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Sociocultural Attitudes Towards Appearance Questionnaire-4-Revised in Asian Americans

Dean Lim

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LOMA LINDA UNIVERSITY
School of Behavioral Health
in conjunction with the
Faculty of Graduate Studies

Sociocultural Attitudes Towards Appearance Questionnaire-4-Revised in
Asian Americans

by

Dean Lim

A Thesis submitted in partial satisfaction of
the requirements for the degree
Doctor of Philosophy in Clinical Psychology

June 2018

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Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Doctor of Philosophy.

_____, Chairperson
Sylvia M. Herbozo, Associate Professor of Psychology

Kendal C. Boyd, Associate Professor of Psychology

Colleen A. Brenner, Associate Professor of Psychology

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ABBREVIATIONS

SATAQ	Sociocultural Attitudes Towards Appearance Questionnaire
SATAQ-R	Sociocultural Attitudes Towards Appearance Questionnaire-Revised
SATAQ-3	Sociocultural Attitudes Towards Appearance Questionnaire-3
SATAQ-4	Sociocultural Attitudes Towards Appearance Questionnaire-4
SATAQ-4R	Sociocultural Attitudes Towards Appearance Questionnaire-4-Revised
BMI	Body Mass Index
EDE-Q	Eating Disorder Examination-Questionnaire
EDI-3-BD	Eating Disorder Inventory 3-Body Dissatisfaction
MBSRQ-AE	Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation subscale
RSES	Rosenberg Self-Esteem Scale
CFA	Confirmatory Factor Analysis
χ^2	Model Chi-square
CFI	Bentler Comparative Fit Index
SRMR	Standardized Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
CI	Confidence Interval

ABSTRACT OF THE THESIS

Sociocultural Attitudes Towards Appearance Questionnaire-4-Revised in
Asian Americans

by

Dean Lim

Doctor of Philosophy, Graduate Program in Clinical Psychology

Loma Linda University, June 2018

Dr. Sylvia M. Herbozo, Chairperson

Prior research has indicated that the prevalence of eating disorders, which are recognized as one of most lethal psychological disorders with an approximately 20% mortality rate, are increasing among Asian Americans with rates comparable to those of the general population in the United States. However, research has also suggested that Asian Americans may not be fully reporting symptoms related to eating disorders because of sociocultural stigma and the desire to uphold cultural values, such as interdependence, harmony within the community, humility, and emotional restraint. The SATAQ-4R is a widely-used measure of sociocultural influences on body image and eating disturbance, which includes different forms for females and males. However, few studies have performed a psychometric evaluation of the SATAQ-4R among Asian Americans. Thus, the aims of the current study were to explore the factor structure of the SATAQ-4R and evaluate the reliability and validity of the SATAQ-4R in Asian Americans women and men. Participants were 97 Asian Americans (61.9% female), aged 18-25 ($M = 20.87$, $SD = 2.29$), and a mean BMI of 24.70 ($SD = 5.49$) recruited from university subject pools as well as the community via flyers. A confirmatory factor analysis was conducted to test the factor structure of the SATAQ-4R-Female and Male,

and convergent validity was measured using Pearson product-moment correlation coefficients between the SATAQ-4R subscales and the EDEQ, EDI-3-BD, MBSRQ-AE, and RSES. Fit indices indicated that the SATAQ-4R-Female and Male were not well fit for the data in Asian American women and men. However, both the SATAQ-4R-Female and Male demonstrated adequate overall convergent validity in Asian American women and men. Results support previous research on eating disorders and body image disturbance in Asian Americans, indicating that there may, indeed, exist sociocultural influences that are different for Asian Americans than for those of other ethnic groups. However, the current study consisted of small sample sizes of females and males and therefore, results should be interpreted with caution and further study involving larger samples are needed. Further research could provide valuable information on how to address eating disorders among Asian Americans in a culturally appropriate manner.

