mostly in middle to upper class females. In the 1970s, bulimia nervosa (BN) became more prevalent along with AN. Currently, according to a sociocultural explanation, the value that American culture places on thinness coupled with the media's portrayal of a thin physique as the ideal body type has led EDs to affect a much wider population (Polivy & Herman, 2002).

After conducting a review of the literature on EDs, Polivy and Herman (2002) found that EDs may develop in response to coping with identity and personal control problems and that body dissatisfaction played a significant role in causing EDs. Polivy and Herman posed the following question, "Why is it that of two dissatisfied people, one throws herself into (usually futile) attempts to achieve a satisfactory body, whereas the other remains dissatisfied but does not diet/starve, binge, or purge?" (p. 199). The difference is that one of these people may answer their identity and control problems by obsessing over their body dissatisfaction. A patient may use their ED as a way of achieving meaning, coherence, and emotional fulfillment in their lives.

Others may attempt to establish control over their lives by controlling their eating, weight, and shape because they have not been able to achieve this control elsewhere in their lives.

In addition to sociocultural factors and body dissatisfaction, familial influences play a part in the etiology of EDs. Polivy and Herman (2002) stated that ED patients may be reinforced with praise for their slenderness and self-control by friends and family, which may perpetuate the disorder. Family dynamics may not only perpetuate EDs, but may also contribute to their development. Families of eating disordered patients have been described as "enmeshed, intrusive, hostile, and negating of the patient's emotional needs or overly concerned with parenting" (Polivy & Herman, p. 194). Adolescents who believe that their families communicate poorly, their parents do not care about them, and their parents do not have high expectations of them, as well as adolescents who have reported physical or sexual abuse are at an increased risk for developing EDs (Haudek et al., 1999). In addition, people with EDs tend to describe their families as critical and controlling. A mother's critical comments on her daughter's appearance may further perpetuate her daughter's ED pathology. Also, if a mother herself has an ED, this may negatively impact her daughter's development. For example, the mother might feed her daughter irregularly, use food for other than nutritional purposes, and make comments about her daughter's weight. However, it is unlikely that familial factors alone can contribute to the development of EDs (Polivy & Herman, 2002).

An extensive amount of research has been conducted on EDs in Caucasians. However, the etiology of EDs is not conclusive, and the literature suggests that they may result from a combination of factors (Polivy & Herman, 2002). Aspects such as sociocultural factors, family factors, negative affect, low self-esteem, and body dissatisfaction contribute to the development of EDs. The degree to which each factor plays a role needs to be researched further. Moreover,

the degree to which each factor plays a role in the development of EDs in minority populations needs to be researched to a greater extent.

Disordered Eating Among Asian-Americans

Research findings in the area of disordered eating among Asian-Americans are conflicting. Some studies have found virtually no significant differences in ED symptomatology among various racial groups such as Hispanic, Asian, Black, and White (Cachelin et al., 2000; le Grange, Stone, & Brownell, 1998; le Grange, Telch, & Agras, 1997; Ratan, Gandhi, & Palmer, 1998). However, some studies have found that Asian-American college women reported lower levels of disordered eating, dieting behaviors, attitudes, and body dissatisfaction than white college women (Akan & Grilo, 1995; Mintz & Kashubeck, 1999; Nevo, 1985). On the other hand, some studies have found that Asian-American college women have higher levels of eating disordered attitudes and symptomatology than their Caucasian counterparts (Dolan, Lacey, & Evans, 1990; Haudek, Rorty, & Henker, 1999; Mumford, Whitehouse, & Platts, 1991; Sanders & Heiss, 1998).

Studies With No Differences Among Racial Groups

In order to examine disordered eating, acculturation, and treatment-seeking, Cachelin et al. (2000) examined a community sample of 118 women with disordered eating and 118 women with no history of eating disorders. Each of the two groups consisted of 49 Hispanic, 21 Asian, 23 Black, and 25 Caucasian participants (ages 18 to 44) recruited by flyers posted in the urban Los Angeles area. Participants were matched on age (mean age of total sample = 27.1 years) and education level (mean education of total sample = graduated from a two-year college). The mean Body Mass Index (BMI = weight in kg/height in m^2) for the total sample was 26.5. The Black participants were significantly heavier than the other three racial groups, the Hispanic

participants were significantly heavier than the Asian participants, and the disordered eating women had significantly higher BMIs than the control group. In order to control for the differences in BMIs, the variable was entered as a covariate in the statistical analysis. Eating and weight-related behaviors, psychiatric symptoms, acculturation, and health care utilization were assessed by interviews conducted by a trained interviewer. In the interview, each participant was asked questions from the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993), questions from the General Health Questionnaire (GHQ; Goldberg, 1978), asked questions about the basic components of acculturation, and given the Health Care Utilization Questionnaire (HCUQ; Striegel-Moore, Pike, & Wilfley, 1995) to assess the above mentioned constructs, respectively. The authors did not describe the instruments used in the study and did not report reliability or validity for the instruments to be used with the above-mentioned ethnic groups. The authors noted that the interview was originally used as a screening tool for a study of risk factors for binge eating disorder in white and black women, entitled the New England Women's Health Project (Striegel-Moore, Wilfley, Pike, Dohm, & Fairburn, 1999). Although the interview may have been used with black and white participants, it does not seem to have been previously used with Asian or Hispanic individuals. The authors found that in the eating disordered group, all four racial groups were equally likely to present the symptoms of BN, AN, binge-eating disorder, and eating disorder not otherwise specified. Also, the women in the eating disordered group reported a high level of psychological distress. Despite their distress, only 19% of them had received treatment for their eating problems in the past year. Specifically, in the eating disordered group, less acculturated participants were less likely to have received treatment. Furthermore, the authors found that the eating disorder group was more acculturated than the control group. This finding was significant across all four racial groups. Thus, the

authors concluded that more acculturated women are more likely to suffer from eating problems, which provides support for the notion that "perfecting one's body to meet Western ideals may be a means of acculturating to societal values" (Cachelin et al., p. 250). Threats to external validity exist in this study. First, about half of the white group had parents who were foreign-born, so the white samples were not representative of those typically studied in research on eating disorders. Thus, the results of the study are not generalizable beyond the urban Los Angeles area with a high immigrant population. The external validity of the study could have also been enhanced if participants with a wider range of acculturation levels were included. Cachelin et al. concluded that the participants who responded to their flyers "were fluent in English and therefore fairly acculturated" (p. 250). The researchers did not report the actual range of acculturation levels of the participants. The authors' assumption about level of acculturation was not accurately measured. The authors' assessment of acculturation could have been improved by using a reliable and valid measure of acculturation, rather than asking a few questions related to the construct. In Cachelin et al.'s study, acculturation was only measured by language, country of birth, and parents' country of birth.

In a study on eating disorders in British Asians, Ratan et al. (1998) examined 21 females and one male diagnosed with an eating disorder. The Asians in their study were defined as people with a background in the Indian subcontinent. The 21 cases included in the study were referred from the Leicestershire Eating Disorders Service in the United Kingdom over a period of 10 years (July 1984 through June 1994). Their case records were studied and diagnoses were made according to the third edition and the third revised edition of the *Diagnostic and statistical manual of mental disorders* (DSM-III, DSM-III-R; American Psychiatric Association [APA], 1980, 1987) and the tenth edition of the *International classification of diseases* research criteria

(ICD-10; World Health Organization, 1993). Based on the cases reported over the 10 years, the authors estimated that British Asians present with AN about one fifth as frequently as the white population and with BN about one third as frequently as the white population. Dolan (1991) provided several reasons why case incidence studies such as Ratan et al.'s contain methodological flaws. First, they are likely to underestimate prevalence rates because they only record numbers who seek treatment at a medical/psychiatric facility (e.g., the Leicestershire Eating Disorders Service). Second, the studies do not account for those who are suffering from eating disorders but do not seek treatment. Third, different ethnic groups may seek modes of treatment other than traditional services. For example, Asian Indians may seek treatment through such avenues as family support, Ayurvedic physicians, acupuncturists, or herbalists (Durvasula & Mylvaganam, 1994). Overall, Ratan et al. concluded that, based on the size of the Asian population in Britain, eating disorders occur regularly in British Asians. They also concluded that Asians with eating disorders resembled their Caucasian counterparts in age and clinical characteristics.

Le Grange et al. (1998) investigated binge eating and purging among white, black, Asian, and Hispanic female dieters. The authors obtained their sample by recruiting subscribers of *Consumer Reports* magazine. The total sample consisted of 9,971 (9,227 white, 397 Asian, 222 black, 125 Hispanic) females ranging in age from 21 to 65 years old, with a mean of 42.9 years (SD = 10.4). Over 65% of the participants were currently trying to lose weight, and the mean BMI of the sample was 27.2 (SD = 6.2). There are methodological limitations to this study. The sample was a convenience sample and was not representative of the U.S. population. For example, the total sample had a high income and high education level, which was above the median income and educational level for U.S. women at the time the study was conducted (U.S.

Bureau of Census, 1997). Even though the authors were able to recruit a large sample, it was unbalanced, with a much larger number of white participants (92.5% of total sample) as compared to the Asian, Black, and Hispanic groups (4.0%, 2.2.%, 1.3%, respectively of the total sample). Le Grange et al. measured binge eating and purging, attitudes about weight and appearance, reasons for weight gain, and self-esteem using questions from the EDE (Fairburn & Cooper, 1993) that pertained to their study. They also used the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) which consists of 10 items and is used to measure overall self-esteem. However, the authors did not report whether it is reliable and valid to utilize only selected questions from the EDE. To account for differences in the participants' BMIs, age, household income, and marital status, these variables were entered as covariates. Of the total sample, 13% met the criteria in the fourth edition of the *Diagnostic and statistical manual of mental disorders* (DSM-IV; APA, 1994) for binge eating disorder, 41% reported binge eating in the past 6 months, and 12% (19 blacks, 17 Hispanics, 12 whites, and 10 Asians) reported purging in the previous 6 months. Some participants also reported a history of a diagnosed eating disorder (i.e., AN or BN). There were no significant differences between prior rates of AN or BN among the four racial groups (AN = 98 white, 3 Asian and BN = 4 black, 154 white, 5 Asian, 1 Hispanic). Overall, the racial groups did not significantly differ in binge eating, attitudes about weight and appearance, self-esteem, the number of attempts to lose weight, and the reasons for their weight loss failures. Many of the women engaged in unhealthy behaviors to attempt to lose weight, and level of self-esteem was related to weight. Self-esteem was highest when participants were at their lowest weight, and self-esteem was lowest when participants were at their heaviest weight. The authors concluded that dieters from different racial backgrounds practice similar unhealthy eating attitudes and practices.

In their study on eating disorder symptomatology and general psychopathology, le Grange et al. (1997) investigated whether minority women differed from their Caucasian counterparts on these constructs. The authors examined a total of 149 women: 32 (23 Caucasian, 9 minority) women with BN diagnosed according to the criteria in the DSM-III-R (APA, 1987), 59 (41 Caucasian, 18 minority) women with binge eating disorder diagnosed according to the criteria in fourth edition of the (DSM-IV; APA, 1994), and 58 (45 Caucasian, 13 minority) overweight women without a current or past eating disorder. The racial breakdown of the participants was 73% Caucasian, 15% Hispanic, 7% African-American, 3% Asian, and 1% Native American. In sum, there were 40 minority participants (26.8%) and 109 Caucasian participants (73.2%) included in the study. First, participants were administered the Structural Clinical Interview for the DSM-III-R (SCID; Spitzer, Williams, & Gibbon, 1987) conducted by doctoral and masters level psychologists trained in administering the SCID. The SCID was used to assist in making diagnoses and collecting demographic and historical information about the participants. Also, in order to assist in making a diagnosis, the participants completed the Questionnaire on Eating and Weight Patterns (QEWP-R; Spitzer et al., 1992). The QEWP-R assesses the components, duration, and frequency for the criteria for binge eating disorder as cited in the DSM-IV (APA, 1994). The authors measured eating disorder pathology with the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994), the Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985), and the Emotional Eating Scale (EES; Arnow, Kenardy, & Agras, 1995). The EDE-Q is a 38-item self-report questionnaire that is derived from the EDE (Fairburn & Cooper, 1993). The EDE-Q consists of four subscales: restraint, weight concerns, shape concerns, and eating concerns. The TFEQ is a 54-item questionnaire used to measure restraint, disinhibition, and hunger. The EES is a 25-item

instrument, consisting of three subscales (anger, anxiety, and depression), used to measure participants' responses to negative affective states by eating. The authors measured general psychopathology with the RSE (Rosenberg, 1965), the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and the Symptom Checklist-90 (SCL90; Derogatis, Lipman, & Covi, 1973). The Beck Depression Inventory is a 21-item self-report instrument used to measure depressive symptomatology (e.g., non-depressed, mild, moderate, severe). The SCL90 is a 90-item self-report instrument used to measure symptomatic behavior of psychiatric outpatients. The test generates a General Symptomatic Index which reflects overall distress. The authors found that the BN participants were significantly younger and had significantly lower BMIs than the binge eating disorder group and the overweight/no eating disorder group. Similar to Ratan et al. (1998) and le Grange et al. (1998), le Grange et al. (1997) did not find any differences between the Caucasian and minority participants in their study. The racial groups were similar in regards to demographic characteristics, eating disorder symptomatology, and general psychopathology. A possible limitation to this study is that the authors combined the racial minority groups into one category, which is not typical in research on minorities and eating disorders. Although they had a low number of minority participants in their study, the authors still concluded that because no racial differences were found, eating disorder treatments may not need to be modified for minority patients.

Studies of Asian-Americans With Lower Levels of Eating Disorder Symptomatology as Compared to Caucasians

In contrast to the above-reviewed studies, Akan and Grilo (1995) concluded that weight, eating behaviors and attitudes, and body dissatisfaction are influenced by cultural factors. They suggested that treatments for eating disorders need to consider racial differences and variability.

They examined eating attitudes and behaviors, body image, and psychological functioning (e.g., self-esteem, self-consciousness) in 98 female college students (36 African-Americans, 34 Asian-Americans, and 28 Caucasians). The authors also examined the relationship between these constructs and sociocultural factors (e.g., acculturation). The three groups had mean BMIs of 23.57 (SD = 3.98), 21.03 (SD = 1.91), and 21.57 (SD = 2.38), respectively. The African-American group had significantly higher BMIs than the other two groups. Participants were recruited from campus-based organizations at a New England university. There were problems with Akan and Grilo's participant recruitment process. A selection bias may have occurred which is a threat to the internal validity of the study. The authors stated that their participants from the New England university were primarily from middle to upper socioeconomic classes, so the results of their study may not be generalizable beyond middle to upper socioeconomic groups outside of New England. To assess psychological functioning, the participants were administered two of the three scales of the Self-Consciousness Scale (SCS; Fenigstein, Scheier, & Buss, 1975) and the RSE (Rosenberg, 1965). The authors did not report reliability and validity values when only using two of the subscales of the SCS. To assess eating attitudes/behaviors, the participants were administered the Eating Attitudes Test (EAT; Garner & Garfinkel, 1979), the Goldfarb Fear of Fat Scale (GFFS; Goldfarb, Dykens, & Gerrard, 1985), Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Wilson, 1993), the Physical Appearance Related Teasing Scale (PARTS; Thompson, Fabian, Moulton, Dunn, & Altabe, 1991), and the Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987). The EAT is a 40-item self-report measure of eating/dieting behavior and attitudes related to eating disorders, rated on a 6-point Likert scale. The GFFS is a 10-item self-report scale measuring the fear of becoming fat. The PARTS is an 18-item instrument designed to measure

the frequency of being teased through childhood and adolescence. It has two subscales including Weight/Size and Teasing (WST) and General Appearance Teasing (GAT). The BSQ is a 34-item instrument designed to measure attitudinal body dissatisfaction. To assess acculturation, the black participants were given the Black Racial Identity Attitudes Scale (RAIS-B-short form; Helms, 1990) and the Asian participants were given the SL-ASIA (Suinn, Rickard-Figueroa, Lew, & Vigil, 1987). The authors described the RAIS-B-short form as a 30-item acculturation measure of attitudes related to racial identity. However, acculturation and racial identity are two separate constructs that the authors should not use interchangeably. The SL-ASIA is a 21-item measure of Asian-American behaviors. Higher scores on this test indicate acculturation to Western culture. The results indicated that, in all racial groups, lower self-esteem and high public self-consciousness were associated with higher levels of eating problems, behaviors, and attitudes, as well as body dissatisfaction. The African-American group had significantly higher self-esteem scores, as measured by the RSE, than the other two groups. The authors did not find any relationship between acculturation and eating-related variables. The Caucasian sample reported higher levels of disordered eating, dieting behaviors/attitudes, and body dissatisfaction than the other two racial groups, and the African-American and Asian samples did not differ from each other on these variables.