CHAPTER ONE

INTRODUCTION

According to the *Diagnostic Manual of Mental Disorders* (5th edition; American Psychiatric Association, 2013), eating disorders are characterized by persistent disturbances in eating patterns and behaviors that result in harm to physical health as well as in psychosocial functioning. Such detriments to physical health include but are not limited to heart failure, bone density loss, and death (Chavez & Insel, 2007). Of particular note, eating disorders are recognized as one of the most lethal psychological disorders, with mortality rates reported to be as high as 20% (Nielsen, 2001). With regards to psychological effects, eating disorders have been shown to be strongly comorbid with depression, anxiety, and suicide (Chavez & Insel, 2007; Hudson, Hiripi, Pope, & Kessler, 2007). The significant detrimental effects of eating disorders warrant greater research attention in this area to inform prevention and treatment efforts.

In the United States, lifetime prevalence rates of eating disorders are generally below 3% (Swanson et al., 2011; Hudson et al., 2007). Anorexia nervosa, bulimia nervosa, and binge eating disorder in adults range from .60 to 2.80% (Hudson et al., 2011). College women seem to be at greatest risk for eating disorders given the mean age of onset is 18 to 25 (Hudson et al., 2007). Recent research has indicated that eating disorders are prevalent outside of the U.S., especially in Western or industrialized regions, such as in Western Europe (Hoek & van Hoeken, 2003). There is some evidence suggesting that eating disorders are increasing in Asian countries as well as in Asians in the U.S. (Gordon, 2001; Pike & Dunn, 2015). At more than 14.7 million individuals, Asian Americans make up almost five percent of the U.S. population (Humes, Jones, &

Ramirez, 2011). The rising rates of eating disorders among Asian Americans highlight the need for additional research with this particular ethnic minority group. Little is known about sociocultural factors associated with poor body image and eating disorder psychopathology that contribute to the development of eating disorders in Asian Americans (Cummins, Simmons, & Zane, 2005). Such research could provide valuable information on how to address eating disorders among Asian Americans in a culturally appropriate manner.

Eating Disorders and Associated Psychopathology in Asian Americans

Research has shown that the prevalence of eating disorders has been rising in those with diverse ethnic, racial, cultural, and socioeconomic backgrounds (Davis & Yager, 1992; Pate, Pumariega, Hester, & Garner, 1992; Pike & Walsh, 1996; Ritenbaugh, Shisslak, Teufel, & Leonard-Green, 1996; Smolak & Striegel-Moore, 2001). Specifically, prevalence rates of eating disorders in Asians, African, and Hispanic Americans has been gradually increasing and becoming more similar to the rates of eating disorders in Caucasians (Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000; Cummins, Simmons, & Zane, 2005; Nicdao, Hong, & Takeuchi, 2007). Nicdao and colleagues (2007) found that Asian females in the U.S. had prevalence rates of .12% for anorexia nervosa, 1.42% for bulimia nervosa, 2.67% for binge eating disorder, and 4.71% for “any binge eating.” Such rates are comparable to those of the general population in the U.S., with the exception of anorexia nervosa which remains highest in Caucasian females (Hudson et al., 2007; Nicdao et al., 2007).

Several possible explanations have been proposed for a discrepancy in findings.

Asian Americans may not be fully reporting symptoms related to eating disorders because of the sociocultural stigma associated with being diagnosed with an eating disorder, or symptoms may go undetected and untreated while possibly being viewed as commonplace (Nicdao et al., 2007). It is also likely that given Asian cultures are largely collectivistic, seeking eating disorder treatment may go against the values of interdependence, harmony within the community, humility, and emotional restraint with such cultures (Tsong & Smart, 2015). Furthermore, Nicdao and colleagues (2007) have noted that many eating disorder assessment measures were developed using primarily Caucasian samples, with limited Asian Americans. Accordingly, they have suggested that classifying and defining eating disorders should be performed cautiously, as possible nuances and sociocultural influences unique to Asian Americans may be leading eating disorders in Asian Americans to go unnoticed.