Nevo (1985) collected data on bulimic behaviors and examined ethnic/racial differences among 505 Caucasian, 148 Asian, 25 Black, and 11 women of unknown ethnic/racial identity. The total sample were administered an “Eating Habits Questionnaire,” which consisted of the Bulimia Diagnostic Instrument (BDI) and three open-ended questions. The BDI is a 16-item instrument with a 4-point rating scale. Items on the scale were categorized into three subscales assessing binge eating, diet-purge, and weight concern. It was unclear whether Nevo developed

this scale or if it was a previously established scale. She found the internal reliability to be .90 (Cronbach alpha) for the BDI in the total sample. Nevo was unable to include the Black and unknown participants in the analysis of racial and ethnic differences because of the small sample sizes. She used a cutoff score of 26 on the BDI to define bulimia and 11% of the total sample (70 Caucasian, 5 Asian-American, 1 not listed) scored above this cutoff point. Nevo found that Asian-American college women score lower on measures of binge eating, dieting, and weight concern than white college women. Nevo used the questionnaire to decide which participants to further study and to categorize the remaining participants into the following four groups: Bulimic, Snacking Overweight, Non-Snacking Overweight, and Sensible Eaters. After the selection process (102 Caucasians were selected), 32 women were included in the Bulimic group (65.6% normal weight, 6.3% were 10-15% overweight, and 28.1% were over 15% overweight); 19 were included in the Snacking Overweight group (15-45% overweight, high snackers, and not diagnosed with BN) and 15 were included in the Non-Snacking Overweight group (15-45% overweight and not diagnosed with BN); and 36 women were included in the Sensible Eaters group (all of normal weight). These four groups were also given an Eating Patterns Measure, which defined four eating patterns: binge eating, snacking, overeating at meals, and sensible eating on a 5-point rating scale. It was also unclear whether Nevo developed this measure or if it was previously established. Nevo did not provide a reason why she did not include any of the Asian-American participants in the latter part of her analysis. Overall, Nevo concluded that binge eating, dieting, and weight concern are very prevalent among college women. She found prevalence rates of BN that ranged between 4.6 and 11% of the total sample and between 6 and 14% in the Caucasian sample. Given the limitations of Nevo's methodology and instruments, the practical significance of this study should be interpreted with caution.

Mintz and Kashubeck (1999) examined gender differences in body image and disordered eating within and between races among Asian-American and Caucasian college students. Participants included 114 men and 138 women enrolled in an introductory psychology class at a large, private university on the West Coast. The sample was comprised of 185 Caucasians (80 men, 105 women) and 67 Asian-Americans (34 men, 33 women). The authors assessed weight control strategies by administering items from Mintz and Betz's (1988) version of Ousley's (1986) Weight Management, Eating, and Exercise Habits Questionnaire (WMQ). The authors used 10 items on a 5-point Likert scale pertaining to the frequency of behaviors that individuals partake in to reduce and/or control their weight. They found the two-week test-retest reliability to be .58 to 1.0. To assess for binging behavior, the authors used two items from the WMQ that were related to behaviors associated with gaining weight. The authors also used six items from the WMQ that were related to the use of exercise to control weight. The reported two-week test-retest reliability for these six items ranged from .62 to .96. The authors assessed body satisfaction by administering the Body Parts Satisfaction Scale (BPSS; Bohrnstedt, 1977). The BPSS is a 24-item instrument used to assess individuals' feelings toward their various body parts such as the face, upper thighs, hips, and abdomen. The authors used a question from Mintz and Betz's (1988) Supplemental Body Image Questionnaire (SBIQ) to assess accuracy in perception of weight, as well as five other items from the SBIQ to assess weight concerns, appearance concerns, participants' perceptions of the impact of weight and appearance on aspects of life. The authors administered two measures of self-esteem including the RSE (Rosenberg, 1965) and one item from the SBIQ. The item from the SBIQ asked participants to rank seven potential sources of self-esteem. Mintz and Kashubeck did not report reliability and validity values for the SBIQ. Furthermore, they did not report reliability or validity values for their abbreviated version

of the SBIQ. Participants completed the questionnaires, in a counterbalanced order, in groups of 20 to 45 people. The results indicated that there were significant gender differences. Both groups of women were more concerned with their weight and experienced more body dissatisfaction than their male counterparts—the men in both groups actually wanted to gain weight. The women also perceived themselves to be heavier than they actually were, whereas the men were more accurate in their perceptions of themselves. No racial differences were found for the males. However, significant differences were found between Caucasian and Asian-American women. Specifically, Caucasian women reported higher levels of dieting and binging behaviors than Asian-Americans, and Asian-American women reporting lower self-esteem and more dissatisfaction with their racially defined features than their Caucasian counterparts.

Studies of Asian-Americans and British-Asians With Higher Levels of Eating Disorder Symptomatology as Compared to Caucasians

One reason that some studies have found more eating disorder symptomatology among Caucasians than among Asian-Americans is because they do not control for the effects of BMI (Akan & Grilo, 1995; Nevo, 1985). Gluck and Geliebter (2002) found different results before controlling for BMI, which led them to conclude that BMI is a relevant variable that should be included when comparing racial groups. In their study, Gluck and Geliebter examined racial differences in body image and eating behaviors among 108 Caucasian, 46 African-American, and 40 Asian-American female college students. Participants were recruited from dormitories and campus organizations at an Ivy League University in the northeast, ranging in age from 15 to 33 years with a mean of 20.0 years (SD = 1.7). Participants were administered a questionnaire consisting of demographic questions, the Figure Rating Scale (FRS; Stunkard, Sorensen, & Schulsinger, 1983), the Eating Habits Questionnaire (EHQ; Coker & Roger, 1990), and the

Hollingshead scale (Hollingshead & Redlich, 1958). The FRS contains nine female silhouettes ranging in size from very thin to overweight. Participants were required to indicate which silhouette most looked like their current body size and which one looked like their ideal body size. Body discrepancy was calculated by measuring the difference between current and ideal body size. The EHQ is a 57-item instrument that assesses a range of eating disorder symptomatology. It consists of true/false questions with three factors including concern with weight and dieting, restrained eating, and overeating. The Hollingshead scale assesses socioeconomic status based on parental occupation and education. Based on their self-reported heights and weights, the authors calculated BMIs for the participants and grouped them into five categories—underweight (BMI < 18.5), low-normal (BMI = 18.5 to 21.7), normal (BMI = 21.8 to 24.9), overweight (BMI = 25 to 29.9), and obese (BMI $\geq$ 30), according to the classification of the National Heart, Lung, and Blood Institute (NHLBI; World Health Organization, 1997). Although African-Americans had a significantly lower socioeconomic status than the Asian-Americans and Caucasians, it was not a significant covariate so it was not entered into the ANCOVA analysis. The BMIs of the participants ranged from 17.2 to 39.6 with a mean BMI of 21.7 (SD = 3.0). According to the NHLBI guidelines, 6% were underweight, 85% were normal weight (55% low-normal and 30% high-normal), and 7.5% were overweight, and 2% were obese. The mean BMIs for the Caucasian, African-American, and Asian-American groups were 21.7 (SD = 2.0), 20.4 (SD = 1.7), and 23.6 (SD = 4.8), respectively. The authors found that over half of the participants (55%) thought that they were overweight, and all racial groups experienced body image distortion. Gluck and Geliebter originally found that Caucasian undergraduate females had greater body discrepancy and eating pathology than their Asian-American and African-American counterparts. After controlling for BMI, both Asian-Americans

and Caucasians experienced higher body discrepancy and eating pathology than the African-Americans. Also after controlling for BMI, the differences between the Caucasians and Asians were reduced. Specifically, no differences existed between the two racial groups in regards to body discrepancy and on the individual subscales of the EHQ. For total EHQ scores, before controlling for BMI, Caucasians were the only group to show eating pathology and scored significantly higher than Asians and African-Americans. After controlling for BMI, EHQ scores for the Asians increased and EHQ scores for African-Americans decreased, which resulted in the Asian group scoring significantly higher than the African-American group on eating pathology. Gluck and Geliebter's findings help to explain why inconsistencies exist in the literature about eating disorder symptomatology and body image among different racial groups. However, the authors did not report whether their instruments were normed for use with Asian-Americans and African-Americans so their findings should be interpreted with caution. Furthermore, the generalizability of their study is low, considering that they used college females from a privileged northeastern Ivy League university. The present study plans to include BMI as a potential confounding variable.

Sanders and Heiss (1998) examined eating attitudes and behaviors, fear of fat, and body image among Caucasian and Asian college women ages 18 to 27 years and 18 to 29 years, respectively. The sample was recruited from an introductory nutrition course at Washington State University (WSU). Thus, a selection bias may have occurred, impacting the internal validity of the study. The sample consisted of 91 Caucasian students with a mean BMI of 22.9 (SD = 0.3) and 35 recent Asian immigrants. The mean length of time for the Asian participants living in the United States was 2.3 years (SD = 0.7), and they had a mean BMI of 20.6 (SD = 0.3). The study consisted of 91 Caucasians and only 35 Asians, which is an unbalanced

proportion of participants. If the authors used a matching technique, more Asian participants could have been included in the study. The Asian sample was from the following countries: Hong Kong, Taiwan, China, Japan, South Korea, Singapore, Thailand, and Vietnam. Participants were administered the EAT-40 (Garner & Garfinkel, 1979) to assess for eating disorder symptomatology. Participants were administered the GFFS (Goldfarb et al., 1985) to assess for fear of fat. To assess body dissatisfaction, the authors administered the Body Dissatisfaction subscale from the Eating Disorder Inventory (EDI; Garner, Olmstead, & Polivy, 1983). In order to assess body size perception, the authors used BMI silhouettes from the Canadian Dietetic Association (Whitney & Rolfes, 1996). Participants were shown seven female silhouettes with BMIs ranging from 17 to 35. Participants were asked to select the BMI silhouette that they thought most looked liked their own body as well as the silhouette that they perceived to be ideal. Sanders and Heiss found that their Asian sample possessed similar eating attitudes, behaviors, and body dissatisfaction, but a higher fear of fat as compared to their Caucasian counterparts. The authors proposed that Asian immigrants may be at higher risk of developing eating disorder tendencies and weight preoccupation than their native counterparts, perhaps due to the stress associated with the acculturation process, as well as a loss of self-identity, friends, family, and self-esteem. For example, Asians may judge themselves as unable to attain the body image standards of the new, dominant culture. Due to the sample used, this study is not generalizable to Asian-American women born in the United States. Furthermore, the Asian sample was small and may not have been representative of female Asian college students, especially beyond introductory nutrition courses at WSU. A major limitation to this study is that not all Asian countries are similar in attitudes and values. Sanders and Heiss' study is valuable because the results demonstrate a need for eating disorder awareness programs targeted to female

Asian immigrants, as well as a need for health professionals to be aware that female Asian immigrants may be at a similar risk for developing eating disorders as their Caucasian counterparts.

Haudek et al. (1999) investigated relationships and differences of race, parental bonding, acculturation, and eating disturbance among Asian-American and Caucasian college women who were concerned with their body weight. Their sample consisted of 51 female (25 Asian-American, 26 Caucasian) students from the University of California at Los Angeles enrolled in an introductory psychology class. All participants were of normal weight for their height, with a mean BMI of 22.19 (SD = 3.79) for the Asian-Americans and 21.76 (SD = 2.58) for the Caucasians. Seventy-nine women were first screened with a brief screening questionnaire to determine whether or not they had weight concerns, and those who had the highest weight concerns (score of 7 or higher) were asked to participate in the study. The brief screening questionnaire consisted of two questions on a 5-point Likert scale and one question with a "yes" or "no" answer. Participants were individually administered the EDE (Fairburn & Cooper, 1993) by a trained clinical psychologist. As mentioned previously, the EDE has four subscales: Eating Concern, Restraint, Weight Concern, and Shape Concern. Next, they filled out eight questionnaires, three of which were used in the study: a Demographic and Weight History Questionnaire, three subscales (Drive for Thinness, Bulimia, and Body Dissatisfaction) of the EDI (Garner et al., 1983), and the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979). The Demographic and Weight History Questionnaire was developed specifically for this study. It asked about demographic characteristics, current and ideal weight, and history of dieting. The PBI measures maternal and paternal care (e.g., warmth and nurturance) as well as overprotection (e.g., control). Finally, the Asian-American participants separately completed the

SL-ASIA (Suinn et al., 1987) to assess acculturation. The only difference found on the EDE was on the Shape Concern subscale, with Asian-Americans (Mean raw score = 24.88, SD = 11.64) reporting more shape concern than Caucasians (Mean raw score = 16.62, SD = 11.60). Asian-Americans also scored higher than the Caucasians on two of the three subscales of the EDI, specifically Body Dissatisfaction (Asian-American Mean = 35.08, SD = 8.63; Caucasian Mean = 29.93 $\pm$ 9.44) and Drive for Thinness (Asian-American Mean= 23.12, SD = 8.19; Caucasian Mean = 18.11, SD = 8.90). Significant differences between the two racial groups were also found on the PBI. Specifically, the Asian-Americans perceived their mothers and fathers to be less caring than did their Caucasian counterparts. This finding is relevant because Haudek et al. found lower maternal care to be related to higher scores on the EDE and the subscales of the EDI. The authors ran Pearson correlations between the SL-ASIA and all of the subscales of the EDE and the EDI for the Asian American participants. Level of acculturation was not significantly related to any of the subscales of the EDE and EDI. The authors did not report any levels, or variation of levels, of acculturation of the participants. The authors concluded that, overall, Asian-Americans experienced more body dissatisfaction, more shape/appearance concerns, and a stronger desire for thinness than their Caucasian counterparts. Similar to Sanders and Heiss (1998), Haudek et al. combined different Asian groups into one category, which is a major limitation because not all Asian countries are similar in attitudes and values. In the present study, I plan to address this limitation by focusing on only one Asian group—Indian-Americans. If Haudek et al. had a larger sample size of Asian-Americans, they may have been able to separate them into their respective cultural groups, which also may have increased the generalizability of their study.

Mumford et al. (1991) examined eating disorders among South Asian and Caucasian female adolescent students (ages 14 to 16 years old) in Bradford, England. Participants (204 South Asians and 355 Caucasians) were recruited from four state schools in the Bradford metropolitan area. The ethnic and religious background of the South Asian girls was 88% Muslim, 18% Sikh, and 3% Hindu. The majority of them were second-generation Muslims, with their families originally coming from Pakistan. The participants were administered a packet of questionnaires in their classrooms by their teachers, who were instructed on how to administer the instruments. The following questionnaires were given: a demographic sheet inquiring about personal and cultural information, the Eating Attitudes Test-26 (EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982), and the BSQ (Cooper et al., 1987). Another purpose of the study was to assess the validity of the EAT-26 and the BSQ with female Asian students. The teachers were given a glossary to assist them in answering questions that the participants may have had about the items on the various instruments. Heights and weights of the participants were measured in order to compute accurate BMIs. The mean BMI for the Asian group was 19.6 (SD = 2.9), and the mean BMI for the Caucasian group was 20.3 (SD = 3.0). Because the authors were not aware of a valid and reliable acculturation scale for Asians in Britain, they developed four questions about language, clothing, and food. They validated the acculturation instrument in the pilot study. Garner et al. indicated a critical cut-off score of 20 on the EAT-26 as representative of problem eating behavior. Participants who scored above 20 on the EAT-26 or above 140 on the BSQ were administered the EDE (Cooper & Fairburn, 1987) by two of the authors. It is not clear why Mumford et al. chose to interview those who scored above 140 on the BSQ because there is no designated cut-off score for the BSQ (Dolan et al., 1990). Twenty-two of the 38 Asian girls and 32 of the 44 Caucasian girls agreed to participate in this portion of the study.

The authors then discussed the results and made eating disorder diagnoses according to DSM-III-R (APA, 1987) criteria. Eating disorders were diagnosed as follows: seven Asian girls and two Caucasian girls were diagnosed with BN, one Asian girl was diagnosed with AN, and two Asian girls and four Caucasian girls were diagnosed with an eating disorder not otherwise specified. Although no significant differences were found between the BSQ scores of Asian and Caucasian girls, the Asian girls had significantly higher EAT scores than the Caucasian girls. The authors concluded that Asian girls, most of whom were Pakistani-British, had more concerns about eating and weight than the Caucasian girls. Specifically, within the Asian sample, the more traditional girls had higher scores on the EAT and BSQ than the westernized Asian girls, as measured by Mumford et al.'s acculturation instrument. The authors found the EAT-26 and the BSQ to be valid for use with South Asian populations. However, the authors were not sure whether to recommend the critical cut-off score of 20 with Asians on the EAT-26. They believe that the critical cut-off score may need to be lower with Asians. Because of time constraints, Mumford et al. only invited those who scored above 20 to partake in the EDE and did not interview those who scored below this score. They believed they may have failed to interview some Asian girls with eating disorders. There were a number of limitations of this study, similar to those in the other reviewed studies.

Dolan et al. (1990) also used the EAT-26 (Garner et al., 1982) and the BSQ (Cooper et al., 1987) in their examination of eating attitudes and behaviors as well as concerns about weight and shape among British women from three different racial groups. The sample consisted of 479 British women, of which 365 (79%) were Caucasian, 71 (13.7%) were Afro-Caribbean, and 43 (8.3%) were Asian. The ethnic background of the Asian group was Indian, Pakistani, Sri Lankan, and East African Asian. The mean age of the total sample was 28.2 years old, with the

Asian group being significantly older than the other two groups with a mean age of 31.7 years old. Dolan et al. computed Quetelet indices (weight/height^2), which are similar to BMIs. Mean Quetelet indices for the three groups were 24.2 (SD = 4.4) for the Afro-Caribbeans, 21.9 (SD = 3.1) for the Caucasians, and 23.1 (SD = 4.2) for the Asians. Participants were recruited over a period of three months from a family planning and well-woman clinic in south-west London. While potential participants were in the waiting room, they were approached by Dolan to complete a packet of questionnaires. Dolan had a 97% response rate using this recruitment procedure. The packet consisted of a demographic questionnaire, the EAT-26, the BSQ, and the Hospital Anxiety and Depression Scale (HAD; Zigmond & Snaith, 1983). The HAD is a 14-item instrument used with out-patient hospital populations. It measures the psychological symptoms of anxiety and depression. However, the HAD does not measure the physical symptoms of depression. Similar to Mumford et al. (1991), Dolan et al. did not find significant differences in BSQ scores between the groups but did find that the Asian group scored significantly higher than the Caucasian group on the EAT-26. The same findings were apparent after the authors conducted an analysis of covariance to control for the variables of age and Quetelet index. The authors also found that the Asian group scored higher than the Caucasian group on the Depression subscale of the HAD. No group differences were found on the Anxiety subscale of the HAD, although all groups had high anxiety scores. Also, for all groups, EAT-26 scores correlated positively with BSQ scores, and anxiety subscale scores correlated positively with depression subscale scores. For the Caucasian group, EAT-26 and BSQ scores positively correlated with both subscales of the HAD. For the Afro-Caribbean group, BSQ scores were positively correlated with both subscales of the HAD. However, for the Asian group, there was not a correlation between either the EAT-26 or BSQ and the subscales of the HAD. From their

experiences working with eating disordered patients, the authors expected that depressed mood and high anxiety would be associated with eating disorder symptomatology. This claim was accurate for their Caucasian sample, but not their Asian sample. However, the authors were not sure why this was the case. Several limitations of the study may account for this finding. First, after running factor and reliability analyses, the authors found that the depression subscale had low reliability in the Asian group. Second, Asians tend to manifest psychological distress somatically (Okazaki, 2000). Thus, utilizing a Westernized assessment of anxiety and depression may be problematic with Asians that live in Britain or the United States. Also, Asian Indians believe in Ayurvedic medicine, or holistic theories of health, related to the connection of mind, body, and soul. Therefore, Asian Indians are likely to present physical as well as psychological symptoms (Durvasula & Mylvaganam, 1994). Overall, the authors concluded that all women, regardless of their ethnic background, may suffer from dysfunctional eating attitudes and concern about shape and weight. However, the studies by Ratan et al. (1998), Mumford et al. (1991), and Dolan et al. (1990) were conducted in Britain, so it is difficult to conclude how their findings may generalize to U.S. populations. In addition, the Asian racial group actually consists of multiple ethnic groups and by merging them, one may not be able to understand ethnic differences.

The Relationship Between Acculturation and Eating Disorder Symptomatology Among Asian-Americans

Yoshimura (1995) examined the relationship between age, acculturation, endorsement of the thin beauty standard, and eating disorder symptomatology among Asian-American females with AN or BN. Thirty-one participants who met the DSM-III-R (APA, 1987) criteria for these disorders were included in the study, of which 27 met the criteria for BN and four met the

criteria for AN. The ethnic backgrounds of the participants were: 10 Japanese-Americans, 9 Chinese-American, 6 Korean-American, 4 Filipino-American, and 2 Vietnamese. Eleven were first generation, 7 were second-generation, 9 were third generation, and 4 were fourth generation. The mean age, height, and weight of the participants was 23.1 years (SD = 6), 63.4 inches (SD = 2.4), and 117.6 pounds (SD = 18.0), respectively. The author contacted Asian-American therapists throughout the West Coast and inpatient eating disorder units to recruit participants. She also placed advertisements in university newspapers throughout Southern California and the state of Washington. Potential subjects were screened by the author over the phone to determine if they met criteria for AN or BN. Participants were mailed the following questionnaires in a packet: the EDI (Garner et al., 1983) to assess eating disorder symptomatology, the SL-ASIA to assess acculturation, and the Body Attitude Scale (BAS) to assess endorsement of the thin beauty standard. Another purpose of Yoshimura's study was to establish concurrent validity of the BAS using the participants' scores on the Drive for Thinness subscale of the EDI. The BAS is a 20-item instrument, scored on a 5-point Likert scale. It was adapted from the Body Esteem Scale (Franzoi & Shields, 1984) and used to assess attitudes toward different body parts. It contains 13 items (e.g., thighs, buttocks, hips) from the Body Esteem Scale and 7 new items (e.g., neck, forearms, calves). Participants were asked to return the packet of completed questionnaires by mail and received $15 for participating. Yoshimura did not find a significant relationship between acculturation and eating disorder symptomatology or between acculturation and endorsement of the thin beauty standard. However, there may have been a selection bias in Yoshimura's recruitment process. Because she only recruited from Asian-American therapists, instead of all therapists, she may have obtained a homogenous sample (e.g., acculturation, ethnic identity). Yoshimura did not report the extent of variation in acculturation of her participants.

The quality of Yoshimura's study could have been improved if she had participants with varying modes of acculturation. She acknowledged that a large number of her participants were college students, a group that she believed are presumed to be highly acculturated. She did find a significant relationship between two of the subscales of the EDI (Drive for Thinness and Body Dissatisfaction) and endorsement of the thin beauty standard. However, the relationships involving the endorsement of the thin beauty standard may not be accurate because the validity and reliability of the BAS was not established. Yoshimura found a significant positive relationship between the BAS and the Drive for Thinness subscale, with a correlation of .42. Yoshimura concluded that .42 was not a high enough correlation value to establish concurrent validity, according to Anastasi (1976) who recommends a minimum value of .80. However, according to Nunnally and Bernstein (1994), it is preferable to have a moderate correlation when trying to establish concurrent validity rather than a high positive correlation. A high correlation indicates that the two instruments are measuring the same thing so there would not be a reason to use both instruments. Even if the BAS was valid, Yoshimura did not establish the reliability of the instrument. Furthermore, she did not state why she did not measure reliability. The study could have been improved if Yoshimura established the psychometric properties of her new instrument before conducting the study. Overall, the limitations to Yoshimura's study are similar to those mentioned above for the previously reviewed studies such as difficulty interpreting items, language barriers, and utilizing instruments without norms for Asian-Americans.

Conclusion

In sum, the research in the area of EDs in Asian-Americans is inconclusive. In an earlier review of literature related to eating behaviors and disturbances among minority women, Crago,

Shisslak, and Estes (1996) concluded that there is less disordered eating among Blacks and Asian-Americans as compared to Caucasians and Hispanics. They concluded that minority women who were younger, heavier, better educated, and identified more with white, middle-class values were more likely to develop an ED. However, in a more comprehensive meta-analysis of 35 studies, Wildes and Emery (2001) found that in the majority of the studies, Asian-Americans reported more eating disturbance and body dissatisfaction than their white counterparts, who reported more symptoms than the black samples. The effect sizes were largest when comparing the black and white samples.

Threats to internal and external validity exist in the studies conducted on eating disorder symptomatology among Asian-Americans. For example, internal validity threats exist because participants may not have been matched or controlled on history variables, and participants were not recruited randomly. Therefore, a selection bias exists. Also, external validity threats are present regarding the generalizability of the studies. Additionally, the instruments used to measure EDs and other related variables were not normed for use with an Asian-American population. Likewise, reliability and validity evidence for the instruments were not consistently reported. In many of the studies, the instruments were given to the participants in a packet to complete anonymously. As a result, some participants may have experienced difficulties in completing the instruments such as language barriers or problems with interpreting items.

Pike and Walsh (1996) offered several reasons why prevalence differences in EDs may exist among minority groups. First, minority groups may underreport their EDs to doctors. Second, some doctors may hold a view that minority groups are less likely to develop EDs (i.e., model minority viewpoint). As a result, those who actually do meet the criteria for an ED may not actually receive the diagnosis. Third, minority ED patients may not seek treatment at all or

may have limited access to treatment. Thus, they may not be diagnosed or receive treatment until their disorder is more severe. This viewpoint is consistent with Lacey and Dolan's (1988) finding that ethnic minorities with EDs are more likely to have especially severe eating disorders with extraordinarily severe personal and social disturbance. Overall, the research has shown that Asian-Americans, as compared to other American groups, underutilize mental health services (Barry & Grilo, 2002; Sue, 1999; Sue, Fujino, Hu, Takeuchi, & Zane, 1991).

Based on prior research, it is unclear whether a sociocultural model or ethnocultural identity confusion model would best explain why Asian-American women develop EDs. The prevalence of EDs in this group of women is also unclear. Thus, given the conflicting findings and threats to internal and external validity in previous research, further studies in this area are necessary. Understanding EDs in Asian-Americans is important to prevent misdiagnosis, and more importantly, to treat the disorder effectively.

Disordered Eating Among Asian Indians

Because so few studies exist that examine eating disorder symptomatology among Asian Indians living in the United States, it is important to review studies of Asian Indians living in other countries. There are studies on eating disorders among Indian women living in India and other countries (Bhugra, Bhui, & Gupta, 2000; Gupta, Chaturvedi, Chandarana, & Johnson, 2001; King & Bhugra, 1989; Shroff & Thompson, 2004; Sjostedt, Schumaker, & Nathawat, 1998). King and Bhugra examined the prevalence of eating disorder symptomatology among 574 high school and college female students in a North Indian industrial town. Participants were recruited by asking all female students in the town who were enrolled in their final two years of high school and first two years of college to take part in a survey consisting of demographic questions and the EAT-26 (Garner et al., 1982). The EAT-26 was translated into Hindi by

Bhugra. Bhugra was also present while the instrument was administered in order to answer any questions regarding the items. Weights and heights were measured at the high schools, but collected by self-report at the colleges. The mean height was 150 centimeters and the mean weight was 42 kg for the participants, which translates to a mean BMI of 18.67. The authors reported that the BMI means were within the normal range for Indian females in the age range of the study participants, based on norms provided by the Indian Council for Medical Research (1972). Garner et al. indicated a critical cut-off score of 20 on the EAT-26 as representative of problem eating behavior. The authors found that 167 students (29%) scored above a 20 on the EAT-26. There were no significant differences between the high and low scorers regarding age, religion, father's occupation, or BMI. The authors ran a factor analysis of the EAT and determined that some of the items may have been answered affirmatively due to sociocultural interpretations. Specifically, the authors believed that answering affirmatively to Question 5 'Cut my food into small pieces' and Question 19 'Display self control around food' was related to culturally desirable behaviors. Also, they believed that answering affirmatively to Question 17 'Eat diet foods' and Question 23 'Engage in dieting behavior' was related to religious fasting. Other studies have also found that more South Asian participants scored above 20 on the EAT-26, than originally predicted (Dolan et al., 1990; Mumford et al., 1991). It would have been helpful if King and Bhugra used another instrument to assess eating disorder symptomatology along with the EAT-26 in order to measure concurrent validity. In addition, if they had administered the EDE (Fairburn & Cooper, 1993) to the 29% who scored above 20, they may have obtained more conclusive results.

Although King and Bhugra (1989) were not able to determine whether the EAT-26 (Garner et al., 1982) was reliable and valid, there have been more recent studies that have found

more conclusive results. For example, the EAT-26 has been normed for use with Asian Indian populations by Nehra, Mohanty, Sharan, Gupta, and Khurana (2001). They translated the EAT-26 into Hindi and assessed the reliability of the translation. Next, they administered the instrument to a targeted population of women from weight reduction clinics for its psychometric evaluation. First, 28 women ages 15-30 years were given the English and the Hindi version of the EAT-26 in a cross-over design. Correlation for the whole scale between the two language versions was 0.75. Second, the authors administered the EAT-26 and the BSQ (Cooper et al., 1987) to a targeted population of 100 women ages 17-53 years. The authors demonstrated adequate internal consistency (Cronbach's alpha = 0.62) and convergent validity (correlation with BSQ 0.49, $p<.01$) of the EAT-26. The results of their study suggested that the Hindi version of the EAT-26 is a reliable test for measuring eating attitudes.