There are also conflicting findings pertaining to poor body image and eating disorder psychopathology in Asian Americans and Asians in other countries. Asian Americans have reported eating disorder psychopathology, although at lower prevalence rates than other ethnic groups in the U.S. (Nicdao et al., 2007). A recent study by Lee-Winn, Mendelson, and Mojtabai (2014) found less “fear of fatness” or desire to be thin in Asian Americans who had symptoms of binge eating disorder compared to other ethnic groups. Other studies have also found this to be the case, specifically in Hong Kong and India (Miller & Pumariega, 2001). Given that there appears to be less fear of fatness or desire to be thin, it may seem that Asian individuals are less likely to experience body image or eating disturbance. However, Asians living in more Westernized regions have been found to have a fear of fatness and these areas have also exhibited greater

incidences of eating disorders (Miller & Pumariega, 2001). Therefore, as Asian countries become more westernized, or acculturated, a fear of fatness may become more common and, in turn, eating disorders rates may increase.

Acculturation to Western culture is an important factor to consider due to the influence that Western culture appears to have on those of more traditional Asian cultures. Acculturation occurs when members of a minority group adopt the culture of the majority group. This process can also involve changes in diet and associated eating behaviors. In Asian Americans, dietary acculturation has been found to accompany acculturation to the Western culture of the U.S. Specifically, Asian Americans have been shown to increase the intake of foods lower in sodium and higher in sugar and fat as they became more acculturated, or Westernized (Serafica, 2014; Diep et al., 2013). Such dietary changes are likely to influence eating behaviors and body shape and weight.

There is also research suggesting that acculturation to Western culture affects body image, eating disorder psychology, and other areas of psychological functioning in Asian Americans. Studies have demonstrated that Asian American women who internalize Western ideals of beauty through sociocultural influences, such as media and peers, have significantly lower levels of body image satisfaction, similar to individuals of other Westernized groups (Guan, Lee, & Cole, 2012; Lau, Lum, Chronister, & Forrest, 2006). Claudat, White, and Warren (2016) found an association between stressors related to acculturation (e.g., learning a new language, adapting to different social norms, intergenerational disagreements) and increased eating disorder psychopathology as well as lower self-esteem for Asian American women. Specifically, acculturative stress influenced eating disorder psychopathology directly and indirectly through its effects on

self-esteem. Furthermore, Tsong and Smart (2015) posited that Asian Americans who are rooted in both Asian and Western culture may face bicultural stress, or cultural conflict, which contribute to disordered eating as a coping strategy. Although limited, there is evidence indicating that Asian Americans who are bicultural are more likely to report significantly more disordered eating than those who are more traditional and those who have assimilated to Western culture in the U.S. (Tsong & Smart, 2015). Thus, acculturation to this Western culture may be distressing to those who continue to support more Asian values and systems and, in turn, increase the likelihood of the development of eating disorders.

The Influence of Sociocultural Factors on Eating Disorder Psychopathology

In the U.S. and other Westernized regions, appearance ideals emphasize thinness in women, such that thinness is socioculturally reinforced as the standard of beauty (Thompson, Heinberg, Altabe, Tantleff-Dunn, 1999; Van den Berg, Thompson, Obrowski-Brandon, & Covert, 2002). The thin-ideal can be characterized by slenderness, toned bodies, and longer legs among other features (Stice & Agras, 1998) and is often reinforced by different sources of media, such as television or magazine advertisements, as well as peers and family members (Thompson et al., 1999). The sociocultural reinforcement of the thin-ideal may encourage some women to adopt, or “internalize,” this appearance ideal. Internalization of appearance ideals, such as the thin-ideal, can be defined as the extent to which an individual adopts the ideals of attractiveness set by society and engages in behaviors to reach these ideals (Thompson et al., 1999). Numerous studies have shown thin-ideal internalization is predictive of body

image and eating disturbances, and such research has established this type of internalization as a risk factor for eating disorder psychopathology (Stice, 2001; Stice & Agras, 1998; Stice, Mazotti, Krebs, & Martin, 1998).