Similar to King and Bhugra (1989), Bhugra et al. (2000) investigated prevalence rates of BN in a north Indian industrial town with a population of 250,000. Bhugra et al.'s study differed from the former study by focusing on bulimia in particular and focusing on female college students, a population known to be at a high risk for developing eating disorders. Bhugra et al. also had a second goal to examine the relationship between sociocentrism, egocentrism, and eating disorders. A limitation to their study was that they did not operationally define these variables. Participants, ranging in age from 15 to 23 years old, were recruited from a private all-girls college. A total of 504 girls completed the questionnaires which consisted of a demographic questionnaire, the Bulimia Investigatory Test, Edinburgh (BITE; Henderson & Freeman, 1987), and questions about acculturation. The demographic questionnaire inquired about age, religion, and social class according to the occupation of the participant's fathers. Additional questions assessed height, current weight, ideal weight, highest weight ever, and

lowest weight ever. The authors calculated BMIs as well as a Body Image Index (BII = actual weight in kg/ideal weight in kg) for each participant. The BITE contains a symptom severity scale consisting of six items and a symptom profile scale consisting of 26 items. On the BITE, individuals who score between 15 and 19 are considered potential sub-clinical binge eaters, scores between 10 and 19 are reflective of an unusual eating pattern, and scores 20 and above are reflective of a highly disordered eating pattern. There are additional questions on the BITE that the authors used to assess eating attitudes and behaviors. The questions assessing acculturation were developed and validated by Es-Islam, Abu-Dagga, Malassi, and Moussa (1985), as well as an additional question that appeared to be written by Bhugra et al. After the questionnaires were administered, 50 of the participants were randomly selected to participate in an additional interview with the first author. The interviewees ranged in age from 14 to 17 years old. The additional interview had three purposes. First, participants were administered the DSM-III-R (APA, 1987) interview to identify eating disorders. Second, they were asked qualitative questions about their identity and relationship with their family to assess for egocentrism and sociocentrism. Finally, they were asked to reveal any problems they encountered when responding to the initial packet of questionnaires. Only two girls scored above the cut-off score on the BITE, indicating a prevalence rate of 0.4% of BN for college females in the north Indian town. The authors divided the BITE scores into four quartiles: scores of 0 to 7 (n = 137), 8 to 9 (n = 150), 10 to 11 (n = 111), and 12 to 15 (n = 106). There were significant differences in BMI between the four quartile groups with the following mean BMIs: first quartile mean = 19.31 (SD = 2.31), second quartile mean = 18.62 (SD = 2.60), third quartile mean = 19.76 (SD = 4.36), and fourth quartile mean = 19.93 (SD = 3.93). Based on BII scores, the authors also found that a desire to lose weight is related to more bulimic symptoms. Those who did score higher on the

BITE were more likely not to go out in order to maintain their diet, were more likely to have fluctuations in their weight, were more likely to be dissatisfied with their weight, and more often sought advice about the food they ate or plan to eat. The only relationship between acculturation and higher BITE scores was that those who scored in the fourth quartile were more likely than girls in the other quartile groups to feel less comfortable living in India. Based on the 50 individual interviews, nobody was diagnosed as having an eating disorder, and a sociocentric self-definition was more apparent than egocentrism. The emerging theme was that interviewees saw their identities as strongly connected to their families. Overall, Bhugra et al.'s finding of a low prevalence of bulimic eating disorders is consistent with Keel and Klump's (2003) review of literature on eating disorders, which concluded that BN is a culture-bound syndrome and not likely to occur in a non-Western culture. However, a number of limitations exist with Bhugra et al.'s methodology. First, they did not use a reliable and valid measure of acculturation. Second, the BITE has not been shown to be reliable and valid when translated into Hindi. Third, rather than randomly selecting 50 interviewees to participate in the interviews with the first author, Bhugra et al. may have been able to learn more about variables related to eating disorders if they had interviewed the 106 girls who scored in the fourth quartile of the BITE. Fourth, although it may be beneficial to supplement quantitative data with qualitative data, it may have been difficult for the young women to reveal personal information about themselves to an older male interviewer, who they may have perceived as an authority figure. In addition to difficulty related to revealing personal information, the interviewees may have been reluctant to reveal symptoms to an authority figure because mental illness is considered stigmatizing and shameful in India (Bhatia, Khan, Mediratta, & Sharma, 1987; Durvasula & Mylvaganam, 1994; Malhotra, Inam, &

Chipra, 1981). Thus, securing anonymity by utilizing self-report measures may be a preferable method with Asian Indian populations.

Sjostedt et al. (1998) examined eating disorder symptomatology and a fear of becoming fat among 249 Indian university students (124 women, 125 men) ranging in age from 18 to 36 years (M = 22.2; SD = 1.82 years) and 297 (151 women, 146 men) Australian university students ranging in age from 17 to 50 years (M = 23.2; SD = 6.70 years). A limitation of this study was that BMIs or body weights for the participants were not reported. The authors used the GFFS (Goldfarb et al., 1985), which is a 10-item self-report scale measuring the fear of becoming fat. They also used the EAT-26 (Garner et al., 1982) to measure symptoms of anorexia nervosa. The authors administered the tests in English at two universities in Australia and India and the participants were told that the tests were measuring eating attitudes and body weight. The authors hypothesized that the Australians would report more symptoms of eating disorders and greater fear of becoming fat because Australian culture values thinness as a standard of beauty. Contrary to their hypothesis, the authors found that the Indian participants scored significantly higher than the Australian participants on both the GFFS and the EAT-26. In Sjostedt et al.'s study, 27% of the Indian women scored at or above the critical cut-off score of 20 on the EAT-26 and 20% of them judged themselves to be overweight, of which 68% reported to be on a weight-loss diet. However, there were no significant differences on the GFFS between the two groups of women, indicating no differences in their fear of fat. This study is valuable because it provides evidence that Western-style eating disorders, attitudes, and behaviors exist in India. However, because the authors' sample was limited to university students, this study is only generalizable to university students, who tend to be a privileged socioeconomic class in India.

Gupta et al. (2001) examined weight and body image concerns (e.g., drive for thinness, body dissatisfaction) among young women in Canada and India. The Canadian sample consisted of 65 women between the ages of 18 to 24 (M = 21.4; SD = 2.0 years) recruited from a university in London, Ontario and from churches. The ethnic breakdown of the Canadian sample was 89.2 % white, 6.2% black, 1.5% Oriental, 1.5% Asian Indian, and 1.5% other. The Indian sample consisted of 47 undergraduate women between the ages of 18 to 24 (M = 18.7; SD = 4.1 years) recruited from a university in Bangalore, Karnataka State, India. All participants completed a packet of questionnaires consisting of several measures. Participants answered demographic questions, including about their height and weight. They also filled out the Drive for Thinness (DT) and Body Dissatisfaction (BD) subscales of the EDI (Garner et al., 1983). The DT subscale has seven items that assess extreme concerns with body weight and dieting, as well as extreme pursuit of desiring to be thin. The BD subscale has nine items that assesses whether one believes that certain body areas (e.g., thighs, abdomen, buttocks) are too large. In accord with the EDI published norms for female nonclinical populations, the authors categorized DT scores greater than 6 and BD scores greater than 10 as high, and DT scores less than or equal to 6 and BD scores less than or equal to 10 as low. Because past research has shown that eating disordered patients in India typically do not experience body dissatisfaction about the areas of the body that the BD subscale assesses, the authors included another body dissatisfaction measure. Gupta et al. developed this measure, which consists of a 10-point rating scale assessing the degree that participants judged 15 particular body parts (e.g., face, neck, shoulders) to be overweight. They ran a principal component factor analysis with Varimax rotation to examine the factor structure of their proposed instrument for the Canadian and Indian samples. Also, about half of the participants completed a similar packet of questionnaires two to four

weeks after completing the first questionnaire to estimate test-retest reliability. The mean BMI (M = 23.2; SD = 4.1) for the Canadian group was significantly higher than the mean BMI (M = 19.9; SD = 3.8) for the Indian group. Before controlling for BMI, the Canadian sample demonstrated significantly higher BD scores than the Asian Indian sample. After controlling for BMI by running an analysis of covariance (ANCOVA), the results indicated that both the Indian and Canadian women scored similarly on the DT and BD subscales of the EDI. Specifically, 21 out of the 65 (32.3%) Canadian and 12 out of the 47 (25.5%) Asian Indian women scored high on the DT subscale and 44 (67.7%) Canadians and 35 (74.5%) Asian Indians scored low. Also, 28 (43.1%) Canadians and 10 (21.3%) Asian Indians scored high on the BD subscale and 37 (56.9%) Canadians and 37 (78.7%) Asian Indians scored low. For the additional body dissatisfaction measure, a two-factor structure for the Canadian sample and a three-factor structure for the Indian sample were found. The body parts that loaded on Factor 2 for both countries included the back, abdomen, groin, hips, thighs, and legs. Factor 2 correlated with both the DT and BD subscales for the Canadian sample, but only correlated with the BD subscale for the Indian sample. After BMI was controlled for, Factor 2 no longer correlated with the BD subscale for the Indian sample, which suggests that Indians may have a more realistic or less distorted perception of their body image, and their body image concerns may be related to higher BMIs. For the Canadian sample, all of the other body parts loaded on Factor 1. However, for the Indian sample, the body parts that loaded on Factor 1 were the arms, forearms, wrists, hands, legs, feet, and face and the body parts that loaded on Factor 3 were the face, neck, shoulders, and chest. Factor 3 correlated with the DT subscale and BMI, but after BMI was controlled for, there was no significant correlation. This finding suggested that the upper torso region may be an area of the body that Indians have concerns about that are associated with

extreme dieting. Once again, because there was no correlation after BMI was controlled for, the Indians do not seem to have a distorted body image perception with this region of the body. A major limitation of the study is that the sample size was very small for a factor analysis (Comfrey & Lee, 1992; Osborne & Costello, 2004). Osborne and Costello recommended using at least 20 participants per variable to conduct a factor analysis, which would require a sample size of 300 for Gupta et al.'s study. Comfrey and Lee recommend the following scale when conducting a factor analysis: 50 participants = very poor, 100 = poor, 200 = fair, 300 = good, 500 = very good, 1000 or more = excellent. Furthermore, as in Sjostedt et al.'s (1998) study, the authors' sample was limited to university students. Therefore, this study is only generalizable to university students, who tend to be of a privileged socioeconomic class in India and middle-class in Canada. The authors concluded that although the two groups scored similarly on some features of eating disorder symptomatology (i.e., the DT and BD subscales), the type of body image concerns are different for Canadian and Indian women. The Indian women tended to have less of a distorted body image perception as compared to the Canadian women.

Shroff and Thompson (2004) examined the relationships between BMI, interpersonal teasing, media internalization, body dissatisfaction, and drive for thinness among adolescent and adult females in Bombay, India. The sample consisted of 96 seventh-grade girls from a private school with a mean age of 11.68 years, and 93 female undergraduate students from a state university in Bombay with a mean age of 18 years. Shroff and Thompson administered the BD and DT subscales of the EDI (Garner et al., 1983) to assess eating and body image disturbance. To assess history of teasing, the authors administered the Perception of Teasing Scale (POTS; Thompson, Cattarin, Fowler, & Fisher, 1995), which is a 12-item instrument that assesses frequency of teasing related to weight and competency. However, in this study, they only

administered the 6-item weight teasing scale. This is a limitation of the study because they did not use the POTS in its entirety, thus, utilizing an instrument that may no longer be reliable and valid. To measure the internalization of media images, the authors administered the five-item Sociocultural Internalization of Appearance Questionnaire-Adolescents (Keery, Shroff, Thompson, Wertheim, & Smolak, 2004) to the adolescent participants, and administered the Sociocultural Attitudes Towards Appearance Questionnaire-3 (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) to the adult participants. All participants completed a demographic information sheet that included questions about their height and weight, which were used to calculate BMIs. The authors found that overall, interpersonal teasing mediated the relationship between BMI and body dissatisfaction. From Shroff and Thompson's report, it is not clear if teasing fully or partially mediated the relationship between the two constructs, which is a limitation of the study. Specifically, interpersonal teasing was a stronger predictor of drive for thinness in the adolescent sample than in the adult sample. For the adult sample, media internalization was directly related to drive for thinness and body dissatisfaction predicted drive for thinness. For the adolescent sample, interpersonal teasing was directly related to drive for thinness and media internalization did not mediate this relationship. This study is valuable because it provides evidence that interpersonal and media influences may play a role or be risk factors in the development of eating disorder symptomatology in Asian Indian females. However, the results need to be interpreted with caution because of the sample used. The study was conducted in Bombay, India so the Indians living there may be impacted by the media differently than in other cities in India because Bollywood, the Indian equivalent of Hollywood in the United States, is in Bombay. Therefore, those living in Bombay may be inundated with more media images than those living elsewhere.

Disordered Eating Among Asian Indian-Americans

A few studies have investigated the relationship between acculturation and eating disorder symptomatology among Asian Indian-American women (Iyer & Haslam, 2003; Lawrence, 1998). Lawrence investigated the relationship between acculturation and eating pathology in 44 Asian Indian-American women, ranging in age from 17 to 30 years old. She recruited her sample from Indian student organizations at various universities (n=12) and from a South Asian Women's chat group, the South Asian Women's Network, and on the internet (n=32). She used the Majority-Minority Relations Survey (M-MRS; Sodowsky, Lai, & Plake, 1991) and the Eating Disorders Inventory-II (EDI-2; Garner, 1990) to assess acculturation and eating pathology, respectively. The EDI-2 is a 91-item self-report measure, on a 6-point rating scale, of symptoms commonly associated with AN and BN. The test is comprised of 11 subscales including Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, Impulse Regulation, and Social Insecurity. Lawrence used the M-MRS to assess acculturation because it has been shown to be reliable and valid for assessing acculturation in Hispanics and the following Asian-American groups: Chinese, Japanese, Koreans, and Asian Indians. It was originally developed from analyses of cultural attitudes of Asian-Indian immigrants to the United States. The test consists of 43 items in a multiple choice and a Likert format. The M-MRS has the following three subscales: Perceived Prejudice, Acculturation, and Language Usage. The Perceived Prejudice subscale has 21 items and analyzes one's sense of alienation from the dominant group. The Acculturation subscale contains 16 items that assess the degree of approval of Americans and American culture by minorities. Some examples of behaviors and attitudes that are included in this subscale are: friendship preferences, trusting relationships, community

ties, food, and entertainment. The Language Usage subscale consists of 6 items that assess language use, proficiency, and preference. Participants were also asked to answer a demographic information sheet. Lawrence used multiple regression equations to examine the relationship between acculturation and eating pathology. Each subscale of the M-MRS was used to predict each subscale of the EDI-2. Also, she conducted an exploratory correlational analysis to examine the relationships between demographic variables, subscale scores on the M-MRS, and subscale scores on the EDI-2. Although she hypothesized a positive correlation between acculturation level and eating-related pathology, she found the two constructs to be unrelated. One possible explanation for this finding is that the Acculturation subscale of the M-MRS does not accurately assess acculturation. Because Lawrence recruited her participants from various Indian-related organizations and locations, her sample may not have consisted of participants with varying acculturation styles and/or ethnic identity stages (i.e., her sample may have been homogenous). As in Sjostedt et al.'s (1998) study, a limitation of Lawrence's study was that BMIs or body weights for the participants were not collected or reported. In addition, Lawrence reported that some of her participants had a number of questions and quite a bit of difficulty when trying to complete the Acculturation subscale. It may also be likely that a number of her participants were confused about some questions, but did not write any comments on the test. Lawrence found that the Perceived Prejudice subscale predicted eating pathology. Thus, she concluded that Asian Indian American women, who do not feel accepted by others because of their ethnicity, would be more likely to develop eating disorder symptomatology and dieting behaviors. The present study addressed the limitations of Lawrence's study by using a more valid and reliable measure of acculturation, by using a more heterogeneous sample, and by incorporating ethnic identity and acculturative stress measures. Lawrence's study is valuable

because it was one of the first to examine eating disorder symptomatology in Asian Indian-Americans, as opposed to Indians in India or other countries.