One of the most prominent and empirically supported etiological models in this area is the Tripartite Influence model (Thompson et al., 1999). This sociocultural model suggests that peers, parents, and media (e.g., television and magazine advertisements) influence the development of body image and eating disturbance. Specifically, the three sources of influence transmit messages promoting and perpetuating adherence to the thin ideal through comments regarding weight, encouragement to diet, glorification of thin models, and other reinforcing actions (Thompson & Stice, 2001). These sociocultural pressures from peers, parents, and the media may then contribute to the internalization of the thin ideal (Thompson & Stice, 2001; Van den Berg et al., 2002). Given that the thin ideal is often unattainable for many women, a discrepancy may occur between the self and the ideal self. This discrepancy may lead to dissatisfaction with weight and shape (Stice, 2001; Stice & Agras, 1998; Stice et al., 1998). Consequently, this body dissatisfaction may result in appearance comparisons among women. Appearance comparisons can be defined as comparing one's own appearance to that of others in order to evaluate one's own level of attractiveness (Van den Berg et al., 2002). Altogether, the Tripartite Influence model purports that sociocultural pressures from peers, parents, and media indirectly predict the development of body image and eating disorder pathology through the effects of internalization of appearance ideals and appearance comparisons (Van den Berg et al., 2002).

Sociocultural Influences of Eating Disorders in Asian Americans

Research has suggested that the relationship between sociocultural influences and eating disorders may be distinct for specific ethnic and cultural groups (e.g., Hall, 1995; Tsong & Smart, 2015). The sociocultural pressures influencing disordered eating behaviors among Asian Americans are of particular interest given unique cultural and ethnic characteristics of Asian Americans identified by the limited number of studies in this area. Hall (1995) found that Asian Americans felt pressured by the standards of attractiveness set by Western U.S. society, which were often transmitted through media, family, and peers. According to Hall (1995), however, Asian Americans reported feeling dissatisfied not only with their bodies, but their racially-defined appearances (e.g., flat face, yellow skin, smaller eyes). Other research has supported these findings. Mintz and Kushabeck (1999) found that Asian American women reported lower self-esteem and self-satisfaction, specifically with their racially-defined appearance, yet engaged in less dieting and bingeing behaviors compared to Caucasians. Consistent with the Tripartite Influence model, some Asian American women may internalize the Western ideal of attractiveness and engage in appearance comparisons between themselves and Caucasians resulting in dissatisfaction with their appearance. Although such sociocultural influences were not shown to affect eating behaviors, it is likely that prolonged exposure to appearance messages may result in disordered eating behaviors as suggested by the Tripartite Influence model.

There also seem to be ethnic differences between Asian Americans and other ethnic groups with regards to the effects of particular cultural values and systems on body dissatisfaction and eating disorder psychopathology. Lau and colleagues (2006) found

that higher levels of identification with traditional Asian ideals and values (e.g., collectivism, interdependence, conforming to familial and social norms, following familial and social expectations) have been associated with higher levels of body image dissatisfaction in Asian American women. Lau and colleagues (2006) suggested that the collectivistic nature of Asian ideals and values may lead Asian Americans to endorse Caucasian appearance ideals and, thus, experience body dissatisfaction because they could not achieve the Caucasian appearance ideal. Lau and colleagues (2006) also proposed that the value of humility in Asian culture may cause Asian Americans to believe that reporting positive attitudes about appearance is boastful and conceited. Therefore, some Asian Americans may respond in a way that appears to reflect body dissatisfaction, but they have not actually experienced body dissatisfaction. Such studies suggest that there may be cultural nuances underlying the relationship between sociocultural influences and eating disorder psychopathology specific to Asian Americans.

Asian Americans also seem to demonstrate unique features of poor body image and eating disorder psychopathology related to Asian culture. In a qualitative study, Smart and Tsong (2014) found that Asian American women felt that weight gain, body dissatisfaction, and desire to be thin were due to the emphasis Asian culture places on thinness, family criticism of weight, developmental events (i.e., stressful transitional events), and appearance comparisons to other Asian women. Of particular note, Asian American women exhibited the desire to become “full-on anorexic” so that they could become thinner. Study findings also revealed that they were subject to appearance comparison by their parents starting at a young age. They attributed their body

dissatisfaction and desire to become thinner to the sociocultural influence from their parents. Furthermore, these women continued to report that they went on to make appearance comparisons themselves and self-criticize. Smart and Tsong (2014) suggested that there may be an even more stringent emphasis on thinness in Asian cultures than in Caucasian cultures. This may be due to the particular values Asian cultures promote, such as familial and societal harmony (i.e., appearance-related pressures from parents) and humility (Lau et al., 2006; Smart & Tsong, 2014; Tsong & Smart, 2015).

In addition to the emphasis on thinness in Asian cultures, the emphasis on thinness among Caucasians in Western cultures may exacerbate the pressures Asian Americans feel regarding their physical appearance. Thus, it is likely that Asian Americans experience additional appearance-related stress from being bicultural (Claudat et al., 2016; Smart & Tsong, 2014; Tsong & Smart, 2015). A recent study by Rakhkovskaya and Warren (2016) found that Asian Americans who are more traditional may experience less body dissatisfaction due to a stronger sense of ethnic identity than those who are less familiar with their own ethnic backgrounds. Instead, Asian Americans who do not have a stronger sense of ethnic identity might identify themselves as fully American and thus, not experience acculturative or bicultural stress, since it is less likely for them to be required to acculturate or find a balance between conflicting cultural values. Rakhkovskaya and Warren (2016) also suggested that for Asian American women, identifying with one's cultural group may actually serve as a protective factor against sociocultural pressures related to appearance, specifically those from media. The sociocultural issues identified by these Asian American women fall within a sociocultural framework, such as the Tripartite Influence model, as they seem to predict body image

and eating disturbance. However, ethnic and cultural differences in Asian Americans may make the relationship between sociocultural influences and eating disorder disturbance more complex.

Additional studies examining the effects of Asian culture on body image and eating disturbance have indicated that high achievement and meeting parental expectations are significant factors to consider (Chang, 2013; Chang, Yu, & Lin, 2014; Lee & Lock, 2007; Smart & Tsong, 2014; Tsong & Smart, 2015). According to Tsong and Smart (2015), being thin is regarded by Asian Americans women to be a necessary aspect in meeting high parental expectations and overall achievement (e.g., appearance, academics, career). Chang and colleagues (2014) also argue that compared to other ethnic groups, Asian Americans, especially adolescents, may perceive greater criticism regarding their academics from their parents, in addition to their appearances, due to the cultural emphasis on high achievement and perfectionism. Thus, Asian Americans may also have more significant concerns about meeting the high expectations set by their parents compared to other ethnic groups (Peng & Wright, 1994). Indeed, parental expectations may be a larger sociocultural pressure on Asian Americans than in other ethnic groups, suggesting ethnic and cultural differences in the relationship between sociocultural pressures, body image, and eating disorder psychopathology.