Iyer and Haslam (2003) examined 122 South Asian American undergraduate college students to determine if a relationship exists between acculturation, disturbed eating behavior, and body image dissatisfaction. Pertinent demographic information about the participants included the following: 89% were of Indian descent, 79% were second generation, 67% were affluent (i.e., family income was greater than $60,000), age range was 16 to 25 (M = 20.6). Participants were recruited from colleges in New York, New Jersey, Massachusetts, California, and Florida. The authors contacted leaders of South Asian organizations at various colleges and asked them to post announcements through email listserves. The authors mailed potential participants (n=150, response rate = 83%) a questionnaire packet with a demographic questionnaire and the following seven instruments: the Beck Depression Inventory (Beck et al., 1961), the SL-ASIA (Suinn et al., 1987), the EAT-26 (Garner et al., 1982), the MEIM (Phinney, 1992), the RSE (Rosenberg, 1965), the Racial Teasing scale (RTS), and a shortened version of the BSQ (Evans & Dolan, 1993). This version of the BSQ consisted of 16 items rather than 34 items (Cooper et al., 1987). The authors developed the RTS for this study and modeled it after the POTS (Thompson et al., 1995). The RTS consisted of eight items rated on a 5-point scale assessing perceived frequency of racial or ethnic teasing as well as the impact of teasing on an individual. Iyer and Haslam also made some minor word changes to the SL-ASIA to adapt it for use with a South Asian population. The authors paid participants after they mailed back the questionnaires. The authors determined participants' BMIs based on their weights and heights, as reported on their demographic questionnaires. However, the authors did not cite any actual BMI numbers or discuss the body weight of their participants. Iyer and Haslam reported that

their instruments demonstrated very good reliability with the following alpha levels for each instrument: Beck Depression Inventory = 0.92, SL-ASIA = 0.86, EAT-26 = 0.91, MEIM = 0.88, RSE = 0.89, RTS = 0.89, BSQ = 0.96. The predictor variables of the study were acculturation (i.e., scores on the SL-ASIA), ethnic identity (i.e., scores on the MEIM), and racial teasing (i.e., scores on the RTS). The dependent variables were body image disturbance (i.e., scores on the BSQ) and disturbed eating behavior (i.e., scores on the EAT-26). The control variables were depression and distress (i.e., scores on the Beck Depression Inventory), self-esteem (i.e., scores on the RSE), BMI, and socioeconomic status. The authors did not find a significant relationship between acculturation and either of the two dependent variables, nor did they find a significant relationship between ethnic identity and the dependent variables. However, they did find that racial teasing predicted disturbed eating behavior and body image dissatisfaction. This effect was still present after controlling for the above-mentioned control variables. Acculturation and ethnic identity did not correlate with racial teasing, indicating that racial teasing may be a distinct construct that is associated with eating disorder symptomatology. Although Iyer and Haslam concluded that ethnic identity and acculturation might not play a role in the development of eating disorder symptomatology among South Asian-American women, this finding should be interpreted with caution because of the limitations of the study. The authors did not discuss participant differences in levels of acculturation, ethnic identity, body image dissatisfaction, and eating disturbance. It was unclear if their sample was homogenous or heterogeneous in regards to these variables. Also, because seven instruments were administered through the mail, it is likely that the participants experienced some confusion or had questions regarding the instruments when trying to complete them. Based on Iyer and Haslam's study and the above-reviewed studies, it appears that the Asian Indian samples were high in socio-economic status.

Furthermore, according to Segal (1991), many Asian Indian immigrants have graduate degrees and come to the United States for educational and professional opportunities. Compared to other Asian-American groups, Asian-Indians tend to be less socioeconomically diverse (Duvasula & Mylvaganam, 1994). It is unclear whether it is a strength or limitation of the research to have homogenous Asian Indian samples of high socio-economic status, considering that a wealthy college population may be more at risk of developing eating disorders.

Conclusion

In summary, low self-esteem coupled with the conflicting beliefs, attitudes, and values of two cultures may predispose Asian Indian-American women to develop EDs. Lawrence (1998) states "differential emphases on beauty for Indian and American women could result in confusion and a concomitant oversensitivity regarding physique" (p. 26). Because nobody is immune to developing EDs, Asian Indian Americans should not be overlooked in regards to acquiring EDs. Although Asian Indians are thought to be immune from EDs because of poverty, there are many wealthy people in India as well (Sjostedt et al., 1998). Iyer and Haslam (2003) stated that "South Asian women are subject to more rigid norms, arranged marriage imposing strict demands on appearance and body shape" (p. 146). Thus, they are a group that is not protected from developing EDs. It appears that the studies by Lawrence and by Iyer and Haslam are the only ones that examined eating disorder-related constructs in Asian Indian-American samples. The other above-reviewed studies have examined Asian-Americans or Asian Indians living in countries other than the United States (e.g., India, Canada, Australia, and Britain). The deficiency in this area of research in the United States can be lessened with more studies examining the development of EDs in Asian Indian-Americans.

Hypotheses

Based on the literature review, the following hypotheses were generated.

Hypothesis 1. There will be a negative relationship between scores on the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) and scores on Eating Attitudes Test-26 (EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982). In other words, Asian Indian American women with lower ethnic identity scores will score higher on the EAT-26. This hypothesis is based on the ethnocultural explanation of eating disorders. Because they may feel insecure in social situations and inadequate because of their ethnicity, they may be more likely to develop an eating disorder.

Hypothesis 2. There will be a negative relationship between scores on the Integrated Scale of the Acculturation Attitudes Scale (Krishnan & Berry, 1992), and scores on the EAT-26 (i.e., women with an integrated attitude will score lower on the EAT-26). Women with an integrated acculturation attitude will likely have an integrated attitude towards self and culture.

Hypothesis 3. There will be a positive relationship between scores on the Marginalized, Separated, and Assimilated Scales of the Acculturation Attitudes Scales, and scores on the EAT-26 (i.e., women with these attitudes will score higher on the EAT-26). This hypothesis is based on the ethnocultural and sociocultural explanations of eating disorders.

Hypothesis 4. There will be a positive relationship between scores on the Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE; Mena, Padilla, & Maldonado, 1987) and scores on the EAT-26. In other words, participants with higher acculturative stress will experience a high amount of eating disorder attitudes and symptomatology, as measured by higher scores on the EAT-26.

CHAPTER III

METHOD

Participants

The sample was selected in a purposive manner from a target population of Asian Indian American women in areas of the United States with a high population of Asian Indians including the New York metro area and Boston, Massachusetts. The participants included Asian Indian American women, at least 18 years of age. Ethnic group membership was self-reported on a demographic questionnaire. Bi-racial and multi-racial individuals were not included in the present study. One questionnaire was not included in the analysis because the participant was bi-racial (i.e., half Indian, half Hispanic). Participation was voluntary.

The sample was comprised of 147 Asian Indian American women ranging in age from 18 to 71 years, with a mean age of 33.5 years (SD = 12.6). More specifically, 4.1% were under 20 years old, 53% were in their twenties, 17% were in their thirties, 10.9% were in their forties, and 15% were older than 50 years old. Participants' BMI ranged from 16.6 to 33.8, with a mean BMI of 22.4 (SD = 3.2). One (0.7%) participant did not report enough information for her BMI to be calculated. According to the National Heart, Blood, and Lung Institute, BMI's less than 18.5 are considered underweight; BMI's 18.5 to 24.9 are considered normal weight; BMI's 25 to 29.9 are considered overweight, and BMI's greater than 30 are considered obese (http://nhlbisupport.com/bmi). According to these guidelines, 4.1% of the participants were classified as underweight, 78.1% were normal weight, 13.7% were overweight, and 4.1% were obese.

Sixty-six (44.9%) of the participants self-identified as Indian, 5 (3.4%) as American, 70 (47.6%) as Indian American, and 5 (3.4%) as other. One participant (0.7%) did not report her

ethnic identity. Participants reported the following religions: 104 (70.7%) Hindu, 4 (2.7%) Muslim, 6 (4.1%) Christian, 11 (7.5%) Sikh, 6 (4.1%) Jain, 8 (5.4%) identified as not religious, and 8 (5.4%) identified as other religions.

Fifty-three (36.1%) of the participants were single, 8 (5.4%) were engaged, 74 (50.3%) were married, 2 (1.4%) were cohabitating, 2 (1.4%) were separated/divorced, 7 (4.8%) were in a relationship, and one (0.7%) identified her relationship status as other. Of the participants who were married or separated/divorced (n = 76), 38 (50%) had an arranged marriage and 37 (48.7%) did not have an arranged marriage. One separated/divorced participant (1.3%) did not report whether or not she had an arranged marriage.

Participants lived in the following states: Alaska (n=11, 7.5%), Texas (n=9, 6.1%), Massachusetts (n=31, 21.1%), New York (n=30, 20.4%), New Jersey (n=6, 4.1%), Washington (n=17, 11.6%), Ohio (n=2, 1.4%), Maine (n=1, 0.7%), New Mexico (n=1, 0.7%), Pennsylvania (n=2, 1.4%), Oregon (n=6, 4.1%), Maryland (n=3, 2.0%), Connecticut (n=1, 0.7%), Virginia (n=6, 4.1%), Colorado (n=1, 0.7%), California (n=12, 8.2%), Georgia (n=1, 0.7%), and Washington, DC (n=6, 4.1%). One participant (0.7%) did not report the state in which she lived. Four (2.7%) were from rural areas, 55 (37.4%) suburban, and 85 (57.8%) metropolitan. Three participants (2%) did not report their location. Ninety (61.2%) were first generation, 54 (36.7%) were second generation, and 3 (2%) were other. Eighty-one (55.1%) were born in India, 55 (36.7%) were born in the United States, and 6 (4.1%) were born somewhere else. Of the six participants that were born outside of India and the U.S., two participants from Figi and Malaysia were included in the data analysis as part of the born in India category. In addition, four participants from England and Canada were included in the data analysis as part of the born in the U.S. category. Five (3.4%) participants did not report where they were born. Of those

participants born outside of the United States, the length of time living in the US ranged from 2 to 49 years, with a mean length of 19.2 years (SD = 11.1).

In regards to reading and writing in English, 1 (0.7%) identified as poor, 14 (9.5%) as good, and 132 (89.8%) as fluent. The participants reported the following levels of education: 16 (10.9%) high school degree, 8 (5.4%) two-year college degree, 44 (29.9%) four-year college degree, and 79 (53.7%) graduate school degree. Seventy-seven (52.4%) of the participants were employed and 15 (10.2%) were unemployed (i.e., housewives, job searching, and retired). Thirty (20.4%) of the participants were graduate students and 19 (12.9%) were undergraduate students. Six participants (4.1%) did not report their occupational status.

Participants indicated their family's annual income as follows: 2 (1.4%) between $20,000-29,000, 4 (2.7%) between $30,000-39,000, 6 (4.1%) between $40,000-49,000, 5 (3.4%) between $50,000-59,000, 11 (7.5%) between $60,000-69,000, and 115 (78.2%) reported an annual income of over $70,000. Four participants (2.7%) did not report their annual income.

In sum, over half of the participants were immigrants, with most of them having lived in the U.S. for many years. About half identified as Indian and the other half identified as Indian-American, of which most were Hindu. About half lived in the Northeast, about a quarter in the Pacific Coast region and Alaska, one tenth in the Mid-Atlantic region, and about a tenth in the Southwest. They lived primarily in metropolitan and suburban areas. The sample can be described as highly educated and privileged in terms of socioeconomic status. Half of the participants were married, of which half had an arranged marriage. Most of the participants were in their twenties and thirties and were of normal weight.

Instruments

Eating attitudes and eating disorder symptomatology. The Eating Attitudes Test-26 (EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982) is an abbreviated version, based on factor analysis, of the original EAT-40 (Garner & Garfinkel, 1979). In Garner et al.'s study, 14 of the original 40 items did not load on any of the factors, resulting in the 26-item EAT. The EAT-26 correlates highly with the EAT-40 (r = 0.98). The results of Garner et al.'s (1982) study of psychometric features of the EAT-26 indicated that the instrument is reliable, valid, and economical. The internal consistency reliability of the EAT-26 is high (r = 0.90). The EAT-26 is a self-report, 26-item instrument designed to assess concerns and attitudes common in people with eating disorders. It is one of the most widely used standardized measures of symptoms and concerns characteristic of eating disorders (Garner et al.). Items are rated on a 6-point Likert-type scale ranging from 1 (*never*) to 6 (*always*). The EAT-26 does not give a specific diagnosis of an eating disorder. Rather, Garner et al. indicated a critical cut-off score of 20 or higher on the EAT-26 as representative of problem eating behavior. Scores on the EAT-26 range from 0 to 78, with higher scores indicating higher eating disorder symptomatology. Item 26 is reversed scored. The total sum score of the EAT-26 was used in the data analysis. In addition, a percentage of how many participants scored at or above the critical cut off score of 20 is reported. In the present study, the coefficient alpha for the EAT-26 was .86, indicating satisfactory reliability.

Although King and Bhugra (1989) were not able to determine whether the EAT-26 (Garner et al., 1982) was reliable and valid, there have been more recent studies that have found more conclusive results. For example, the EAT-26 has been tested for use with Asian Indian populations by Nehra, Mohanty, Sharan, Gupta, and Khurana (2001). They translated the EAT-

26 into Hindi and assessed the reliability of the translation. Next, they administered the instrument to a targeted population of women from weight reduction clinics for its psychometric evaluation. First, 28 women ages 15-30 years were given the English and the Hindi version of the EAT-26 in a cross-over design. The correlation for the whole scale between the two language versions was 0.75. Second, the authors administered the EAT-26 and the Body Shape Questionnaire (Cooper et al., 1987) to a targeted population of 100 women ages 17-53 years. The authors demonstrated adequate internal consistency (Cronbach's alpha = 0.62) and convergent validity (correlation with BSQ was 0.49, $p<.01$) of the EAT-26. The results of their study suggested that the Hindi version of the EAT-26 is a reliable test for measuring eating attitudes.

As mentioned in Chapter 2, King and Bhugra (1989) conducted a factor analysis of the EAT-26 (Garner et al., 1982) and determined that some of the items may have been answered affirmatively due to sociocultural interpretations. Specifically, the authors believed that answering affirmatively to Question 5 "Cut my food into small pieces" and Question 19 "Display self control around food" was related to culturally desirable behaviors. Also, they believed that answering affirmatively to Question 17 "Eat diet foods" and Question 23 "Engage in dieting behavior" was related to religious fasting. Thus, I slightly altered the EAT-26 to account for sociocultural differences. For example, Question 23 was reworded to "Engage in dieting behavior not related to religious fasting." Also, Question 17 was reworded to "Eat diet foods not related to religious fasting."

Acculturation attitudes. In the present study, acculturation was measured with Krishnan and Berry's (1992) Acculturation Attitudes Scales for Asian Indians, based on Berry et al.'s (1986) model of acculturation. The 72-item instrument uses a 5-point Likert type scale ranging

from 1 (*strongly disagree*) to 5 (*strongly agree*). The instrument was developed for measuring acculturation attitudes among Asian Indian-Americans and is comprised of four scales: (a) a 17-item scale for Integration, (b) a 20-item scale for Assimilation, (c) a 20-item scale for Separation, and (d) a 15-item scale for Marginalization. Each scale is scored by averaging the ratings for the items on that scale, and a high score on a scale indicates a preference for that attitude of acculturation. Scores on each scale range from 1.0 to 5.0. Internal consistency reliabilities have been shown as adequate for this instrument. The following Cronbach's alpha levels were reported by Krishnan and Berry (1992): .87 for the Assimilation scale, .78 for the Integration scale, .90 for the Separation scale, and .71 for the Marginalization scale. Krishnan and Berry did not assess validity of the instrument in their study because the validity had already been established in prior studies (Berry, Kim, Minde, & Mok, 1987; Berry, Kim, Power, Young, & Bujaki, 1989). Concurrent validity correlations were reported as follows: -0.69 between Assimilation and Separation, -0.25 between Integration and Separation, and 0.22 between Assimilation and Integration (Berry, Wintrob, Sindell, & Mawhinney, 1982). Berry et al. (1989) found that the instrument significantly met 11 out of 12 possible validity checks. In the present study, the coefficient alphas were .78 for the Assimilation Scale, .78 for the Integration Scale, .77 for the Marginalization scale, and .85 for the Separation Scale, indicating satisfactory internal consistencies.

Level of acculturative stress. The Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE; Mena, Padilla, & Maldonado, 1987) is a 24-item self-report measure that assesses acculturative stress. The scale assesses acculturative stress in multiple contexts including social, attitudinal, familial, environmental, and perceived discrimination. It is a modified short version of the original 60-item SAFE scale (Padilla, Wagatsuma, & Lindholm,

1985), and is the most commonly used measure of acculturative stress. The SAFE uses a 5-point Likert type scale ranging from 1 (*not stressful*) to 5 (*extremely stressful*). If an item is not applicable to a rater, it is scored as a zero. Scores on the SAFE range from 0 to 120, with higher scores indicating higher acculturative stress. The total sum score was used in the data analysis. Reliability and validity of the SAFE has been established for varying racial and ethnic groups (Joiner & Walker, 2002). For Asian Americans, a Cronbach alpha level of .89 was demonstrated by Mena et al. The SAFE has been successfully used to demonstrate a relationship between acculturative stress and body dissatisfaction in predicting bulimic symptomatology among white, black, and Hispanic females in the United States (Perez, Voelz, Pettit, & Joiner, 2002). In the present study, the coefficient alpha for the SAFE was .92, indicating satisfactory reliability.