CHAPTER TWO

DEVELOPMENT OF THE SOCIOCULTURAL ATTITUDES TOWARDS APPEARANCE QUESTIONNAIRES

Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ)

An empirically-supported measure of sociocultural influences on body image and eating disturbance is the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ; Heinberg, Thompson, & Stormer, 1995). The SATAQ was developed to measure awareness and internalization of appearance standards (i.e., the thin ideal) established by society for women. This measure focused on women because they report higher levels of body image and eating disturbance (Miller & Pumariega, 2001; Schaefer et al., 2015; Streigel-Moore et al., 2009). The SATAQ contains two subscales called the “Awareness” and “Internalization” subscales. The “Awareness” subscale assesses the degree to which an individual recognizes or is aware of a sociocultural influence, while the “Internalization” subscale assesses the degree to which an individual endorsed or internalized the thin-ideal (Heinberg et al., 1995). The SATAQ demonstrated good reliability with alphas of .71 to .88, as well as adequate validity (Heinberg et al., 1995). The SATAQ was expected to help clinicians identify and challenge cognitions about one’s appearance associated with sociocultural influences (Heinberg et al., 1995).

However, the SATAQ had limitations, especially with regards to diverse ethnic groups. One limitation is that the SATAQ was developed with a sample of primarily Caucasian women. The psychometric properties of the SATAQ require examination in a variety of ethnic groups (Heinberg et al., 1995). Lai and colleagues (2013) found that the

“Internalization” and “Awareness” subscales of the SATAQ predict higher levels of body dissatisfaction and disordered eating behaviors among adolescents in Hong Kong.

However, the validity of the SATAQ in Asians had not been adequately examined. In a study of diverse ethnic groups of women, Cashel and colleagues (2003) found that good construct validity was only demonstrated for the “Internalization” subscale in Caucasian, African American, and Hispanic American women. Furthermore, validity was strongest in Caucasian women in comparison to African American and Hispanic women. Cashel and colleagues (2003) suggested that awareness of sociocultural pressures, as assessed by the “Awareness” subscale, may hold different meanings to different ethnic groups and thus, validity of the SATAQ may have been compromised.

Another limitation of the SATAQ is that this measure focuses on the social pressures regarding thinness and excludes other possible appearance ideals (Heinberg et al., 1995). It may be that other aspects of appearance aside from body shape and weight, such as facial structure, skin color, and eye shape and size, influence internalization and awareness of appearance ideals in Asian Americans as well as in other ethnic minorities (Hall, 1995). Heinberg and colleagues (1995) have suggested that the SATAQ might benefit from creating subscales based on specific targets of sociocultural influence.

Sociocultural Attitudes Towards Appearance Questionnaire-Revised (SATAQ-R)

Cusumano and Thompson (1997) revised the SATAQ resulting in SATAQ-R. The SATAQ-R added items to the “Awareness” and “Internalization” subscales in order to update and expand the range of the SATAQ, specifically with regard to a focus on

athleticism for women. With the inclusion of the new items to these subscales, the SATAQ-R assessed the athletic-ideal, which is characterized by well-built, muscular, athletic, and toned bodies, in addition to the thin-ideal (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). It was important to address athletic-ideal in the SATAQ-R, given its increased popularity among some women (Cusumano & Thompson, 1997). The SATAQ-R demonstrated good internal consistency reliability with Cronbach's alphas of .83 and .89 in college women (Cusumano & Thompson, 1997).

Despite the improvements in the SATAQ-R, this revised scale had limitations. One of the limitations of the SATAQ-R is that it does not account for the multidimensionality of societal influence (Thompson et al., 2004). Thompson and colleagues (2004) proposed that media influence should be included as one of the variables measured by the scale. Specifically, they argued that constructs regarding media influence, such as media consumption, media pressure, and internalization of ideals portrayed in the media, had previously been the focus of many measures, but were not well-defined nor assessed. Thompson and colleagues (2004) noted that no measures incorporating the different facets of media influence had been developed. A second limitation is the SATAQ-R did not adequately address the change in media influence for women, such that mass media's portrayal of societal ideals included athletic/muscular ideals in addition to thin ideals (Thompson et al., 2004). This change in the content of media seemed to be associated with a shift in ideal body type. The subsequent version of the SATAQ was able to assess the internalization and awareness of the athletic-ideal and the thin-ideal; however, it was not able to accurately account for the different facets of media influence.

Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3)

The SATAQ-3 was created with the aims of including a new subscale for the new focus on athleticism and further examining media influences (Thompson et al., 2004). It contained four subscales called the “Internalization-General,” “Internalization-Athlete,” “Pressures,” and “Information” subscales. The “Internalization-General” subscale was similar to the “Internalization” subscales of the SATAQ and SATAQ-R, such that it measured the degree to which an individual endorsed the thin-ideal. The “Internalization-Athlete” subscale measured the degree to which an individual specifically endorsed the athletic-ideal. The “Information” subscale was intended to focus on media influences and measured the extent to which an individual viewed specific sources of media (e.g., television, magazine articles, etc.) as good informational sources of high fashion and appearance (Thompson et al., 2004). The “Pressures” subscale also focused on media influences, as it measured the degree to which an individual felt pressured by media sources to internalize and engage in behaviors to attain the appearance ideals (Thompson et al., 2004). The SATAQ-3 demonstrated good reliability with Cronbach’s alphas of .89 to .94 as well as good convergent validity (Thompson et al., 2004).

Despite the good psychometrics demonstrated by the SATAQ-3, there have been mixed findings in the limited research with the measure in ethnically diverse samples. A study that included female college students from China, Japan, and Jordan in addition to the U.S. revealed significant differences on the SATAQ-3 across the four countries (Madanat, Lindsay, Hawks, & Ding, 2011). Results indicated that female college students from the U.S. used media (e.g., television programs, commercials, music videos, magazine articles) as a source of information on fashion and attractiveness the most when

compared to individuals from Japan, China, and Jordan. Japanese students were also found to use media as a source of information for fashion and attractiveness significantly more than individuals from China and Jordan. Madanat and colleagues (2011) also found that Chinese students experienced the most pressure from media images to appear a certain way and internalized the thin-ideal more than students from the three other countries. Meanwhile, Japanese students experienced the least pressure from media images and internalized athlete images the most. These differences between individuals from different countries may suggest that ethnic differences play a role in sociocultural influence regarding appearance. However, additional research demonstrated that the factor structure of the SATAQ-3 was similar among Caucasians, African Americans, Asian Americans, and Hispanic American women in the United States (Warren, Gleaves, & Rakhkovskaya, 2013). Such lack of clarity on the validity of the SATAQ-3 in ethnically diverse samples, especially those containing Asian samples, supports that the need for further investigation and improvements for the SATAQ-3.

Thompson and colleagues (2004) identified areas of improvement for the SATAQ-3. They posited that media might have an overarching effect, such that it may play a formative role in the internalization of appearance ideals in peers and parents as well as other influential social agents such as teachers. An assessment of these sociocultural influences was needed. Thompson and colleagues (2004) also suggested that different dimensions of body image aside from body dissatisfaction, such as body image investment and appearance-related schemas, should be measured. According to Cash, Melnyk, and Hrabosky (2004), body image investment refers to the importance of one's appearance and behaviors performed to maintain or improve one's appearance.

Appearance-related schemas are cognitive generalizations that individuals develop about themselves to guide the processing of self-related information within the context of appearance (Cash et al., 2004). These issues were addressed in the next version of the SATAQ.

Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4)

The SATAQ-3 was revised by Schaefer and colleagues (2015) resulting in the SATAQ-4. The development of SATAQ-4 was guided by three aims. The first aim was to provide a more comprehensive evaluation of sociocultural influences by adding items to assess peer, family, and media pressures regarding appearance. A second aim was to assess internalization of appearance ideals using terms to refer to specific features and attributes associated with the thin-ideal, such as thinness and low body fat, and the muscular-ideal, such as muscularity and athletic build. The SATAQ-3 used broader terms to refer to the general appearance and physique of models or athletes in the media. Thus, Schaefer and colleagues (2015) also aimed to develop a more specific measure of internalization of the thin-ideal and muscular-ideal. The third aim was to measure the reliability and convergent validity of the SATAQ-4 in both females and males from different U.S. regions and countries (Schaefer et al., 2015). The SATAQ-3 and prior versions of the scale were all originally created for female samples, specifically female undergraduates (Schaefer et al., 2015). Therefore, many of the SATAQ-3 items required modifications to be appropriate for males and their appearance concerns, such as muscularity (Schaefer et al., 2015). Female and male undergraduate samples from the West coast, Southeast, and North/Midwest regions of the U.S. were included to measure

the validity of the scale across these different regions, and female undergraduate samples from Italy, England, and Australia were used to measure the validity of the scale across these different countries (Schaefer et al., 2015).