Level of ethnic identity. The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) is a 20-item self-report measure used to assess ethnic identity. The MEIM uses a 4-point Likert type scale ranging from 4 (*strongly agree*) to 1 (*strongly disagree*). Four dimensions of ethnic identity are assessed: positive ethnic attitudes and sense of belonging (5 items); ethnic identity achievement, including both exploration and resolution of identity issues (7 items), ethnic behaviors or practices (2 items), and other-group orientation (6 items) (Phinney, 1992). After conducting a factor analysis, Phinney found a two-factor solution for the MEIM. One factor consisted of the Ethnic Identity (EI) subscale and the other factor consisted of the Other-Group Orientation (OGO) subscale. The EI subscale accounted for 30.8% of the variance, and the OGO subscale accounted for 11.4% of the variance. Phinney found that the MEIM is reliable for use with ethnically diverse high school and college samples. Overall reliability assessed by Cronbach's alpha was 0.90 on the EI subscale and 0.74 on the OGO subscale for the college sample (n = 136). The EI subscale score was used in the data analysis. Scores on the MEIM

range from 1.0 to 4.0, with higher scores indicating higher ethnic identity. In the present study, the coefficient alphas were .86 for the EI subscale and .76 for the OGO subscale, indicating satisfactory reliability.

Demographic Measure. The demographic measure included items about age, ethnicity, relationship/marital status, generational status, length of time residing in the United States, educational level, occupation, religious affiliation, and socioeconomic status. Each participant was also required to self-report her height and weight in order for the experimenter to compute Body Mass Indexes (BMIs).

Procedure

Asian Indian American women were recruited using various methods. Participants were recruited in cities with a high concentration of Asian Indian Americans including the New York metro area, Boston, Massachusetts, Dallas, Texas, the Washington D.C. metro area, and the San Francisco metro area. Participants were given written informed consent (Appendix A) forms describing the present study and asking if they would be willing to participate. Most participants were approached by the experimenter who asked them if they would be willing to participate. The experimenter also mailed the questionnaire to some participants.

Participants were asked to complete five questionnaires in English including (a) a basic demographic questionnaire (Appendix B); (b) the Eating Attitudes Test-26 (EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982); (c) Krishnan and Berry's (1992) Acculturation Attitudes Scales; (d) the Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE; Mena, Padilla, & Maldonado, 1987); and (e) the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992),which they were asked to anonymously complete. Given the sensitivity of the EAT-26, it was placed as the last instrument in the questionnaire packet. The other

instruments were counterbalanced in the following three orders: (a) SAFE, MEIM, and AAS; (b) MEIM, SAFE, and AAS; and (c) AAS, MEIM, and SAFE. The questionnaires took approximately 20 to 30 minutes to complete. The experimenter provided a self-addressed stamped envelope along with the questionnaires in order to ensure anonymity. Participants were allowed to ask the experimenter any questions they had regarding the present study.

Statistical Analyses

Total scores on all four instruments were calculated. Descriptive statistics (i.e., means, standard deviations, and frequencies) were also computed to describe characteristics of the sample such as age, BMI, ethnic identification, and religion. Coefficient alpha reliability analyses were computed for all four instruments. The current study used a correlational design to test all four hypotheses. For Hypothesis 1, Pearson's correlations were computed between the MEIM (Phinney, 1992) and the EAT-26 (Garner et al., 1982). For Hypothesis 2, a Pearson correlation was computed between the Integrated Scale of the Acculturation Attitudes Scale (Krishnan & Berry, 1992), and the EAT-26. For Hypothesis 3, Pearson's correlations were computed relating the EAT-26 to the Assimilation, Separation, and Marginalized Scales of the Acculturation Attitudes Scale. For Hypothesis 4, a Pearson correlation was computed between the SAFE (Mena et al., 1987) and the EAT-26.

Multiple regression was also used in this study to identify variables that provided unique prediction of eating disorder symptomatology in the context of other variables. The design of the study included three predictor variables (acculturative stress, acculturation, and ethnic identity) and one criterion variable (eating disordered attitudes/symptomatology). Additional predictor variables from the demographic questionnaire that were included in the data analysis were age, BMI, and whether or not they were born in India or the United States (i.e., generational status).

Control variables including age, BMI, and generational status were entered at the first step, acculturative stress was entered at the second step, acculturation variables (assimilation, integration, marginalization, and separation scores) were entered at the third step, and ethnic identity was entered at the fourth step. For all correlational and multiple regression analyses, alpha was set at the .05 significance level.

CHAPTER IV

RESULTS

Attrition

The experimenter distributed 300 questionnaires and received 148, resulting in a response rate of 49.3%. Of the 148 participants that completed the questionnaire packets, one participant was not included in the analysis because she was bi-racial. Scores for three Acculturation Attitudes Scales (AAS; Krishnan & Berry, 1992) and for two Social, Attitudinal, Familial, and Environmental Acculturative Stress Scales (SAFE; Mena, Padilla, & Maldonado, 1987) were excluded from the data analysis because too many questions were left blank so total scores were not able to be calculated for the instruments.

Table 1 presents the means, standard deviations, and sample sizes of the demographic variables (age, body mass index, and length of time residing in the U.S.) included in the analysis. All of the 147 retained participants reported their age. One participant did not report her height and weight, so that her body mass index (BMI) could not be computed. Five participants did not report where they were born. Of the 90 participants who were born outside of the United States (i.e., first generation), only 74 of them reported how long they had lived in the U.S.

Descriptive Statistics

Table 2 presents the means, standard deviations, alpha reliabilities, and range of scores for each of the instruments used in the study for all participants included in the data analysis. Garner, Olmstead, Bohr, and Garfinkel (1982) indicated a critical cut-off score of 20 on the Eating Attitudes Test-26 (EAT-26) as representative of problem eating behavior. In the present study, 18 out of 147 (12.24%) scored at or above 20 on the EAT-26. Scores on the SAFE (Mena et al., 1987) indicated that participants experienced varying amounts of acculturative stress, with

Table 1

Means, Standard Deviations, and Sample Sizes for Demographic Variables

Variable	*M*	*SD*	*n*
1. Age	33.47	12.61	147
2. BMI	22.40	3.23	146
3. Length of time in U.S.	19.16	11.08	74

Note. Age = Age of participant; BMI = Body Mass Index; Length of time in U.S. = Length of time residing in U.S. for those who immigrated from India. The *n* is smaller for the last variable because only first generation participants were included in the analysis.

Table 2

Means, Standard Deviations, Reliability Coefficients, and Range of Scores of the Instruments

Variable	*M*	*SD*	α	Range of Scores
1. EAT-26	8.69	8.69	.86	0-53
2. SAFE	35.66	16.00	.92	1-81
3. EI Subscale of MEIM	3.28	.50	.86	1.71 - 4.00
4. OGO Subscale of MEIM	3.58	.47	.76	1.33 - 4.00
5. Assimilation Scale of AAS	2.09	.40	.78	1.15 - 3.10
6. Integration Scale of AAS	4.13	.36	.78	2.41 - 4.88
7. Marginalization Scale of AAS	2.37	.51	.77	1.33 - 3.80
8. Separation Scale of AAS	2.17	.48	.85	1.10 - 4.10

Note. EAT-26 = Eating Attitudes Test-26; SAFE = Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale; EI Subscale of MEIM = Ethnic Identity Subscale of the Multi-group Ethnic Identity Measure; OGO Subscale of MEIM = Other Group Orientation Subscale of the Multigroup Ethnic Identity Measure; AAS = Acculturation Attitudes Scale.

all participants experiencing at least some acculturative stress. Scores on the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) tended to be high, indicating that participants had strong ethnic identities. On the AAS (Krishnan & Berry, 1992), all but one participant scored highest on the Integrated Scale. One participant scored highest on the Marginalized Scale. Thus, most participants strongly identified with the values and behaviors of both Indians and Americans.

Correlation coefficients were computed among the key variables in the study. The results of the correlational analyses presented in Table 3 show that 32 out of the 66 correlations were statistically significant. A p value of less than .05 was required for significance for all correlations and multiple regression analyses.

Test of Hypotheses

Hypothesis 1. To test Hypothesis 1, I examined the correlation between the scores on the MEIM (Phinney, 1992) and the scores on the EAT-26 (Garner et al., 1982). As seen in Table 3, the correlation was not statistically significant. Hypothesis 1 was not supported, suggesting that there is no relationship between ethnic identity and eating disorder symptomatology in Asian Indian women in my U.S. sample.

Hypothesis 2. To test Hypothesis 2, I examined the correlation between the Integrated Scale of the AAS (Krishnan & Berry, 1992) and the EAT-26 (Garner et al., 1982). As shown in Table 3, there was a statistically significant positive correlation between the Integrated Scale and the EAT-26 ($r = .25$, $p < .01$). The results indicate that women who scored higher on the integrated attitude scale, tended to score higher on eating disorder symptomatology. However, Hypothesis 2 predicted a negative relationship between the Integrated Scale and the EAT-26. Thus, Hypothesis 2 was not supported. That is, Asian Indian-American women who score lower

Table 3

Correlation Coefficients of the Predictors and Dependent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. EAT-26	–											
2. SAFE	.36*	–										
3. EI	.03	.03	–									
4. OGO	.07	-.22**	.19*	–								
5. Assimil.	.08	.17*	-.40**	-.16	–							
6. Integra.	.25**	.20*	.36**	.13	-.23**	–						
7. Margin.	.22**	.40**	-.24**	-.43**	.36**	-.01	–					
8. Separat.	.09	.43**	.08	-.54**	.15	.08	.61**	–				
9. Age	.08	-.01	-.09	-.18*	.21*	.04	.24**	.07	–			
10. BMI	.20*	.08	.09	-.09	.05	.16	.23**	.04	.39**	–		
11. Born	.06	-.08	.20*	.34**	-.16	.03	-.38**	-.32**	-.52**	-.23**	–	
12. Length	.18	-.19	.12	.17	.09	.11	.01	-.28**	.75**	.35**	-.08	–

Note. EAT-26 = Eating Attitudes Test-26; SAFE = Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale; EI = Ethnic Identity Subscale of the Multigroup Ethnic Identity Measure; OGO = Other Group Orientation Subscale of the Multi-group Ethnic Identity Measure; Assimil. = Assimilation Scale of Acculturation Attitudes Scale; Integra. = Integration Scale of Acculturation Attitudes Scale; Margin. = Marginalization Scale of Acculturation Attitudes Scale; Separat. = Separation Scale of Acculturation Attitudes Scale; Age = Age of participant; BMI = Body Mass Index; Born = Born in India/collectivist culture or the United States/individualistic culture; Length = Length of time residing in U.S. for those who immigrated from India.
*$p < .05$. **$p < .01$.

on the Integrated Scale do not have higher eating disorder symptomatology.

Hypothesis 3. To test Hypothesis 3, I examined correlations relating EAT-26 scores to the Assimilation, Separation, and Marginalization Scales of the AAS (Krishnan & Berry, 1992). As seen in Table 3, there was no relationship between the Assimilation Scale and the EAT-26 or between the Separation Scale and the EAT-26. There was a statistically significant positive correlation between the Marginalized Scale and the EAT-26 ($r = .22$, $p < .01$). The results suggest that women who scored higher on the marginalized attitude scale tended to score higher on eating disorder symptomatology. Thus, Hypothesis 3 was only partially supported because 1 out of 3 of the correlations was significant.

Hypothesis 4. To test Hypothesis 4, I examined the correlation between the SAFE (Mena et al., 1987) and the EAT-26 (Garner et al., 1982). As shown in Table 3, there was a statistically significant positive correlation between the SAFE and the EAT-26 ($r = .36$, $p < .001$). Thus, Hypothesis 4 was strongly supported. Asian Indian-American women who have higher acculturative stress tended to have higher eating disorder symptomatology.

Other significant relationships. As shown in Table 3, there was a significant positive correlation between BMI and scores on the EAT-26 ($r = .20$, $p < .05$). The results suggest that women with higher BMI's tended to have higher eating disorder symptomatology.

Some additional significant correlations worth noting include the relationship between the Ethnic Identity (EI) Subscale of the MEIM and the scales of the AAS. As shown in Table 3, there was a significant negative correlation between scores on the EI Subscale and the Assimilation Scale ($r = -.40$, $p < .01$), as well as between scores on the EI Subscale and the Marginalization Scale ($r = -.24$, $p < .01$). These results suggest that those with lower ethnic identities tend to be more assimilated and marginalized. There was a significant positive

correlation between scores on the EI subscale and the Integrated Scale ($r = .36$, $p < .01$). This suggests that those with higher ethnic identities tended to be more integrated.

Next, all scales of the AAS (Krishnan & Berry, 1992) were significantly positively related to the SAFE (Mena et al., 1987). As shown in Table 3, there was a positive correlation between Assimilation and the SAFE ($r = .17$, $p < .05$), Integration and the SAFE ($r = .20$, $p < .05$), Marginalization and the SAFE ($r = .40$, $p < .01$), and Separation and the SAFE ($r = .43$, $p < .01$). This finding indicates that marginalization and separation attitudes are more strongly related to acculturative stress than are integration and assimilation attitudes. However, the fact that all four acculturation attitudes are positively related to acculturative stress may suggest that the influence of response bias in responding to these measures.

Finally, there are some significant correlations worth noting that involve whether the participant was born in India or the United States (i.e., generational status). There was a significant positive correlation between scores on the EI subscale of the MEIM (Phinney, 1992) and generational status ($r = .20$, $p < .05$). This suggests that Indian-American women born in the United States (i.e., second-generation) tended to have higher ethnic identities than women born in India (i.e., first-generation). There was a significant negative correlation between where the participant was born and scores on the Marginalized Scale of the AAS (Krishnan & Berry, 1992) ($r = -.38$, $p < .01$), as well as the Separated Scale of the AAS ($r = -.32$, $p < .01$). These results suggest that women born in India tended to be more marginalized and separated, as compared to Indian women born in the United States.

Unique Predictors of Eating Attitudes

A hierarchical multiple regression analysis was conducted to determine unique predictors of eating attitudes (see Table 4). Control variables including age, BMI, and whether or not the

Table 4

Summary of Hierarchical Regression Analysis for Variables Predicting Eating Disorder Symptomatology (N = 136)

	Predictors	*R*	ΔR^2	*Df*	ΔF	*B*	*SE B*	β
Step 1	Age	.06	.06	3,132	2.59	5.59	.07	.08
	BMI					.56	.25	.20*
	Born in India or U.S.					2.60	1.80	.14
Step 2	SAFE	.19	.13	1,131	21.71	.21	.04	.37***
Step 3	Assimilation Scale of AAS	.23	.04	4,127	1.74	- 4.64	2.00	- .00
	Integration Scale of AAS					4.51	2.30	.17
	Marginalization Scale of AAS					3.53	1.94	.21
	Separation Scale of AAS					- 2.44	1.95	- .13
Step 4	EI Subscale of MEIM	.23	.00	1,126	.06	-.41	1.72	- .02

Note. Age = Age of participant; BMI = Body Mass Index; Born in India or U.S. = Born in India/collectivist culture or the United States/individualistic culture; SAFE = Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale; AAS = Acculturation Attitudes Scale; EI Subscale of MEIM = Ethnic Identity Subscale of the Multigroup Ethnic Identity Measure.
*$p < .05$. ***$p < .001$.

participant was born in India or U.S. were entered at the first step, acculturative stress was entered at the second step, acculturation attitudes (assimilation, integration, marginalization, and separation scores) were entered at the third step, and ethnic identity was entered at the fourth step. The results of Step 1 indicate that age, BMI, and whether or not the participant was born in India or the U.S. predicted eating disorder symptomatology in a marginally significant manner, R^2 change = .06, $F(3,132) = 2.59$, $p = .06$, and the β-weight for BMI was statistically significant ($\beta = .20$, $p < .05$). The second step of the multiple regression analysis was conducted to evaluate whether acculturative stress predicted eating disorder symptomatology over and above the control variables. As shown in Table 4, acculturative stress accounted for a significant proportion of the eating disorder symptomatology variance after controlling for the effects of age, BMI, and whether or not the participant was born in India or the United States, R^2 change = .17, $F(1,131) = 21.71$, $p < .001$. This finding indicates that acculturative stress is predictive of eating disorder symptomatology.

The third step of the multiple regression analysis was conducted to evaluate whether acculturation attitudes predicted eating disorder symptomatology over and above acculturative stress, age, BMI, and whether or not the participant was born in India or the United States. Acculturation attitudes did not account for a significant proportion of the eating disorder symptomatology variance after controlling for the effects of those variables, R^2 change = .04, $F(4,127) = 1.74$, $p = .15$. The fourth step of the multiple regression analysis was conducted to evaluate whether ethnic identity predicted eating disorder symptomatology over and above acculturation attitudes, acculturative stress, and the control variables. Ethnic identity did not account for a significant proportion of the eating disorder symptomatology variance after controlling for the effects of those variables, R^2 change = .00, $F(1,126) = .06$, $p = .81$. These

results indicate that acculturation attitudes and ethnic identity are not predictive of eating disorder symptomatology.

Supplemental Analyses Among the Disordered Eating Participants

As mentioned above, Garner et al. (1982) indicated a critical cut-off score of 20 on the EAT-26 as representative of disordered eating. In the present study, 18 out of 147 (12.24%) participants scored at or above 20. This prevalence rate is similar to the rates found among Caucasian females. Over the past 25 years, research has shown that about 10 to 15% of Caucasian women score at or above 20 on the EAT-26 (Garner et al.; Garfinkel & Newman, 2001).

Given that 12.24% scored at a significant level on the EAT-26, the relationships between the key variables of interest in the present study were examined for those 18 participants. Correlation coefficients were computed. The results of the correlational analyses presented in Table 5 show that 16 out of the 65 correlations were statistically significant.

As shown in Table 5, there was a significant negative correlation between age and scores on the EAT-26 (Garner et al., 1982) ($r = -.56$, $p < .05$). This result indicates that, among those with high EAT-26 scores, younger Asian Indian-American women tended to have higher eating disorder symptomatology. There was a strong significant negative correlation between length of time residing in the U.S. and scores on the EAT-26 ($r = -.87$, $p < .01$). This finding suggests that Asian Indian-American living in the United States for less time tended to have higher eating disorder symptomatology.

There were a number of significant correlations among the disordered eating participants that were similar to the significant correlations among all 147 participants. First, there was a

Table 5

Correlation Coefficients of the Variables Among the Disordered Eating Participants (N = 18)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. EAT-26	–											
2. SAFE	-.20	–										
3. EI	.16	-.13	–									
4. OGO	.34	-.36	-.08	–								
5. Assimil.	-.36	.42	-.29	-.57*	–							
6. Integra.	-.43	.12	.26	.00	-.11	–						
7. Margin.	-.34	.68**	-.51*	-.36	.59*	-.23	–					
8. Separat.	-.32	.71**	.13	-.78**	.61**	.22	.51*	–				
9. Age	-.56*	.29	.29	-.55*	.58*	.17	.30	.66**	–			
10. BMI	-.00	-.24	.06	.30	-.30	.14	-.05	-.20	.07	–		
11. Born	.40	-.36	-.23	.39	-.18	-.04	-.40	-.58*	-.63**	-.09	–	
12. Length	-.87**	-.58	.14	-.12	.22	-.20	-.11	-.13	.76**	.45	–	–

Note. EAT-26 = Eating Attitudes Test-26; SAFE = Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale; EI = Ethnic Identity Subscale of the Multigroup Ethnic Identity Measure; OGO = Other Group Orientation Subscale of the Multi-group Ethnic Identity Measure; Assimil. = Assimilation Scale of Acculturation Attitudes Scale; Integra. = Integration Scale of Acculturation Attitudes Scale; Margin. = Marginalization Scale of Acculturation Attitudes Scale; Separat. = Separation Scale of Acculturation Attitudes Scale; Age = Age of participant; BMI = Body Mass Index; Born = Born in India/collectivist culture or the United States/individualistic culture; Length = Length of time residing in U.S. for those who immigrated from India.
*$p < .05$. **$p < .01$.

significant negative correlation between scores on the EI Subscale of the MEIM (Phinney, 1992) and the Marginalization Scale the AAS (Krishnan & Berry, 1992) (r = -.51, p < .05). These results suggest that those with lower ethnic identities tend to be more assimilated and marginalized. Second, there was a significant negative correlation between where the participant was born and scores on the Separated Scale of the AAS (Krishnan & Berry, 1992) (r = -.58, p < .05). These results suggest that women born in India tended to be more separated as compared to Indian women born in the United States. Finally, the Marginalized and Separated scales of the AAS (Krishnan & Berry, 1992) were significantly positively related to the SAFE (Mena et al., 1987). As shown in Table 5, there was a strong positive correlation between Marginalization and the SAFE (r = .68, p < .01), and Separation and the SAFE (r = .71, p < .01). This finding indicates that higher scores on marginalization and separation are more strongly related to higher acculturative stress.

The findings among the high EAT-26 participants should be interpreted with caution given that the n was so low. However, by conducting these additional analyses on Asian Indian-American women who scored high on the EAT-26, a few correlations were significant that were not significant in the total sample. These findings may be helpful for future researchers who conduct research on a sample of Asian Indian-American participants with clinical levels of eating disorders.

CHAPTER V

DISCUSSION

The primary purpose of the present study was to examine the relationship between ethnic identity, acculturation, acculturative stress, and eating disorder symptomatology among Asian Indian-American women. Other purposes were to obtain a clearer picture of the prevalence of eating disorder symptomatology in this group of women and to determine whether a sociocultural model or ethnocultural identity confusion model would best explain why Asian Indian-American women would develop eating disorders. This chapter discusses the results, implications, and conclusions of the present study as well as the limitations of the study, directions for future research, and implications for clinical practice.

Relationship Between Ethnic Identity and Eating Disorder Symptomatology

It was hypothesized that ethnic identity would be negatively related to eating disorder symptomatology. This hypothesis was based on the ethnocultural explanation of eating disorders (Harris & Kuba, 1997). Based on this theory, Asian Indian-American women with a low ethnic identity are predicted to feel insecure and inadequate, which could lead to the development of an eating disorder. The results indicate that there is no relationship between ethnic identity and eating disorder symptomatology among Asian Indian-American women. That is, self-identification as a member of an ethnic group, feelings of belonging to the group, attitudes toward the group, and level of ethnic affiliation or involvement in the group are unrelated to eating disorder symptomatology. Phinney (1992) has demonstrated that higher ethnic identity predicts higher self-esteem, but it appears to be unrelated to eating disorder symptomatology among Asian Indian-American women. Tsai, Curbow, and Heinberg (2003) found that ethnic identity was a strong predictor of disordered eating among Taiwanese American women.

However, Iyer and Haslam (2003), consistent with the present study, found that ethnic identity was unrelated to disordered eating among South Asian American women. Thus, ethnic identity may be related to eating disorder symptomatology for some Asian American women but not others, such as Indian-Americans. Perhaps ethnic identity was unrelated to eating disorder symptomatology because there was too little variability among ethnic identity scores in the present study. If more participants had weaker ethnic identities, the findings may have been different.

Relationship Between Acculturation Attitudes and Eating Disorder Symptomatology

It was hypothesized that an integrated acculturation style (i.e., strong identification with both groups; Berry, Trimble, & Olmedo, 1986) would be negatively related to eating disorder symptomatology. Because Asian Indian-American women with an integrated acculturation attitude have an integrated attitude towards self and culture, they may be likely to have higher self-esteem and less psychological distress. Therefore, it was hypothesized that women who more strongly endorsed an integrated attitude would have less disordered eating. This hypothesis was suggested based on research that has found that those with an integrated style of acculturation are thought to have more positive psychological outcomes (Berry et al., 1986). The hypothesis was not supported. Rather, a significant positive relationship was found between integration and eating disorder symptomatology, indicating that those who are more integrated tended to experience more eating disorder symptomatology. This finding is not consistent with the literature. In particular, it does not provide support for Farver, Narang, and Bhadha's (2002) claim that integration is the preferred mode of acculturation for Asian Indian-Americans in order to have healthy psychological functioning. This finding does provide support for the sociocultural model which implies that women who are more acculturated to mainstream

Westernized values are at greater risk for developing EDs (Pike & Walsh, 1996). Someone with an integrated acculturation attitude would be more acculturated to western culture with its emphasis on eating attitudes and thinness than someone with a marginalized or separated acculturation attitude, because she strongly identifies with U.S. and Indian culture.

The third hypothesis of the present study predicted a positive relationship between an assimilated acculturation style (i.e., identification only with the majority culture; Berry et al., 1986) and eating disorder symptomatology, a marginalized acculturation style (i.e., identification with neither group; Berry et al., 1986) and eating disorder symptomatology, and a separated acculturation style (i.e., identification only with one's own ethnic group; Berry et al., 1986) and eating disorder symptomatology. The first part of the hypothesis (i.e., a positive relationship exists between assimilation and eating disorder symptomatology) was based on the sociocultural explanation of EDs. The sociocultural model of EDs claims that as a woman of color becomes more identified with mainstream American culture which values a thin ideal, she is more likely to develop an ED as compared to her counterpart that does not identify with mainstream U.S. culture (Pike & Walsh, 1996). Mumford and Whitehouse (1988) as well as Mumford, Whitehouse, and Platt (1991) concluded that EDs are more common in the acculturating group than their counterparts in their home country (i.e., Pakistan), which provides support for the sociocultural model. The latter parts of the hypothesis (i.e., a positive relationship between marginalization and eating disorder symptomatology as well as between separation and eating disorder symptomatology) were based on the ethnocultural explanation of eating disorders. The ethnocultural identity confusion model maintains that a woman of color who does not identify with mainstream American culture in regards to beauty and attractiveness may feel oppressed and in turn, may reject her own identity resulting in the development of an ED (Harris & Kuba,

1997). There was no significant relationship between assimilation and eating disorder symptomatology as well as between separation and eating disorder symptomatology, indicating that assimilation and separation are unrelated to eating disorder symptomatology. There was a significant positive relationship between marginalization and eating disorder symptomatology, indicating that those who are more marginalized tended to experience higher eating disorder symptomatology. This finding is consistent with the literature which suggests that those who fall in the marginalized category are thought to be more susceptible to psychological and adjustment disorders as compared to those who are assimilated or separated (Cuéllar, 2000). In addition, it is consistent with acculturation research on Asian Indian-Americans. Farver, Narang, et al. (2002) found that adolescents with a marginalized acculturation style reported lower self-esteem than adolescents with an integrated or assimilated acculturation style. In conclusion, Hypothesis 3 provides some support for the ethnocultural identity confusion model.

Relationship Between Acculturative Stress and Eating Disorder Symptomatology

The present study is the first to examine the relationship between acculturative stress and eating disorder symptomatology among Asian Indian-American women. It was hypothesized that acculturative stress (i.e., the stress of adapting to a new culture; Berry & Annis, 1974) would be positively related to eating disorder symptomatology. A strong significant positive correlation was found between acculturative stress and eating disorder symptomatology. This finding indicates that Asian Indian-American women with higher levels of acculturative stress have higher levels of eating disorder symptomatology. Acculturative stress was a unique predictor of eating disorder symptomatology over and above the control variables of age, BMI, and whether or not the participant was born in India or the United States. This finding is consistent with Perez, Voelz, Pettit, and Joiner's (2002) finding that acculturative stress is a

moderator between body dissatisfaction and eating disorder symptomatology among Black and Hispanic women. Their finding suggests that minority women with lower acculturative stress may be protected against eating disorder symptomatology as compared to minority women with higher levels of acculturative stress, even when both groups are dissatisfied with their bodies. A similar statement could be made about Asian Indian-American women in that those with lower acculturative stress may be at lower risk for developing eating disorder symptomatology, after controlling for the effects of age, BMI, and generational status.

In regards to the predictive ability of age, BMI, and generational status, they were shown to partially predict eating disorder symptomatology. This indicates that these three variables only accounted for 6% of the variance of eating disorder symptomatology.

Relationship Between Ethnic Identity and Acculturation Attitudes

Some significant relationships worth discussing are between ethnic identity and acculturation attitudes. There was a significant negative relationship between ethnic identity and assimilation, as well as marginalization. This finding suggests that Asian Indian-American women with lower ethnic identities tended to be more assimilated and marginalized. There was a significant positive relationship between ethnic identity and integration. This finding suggests that Asian Indian-American women with higher ethnic identities tended to be more integrated. These findings on ethnic identity and acculturation lend support to the two-dimensional process of acculturation as opposed to the linear process of acculturation (Phinney, 1990). Asian Indian-American women who had weaker identifications to their ethnic group had stronger identifications with the majority group (i.e., lower ethnic identity was related to higher assimilation). Women who had weaker identifications to their ethnic group had weaker identifications with the majority group (i.e., lower ethnic identity was related to higher

marginalization). Finally, women who more strongly identified with their ethnic group, also more strongly identified with the majority group (i.e., higher ethnic identity was related to higher integration).

Some other significant relationships worth discussing regard generational status. There was a significant positive relationship between ethnic identity and whether or not the participant was born in India or the United States. This suggests that Indian-American women born in the United States tended to have higher ethnic identities than women born in India. This finding is not consistent with the research regarding the relationship between ethnic identity and generational status (Phinney, 1990). Past research has found that first generation immigrants have higher ethnic identities than later generations. In addition, women who arrived at a younger age and had lived longer in the new country had weaker ethnic identities. Perhaps a confounding variable to the present study was that the first generation Indian participants had lived for a long time in the U.S., which is why they may have had weaker ethnic identities. In other words, the first generation participants in the present study who have lived in the U.S. for many years may be different than first generation participants who have lived in the U.S. for a short period of time. In the present study, only 10 (12.2%) of the first generation participants had lived in the U.S. for five or less years. Some studies have shown that ethnic identities have tended to be weaker among minorities who have lived longer in the U.S. and who are highly educated (Phinney). These characteristics seem more representative of the first generation participants in the present study, which may be why they had weaker ethnic identities.

There was a significant negative relationship between generational status and marginalization, as well as separation. These results suggest that women born in India tended to be more marginalized and separated, as compared to Indian women born in the United States.

This finding is consistent with Berry and Krishnan's (1992) finding that those born in India are more likely to show marginalization and separation attitudes as compared to their counterparts born in the United States.

Relationship Between Acculturation Attitudes and Acculturative Stress

All four acculturation attitudes were significantly positively related to acculturative stress. This finding indicates that Asian Indian-American women undergo stress as part of the acculturation process. Marginalization and separation were more strongly positively correlated with acculturative stress than assimilation and integration. This finding is partially consistent with past research on acculturation and acculturative stress. Krishnan and Berry (1992) found that only marginalization and separation are significantly positively related to acculturative stress among Asian Indian-Americans. This finding was consistent with the present study suggesting that marginalized and separated women do feel more stress than their assimilated or integrated counterparts. However, Krishnan and Berry also found that assimilation was only marginally positively related and integration was significantly negatively related to acculturative stress. It is believed that those who are integrated may feel more at home and feel a sense of belongingness rather than stress. Perhaps integration was not negatively related to acculturative stress in the present study because the present study used a different instrument to measure acculturative stress than Krishnan and Berry used, resulting in different findings. Rather than measuring acculturative stress with the SAFE (Mena et al., 1987), Krishnan and Berry used an unnamed, 20-item instrument of which 10 items related to psychosomatic stress symptoms and the other 10 items related to psychological stress symptoms.

Relationship Between Body Mass Index and Eating Disorder Symptomatology

Body mass index (BMI) was significantly positively related to eating disorder symptomatology. This finding indicates that Asian Indian-American women with higher BMI's tended to have higher eating disorder symptomatology. This implies that Indian-American women who weighed more, resorted to disordered eating. This finding provides support for Iyer and Haslam's (2003) claim that South Asian women face pressure related to their appearance and body shape which may be reflective of Indians' stringent norms and emphasis on marriage. Jackson, Keel, and Lee (2006) believe that the importance placed on a Korean woman's appearance and adherence to cultural norms may put them at risk for eating disorders. The same conclusion might be drawn for Indian-American women given the pressure that they face. Asian Indian-American women who are overweight may be trying to aspire to a more acceptable, desirable weight, which could result in eating disorder symptomatology.

Prevalence of Eating Disorder Symptomatology in Asian Indian-American Women

Garner, Olmstead, Bohr, and Garfinkel (1982) indicated a critical cut-off score of 20 on the Eating Attitudes Test-26 (EAT-26) as representative of problem eating behavior. In the present study, 12.24% of the participants scored at or above 20 on the EAT-26. This rate is similar to what other researchers have found for Caucasian and Indian samples. Garner et al. reported that most surveys have shown that about 15% of women score at or above 20. A more recent meta-analysis examining the EAT-26 reported that 10 to 15% of young women score as high as 20 or above (Garfinkel & Newman, 2001). In the present study, the mean score on the EAT-26 was 8.69 (SD = 8.69). In Garner et al.'s study, the mean for the non-clinical female sample was 9.9 (SD = 9.2). The similarity of scores indicates that eating disorder symptomatology may be equally prevalent among Asian Indian-American and Caucasian non-

clinical women. Garfinkel and Newman's meta-analysis of high school females and other females in North American and Western European countries reported means of about 11 to 15 on the EAT-26. These means are higher than Garner et al.'s report, however, Garfinkel and Newman's means include high school females as well which makes it difficult to compare means to the present study and Garner et al.'s study, neither of which include high school females.

The present study found similar prevalence rates as other studies that have examined Indians in India and other countries. For example, Tendulkar et al. (2006) found that 13.3% of their 451 Indian college students in India that took the EAT-26 had significant eating disorder symptomatology. Mumford, Whitehouse, and Platts (1991) found 12.3% of British Asian women had disordered eating as compared to 8.3% among their Caucasian counterparts. As a follow up study, Mumford, Whitehouse, and Choudry (1992) found 10.3% of disordered eating among the girls living in Lahore, Pakistan. In Sjostedt, Schumaker, and Nathawat's (1998) study, 27% of the Indian women living in India scored at or above 20 on the EAT-26, which is a higher percentage than the present study. One participant (a 22-year-old single, graduate student) in the present study wrote a comment on the EAT-26. She wrote, "I don't know if this is relevant to your study, but during my first year of college, I was very into dieting/being thinner, and engaged in unhealthy diets and sometimes threw up my food. But after my second year of college that stopped. Now I have pretty normal eating habits and don't really watch what I eat, but in college I was <u>very</u> preoccupied with my weight." Thus, we can conclude that eating disorder symptomatology is problematic for Asian Indians and Asian Indian-Americans.

Significant Relationships Among the Disordered Eating Participants

Correlations were computed among the key variables in the present study among the 18 out of the 147 participants who scored at or above Garner et al.'s (1982) critical cut-off point of

20. Some significant correlations are worth discussing, some of which are similar to the relationships found among all 147 participants. However, the *n* was small for these correlations, so the results should be interpreted with caution.

First, age was significantly negatively related to eating disorder symptomatology. This finding suggests that younger Asian Indian-American women tended to have higher eating disorder symptomatology. This finding lends support to the notion that young Indian women face pressures related to appearance and marriage that lead them to developing eating disorders (Iyer & Haslam, 2003). Also, there was a strong significant negative relationship between length of time residing in the U.S. and eating disorder symptomatology. This finding suggests that Asian Indian-Americans living in the United States for less time tended to have higher eating disorder symptomatology. This finding provides support for the ethnocultural model of developing eating disorders because they have less time to integrate themselves into Western culture.

The other significant correlations worth discussing among the disordered eating participants were also significant among all 147 Asian Indian-American participants. These include: (a) those with lower ethnic identities tend to be more assimilated and marginalized; (b) those born in India tended to be more separated as compared to Indian women born in the United States; and (c) those with higher scores on marginalization and separation tended to have higher acculturative stress. The implications of these results are discussed above.

Limitations

The conclusions drawn from the present study must be interpreted with caution due to the limitations of the study. The return rate for the present study was 49.3%. One reason that some questionnaires were not returned may be that some Asian Indian-Americans might not be willing

to fill out a questionnaire that is so progressive and intrusive as the one utilized in the present study. Inman, Ladany, Constantine, and Morano (2001) examined cultural conflict among 319 South Asian-American women and found that social desirability is a significant concern for these women. Social desirability could have impacted the present study in different ways. First, it is possible that some participants did not fill out or return the questionnaire because they did not want to appear socially undesirable. Second, the level of eating disorder symptomatology or other psychological distress (e.g., acculturative stress) could have been underreported in order to look more desirable.

There were just over 60% first generation and about 40% second generation participants in the present study. Given the time period of immigration of Asian Indians, second generation Indians do not have young adult children yet. Therefore, there were no third generation participants. However, although there were quite a few first generation participants, many of them had been in the U.S. for many years. The external validity of the study would be increased if there was more variance in the length of time living in the U.S. If more participants had been here for a shorter amount of time, there may have been more participants who identified as separated and marginalized. It is interesting to note that about half of the participants ethnically identified as Indian rather than Indian-American or American. However, all of those participants, except for one, scored highest on integration. Thus, the question of why so many participants scored highest on integration despite identifying as Indian arises. One answer may be that Asian Indians who are separated and marginalized might have been reluctant to fill out the questionnaire. Another answer is that Krishnan and Berry (1992) also found that the attitude preference for Asian Indian-Americans tends to be integration because of their use of the English language and their educational background. The mean scores for Assimilation (M = 2.09, SD =

.40), Integration (M = 4.13, SD = .36), Marginalization (M = 2.37, SD = .51), and Separation (M = 2.17, SD = .48) in the present study were similar to the mean scores reported by Krishnan and Berry, which were M = 2.12 (SD = .41), M = 4.12 (SD = .47), M = 2.76 (SD = .47), and M = 2.67 (SD = .70), respectively. Thus, the present study found similar scores as those reported by Krishnan and Berry. Finally, there may be problems with the acculturation instrument used in the present study. Krishnan and Berry's Acculturation Attitudes Scale is one of the few acculturation scales developed for Asian Indians. It was based on a model that was developed by Berry et al. (1986) in the late seventies and early eighties. This scale may need to be updated to reflect a new time period and to eliminate its vague language. For example, a number of participants commented that the use of the word "American" in the instrument is vague. For example, Item 1 states that "Most of my friends are Indian because I feel very comfortable around them, but I don't feel very comfortable around Americans." In addition, some participants had a problem with items such as this one in which they agreed with part of the statement but did not agree with the other part of the statement. Another problem with Krishnan and Berry's scale is that some participants found it limiting. For example, Item 21 states "If I had a choice between American and Indian food, I would definitely choose to eat American food because I enjoy it much more." Some participants found this question difficult to answer because they prefer to eat other ethnic foods such as Chinese and Mexican. Lastly, a problem with Krishnan and Berry's acculturation scale is that it has been infrequently utilized in published research. This makes it difficult to compare the present study with other studies that have examined the relationship between acculturation and eating disorder symptomatology.

About 80% of the participants in the present study reported an annual income of over $70,000. Segal (1991) found that many Asian Indian immigrants have graduate degrees and

come to the United States for educational and professional opportunities. This was true in the present study in that most participants were highly educated or were enrolled in graduate school. Asian Indians tend to be less socioeconomically diverse than other groups (Duvasula & Mylvaganam, 1994). However, having a homogenous socioeconomic sample may not be a limitation if this sample is representative of the Asian Indian women in the U.S. population.

The present study has a number of strengths as well that contribute to the external validity of the study. First, the ages of the participants were very diverse, ranging from late adolescence to late adulthood. Second, the sample was geographically diverse, as participants were recruited from many states and regions around the country. Third, other studies have been criticized for using primarily college students. The present study consisted of undergraduate college students, graduate students, housewives, and women involved in a number of different occupations. Finally, other studies have been criticized for grouping together all Asian-Americans into one study rather than looking at one particular Asian group. The present study addressed this limitation by focusing on one Asian group—Indian-Americans.

Directions for Future Research

Of the primary variables addressed in the present study (i.e., acculturation, ethnic identity, and acculturative stress), the one that was most strongly related to eating disorder symptomatology was acculturative stress. Future research can further explore other variables that are associated with acculturative stress such as racial teasing. The Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale (SAFE; Mena, Padilla, & Maldonado, 1987) does address these variables as a part of stress associated with acculturation. For example, Item 1 of the SAFE states, “I feel uncomfortable when others make jokes about or put down people of my ethnic background.” However, other instruments may include other variables that

could be related to acculturative stress particularly for Asian Indian-Americans. For example, future research on eating disorder symptomatology could incorporate the Cultural Values Conflict Scale (CVCS; Inman, Ladany, Constantine, & Morano, 2001) for South Asian-American women. The CVCS is based on a 2-factor model of cultural value conflict, intimate relations and sex role expectations. Items such as 8 and 11 of the CVCS address aspects of Indian culture that may be associated with eating disorder symptomatology, "I experience anxiety at the thought of having an arranged marriage," and "I struggle with the value attached to needing to be married by age 25."

The present study found that eating disorder symptomatology is prevalent among Asian Indian-American women. Future researchers may want to recruit Indian-American participants with clinical levels of eating disorders in order to examine the predictive ability and relationships with ethnic identity, acculturation attitudes, and acculturative stress. Half of the participants in the present study scored fairly low on the EAT-26 (Garner et al., 1982), which may have resulted in a lack of significant relationships between the EAT-26 and other variables.

The study of eating disorders (EDs) tends to focus more on women than on men. It may be necessary for future research to focus on eating disorder symptomatology among Asian Indian-American men. Tendulkar, Krishnadas, Durge, Sharma, Nayak, Kamat, and Dhavale (2006) examined eating disorder symptomatology among 451 male and female college students in Mumbai, India. They found a significant amount of disordered eating among the males.

Future research could also examine what types of treatments would be most effective for Asian Indian-American women with EDs. Client characteristics such as race, ethnicity, and culture must be taken into account when determining what type of treatment would be most effective (Atkinson, Bui, & Sakurako, 2001). There are a lack of studies that demonstrate the

efficacy of empirically supported treatments in minority women with EDs (Yoshimura, 1995). If successful treatments are available, Asian Indian-American women with EDs may be more inclined to seek treatment.

Implications for Clinical Practice

Garner et al. (1982) recommended that women who score at or above 20 should seek help from a mental health professional who has experience treating eating disorders. In the present study, if the participants with eating disorder symptomatology did seek treatment, it is important that clinicians understand how to treat disordered eating among Asian Indian-Americans. Clinicians need to be multiculturally competent in order to effectively treat this population. Multiculturally competent therapists should understand the effects of ethnic identity, acculturation, and acculturative stress on the psychological development of their clients. Once knowledgeable, therapists will be able to provide appropriate diagnosis and treatment for ethnically diverse clients, such as Asian Indian-Americans. Jackson et al. (2006) suggest that clinicians treating women of color should explore non-Western psychosocial stressors when treating EDs. Clinicians need to familiarize themselves with factors that may be contributing to the development of EDs in Asian Indian-Americans. Success in therapy could be enhanced if some interventions are directed toward acculturative stress issues.

Conclusions

In sum, the purpose of the present study was to examine the relationship between ethnic identity, acculturation, acculturative stress, and eating disorder symptomatology among Asian Indian-American women. The acculturation attitudes of integration and marginalization were significantly positively related to eating disorder symptomatology. Acculturative stress was found to be a unique predictor of eating disorder symptomatology over and above the control

variables. These findings have relevant implications for future research and for the treatment of EDs in Asian Indian-American women. The present study has shown that disordered eating is as prevalent among this population of women, as among European American women. It appears that both a sociocultural model and ethnocultural identity confusion model may help to explain the development of eating disorder symptomatology among Asian Indian-American women.

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Appendix A

Informed Consent

Dear Participant,

You are being asked to take part in a research study conducted by Anju Bhargava at Washington State University. Your participation is very important for learning more about Asian Indian-Americans. Most of the research in psychology has been done on White/European-American men and women. As a result, we do not know much about other ethnic/racial groups, especially Asian Indian-Americans.

Therefore, I would like you to participate in the research that I am conducting. The purpose of this consent form is to give you the information that you will need to help you decide whether to be in the study or not. Please read this form carefully. The purpose of this research is to gather information on the cultural preferences and current eating/dieting behaviors of Asian Indian-Americans. This study examines Asian Indian-American women. You are eligible to participate if you are a woman at least 18 years of age and both of your parents are Asian Indian or Asian Indian-American.

The five questionnaires should take no longer than 30 minutes to complete. Your responses will be kept confidential, and you will not be required to write your name on the surveys. Your participation in the research is voluntary. You will be asked about basic demographic information, your current eating and dieting behaviors, your acculturation process, and your ethnic identity.

We do not expect any disadvantage to you in participating in this study, although some individuals could feel uncomfortable describing themselves or their behaviors. Although I hope that you can answer all of the questions or items, you may refuse to answer any question or item in the questionnaires. A potential benefit of the study is that you may find that the task is interesting or that it increases your self-awareness. Your taking part will, of course, help us to achieve the research goals mentioned above.

Completion of these questionnaires indicates your consent to participate in this research. The project has been reviewed and approved by the WSU Institutional Review Board for human subject participation. If you have any questions or concerns regarding the study, you can contact the researchers at the contact information given below and if you have questions regarding your rights as a participant, you can contact the Washington State University Institutional Review Board at 509-335-9661 or irb@wsu.edu. After completing the questionnaires, you can enclose them in the provided pre-paid and pre-addressed envelopes, which will ensure your anonymity. If you have any questions or would like a copy of the results, please contact us at the numbers listed below.

Thank you very much for your time and attention. I hope that you will participate in this study. Your help is greatly appreciated.

Sincerely,

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Appendix B

Demographic Questionnaire

First, I would like to ask for some general background information that describes you. Please answer these questions by filling in the blank or circling the number.

(All of the following information will be used for research purposes only)

1. Your present age: _____

2. Your height in feet and inches: _____

3. Your weight in pounds: _____

4. What state do you live in? _____

How would you describe the area that you live in? (circle number)
1 Rural
2 Suburban
3 Metropolitan

5. How would you rate your ability to read and write in English? (circle number)
1 Poor
2 Fair
3 Good
4 Fluent

6. Which of the following best describes how you think about yourself or your ethnic identification? (circle number)
1 Indian
2 American
3 Indian American
4 Other (please specify)_____

7. What is your relationship status? (circle number)
1 Single
2 Engaged
3 Married
4 Cohabitating/Living with partner
5 Separated/Divorced
6 Widowed
7 Other (please specify)_____

If married, did you have an arranged marriage? _____

8. What is your generational status? (circle number)
   1 Born outside the United States
      Please specify where_____
      How long have you lived in the U.S._____
   2 Second Generation (i.e., I was born here and my parents were born in India)
   3 Third Generation (i.e., I was born here, my parents were born here, and my grandparents were born in India)
   4 Other (please specify) _____

9. What is the highest level of education that you have completed? (circle number)
   1 Elementary school
   2 High School
   3 Two-year college
   4 Four-year college
   5 Graduate School/Professional School
   6 Other (please specify)_____

10. Please describe your current occupation or job: _____

    If you are a student, please describe your year in school (circle number)
    1 Freshman
    2 Sophomore
    3 Junior
    4 Senior
    5 Graduate Student
    6 Other (please specify)_____

11. What is your religion? (circle number)
   1 Hindu
   2 Muslim
   3 Christian
   4 Sikh
   5 Other (please specify)_____

12. What would you estimate was your family's income (before taxes) from all sources in 2005? (circle number)
   1 $20,000-29,000 a year
   2 $30,000-$39,000 a year
   3 $40,000-$49,000 a year
   4 $50,000-$59,000 a year
   5 $60,000-$69,000 a year
   6 More than $70,000 a year