The SATAQ-4 contains more subscales compared to earlier versions of the SATAQ. The five subscales are the “Internalization: Thin/Low Body Fat,” “Internalization: Muscularity/Athletic,” “Pressures: Family,” “Pressures: Peers,” and “Pressures: Media” subscales. Schaefer and colleagues (2015) found that the SATAQ-4 had good internal consistency reliability in women inside and outside of the U.S. with Cronbach’s alphas of .82 to .95 and .84 to .95, respectively. Convergent validity was also demonstrated in both of these samples. Reliability was lower for males in the U.S., specifically for the “Internalization: Thin/Low Body Fat” subscale, with Cronbach’s alphas of .75 to .93 and convergent validity was also acceptable for males (Schaefer et al., 2015).

Each iteration of the SATAQ has improved upon its preceding version. The SATAQ-4 factor structure with women has been replicated with men and thus, this scale could be used to assess internalization of appearance ideals in both women and men (Schaefer et al., 2015). The SATAQ-4 not only includes a wider range of use given its adequate psychometrics and similar factor structure for both females and males, but it also consists of new subscales that provide a comprehensive assessment of sociocultural influences. According to Schaefer and colleagues (2015), the addition of the internalization subscales allows for more accurate examinations of the relationship between each type of internalization and eating disturbances than the SATAQ-3. Schaefer and colleagues (2015) also argued that the SATAQ-4 shows promise in being utilized

across individuals of different ethnicities and cultures, as they confirmed the factor structure of the SATAQ-4 in various diverse samples in regions outside of the U.S.

Social Attitudes Towards Appearance Questionnaire-4-Revised (SATAQ-4R)

Schaefer, Harriger, Heinberg, Soderberg, and Thompson (2016) continued to build upon the SATAQ and created the SATAQ-4R to address the limitations of the preceding SATAQ-4. First, Schaefer and colleagues (2016) claimed that the use of the terms “muscularity” and “athletic” for the “Internalization: Muscularity/Athletic” subscale of the SATAQ-4 added ambiguity that could obscure the interpretation of subscale scores. According to Schaefer and colleagues (2016), the meaning “athletic” could be interpreted to include athletic characteristics such as agility, coordination, or competence in sports aside from a muscular or toned physique, which was the intended focus of the subscale. Therefore, the name of the subscale was changed to “Internalization: Muscular” in the SATAQ-4R.

Second, Schaefer and colleagues removed items that described more behavioral aspects of the internalization of the muscular-ideal in the “Internalization: Muscularity/Athletic” subscale of the SATAQ-4 (e.g., “I spend a lot of time doing things to look more muscular”) to place more focus on items that described cognitive aspects (e.g., “I think a lot about looking muscular. According to Schaefer and colleagues (2016), the removal of items that assessed the behavioral aspects of muscular-ideal internalization allowed for increased consistency.

Third, items created to assess general desire for physical attractiveness (i.e., overall body dissatisfaction, body dysmorphic disorder, self-objectification) were

removed during the development of the SATAQ-4 as they exhibited high cross-loadings with the “Internalization: Thin/Low Body Fat” and “Internalization: Muscular/Athletic” subscales (Schaefer et al., 2015; Schaefer et al., 2016). Thus, Schaefer and colleagues (2016) revised these items and used them to create an additional subscale called the “Internalization: General Attractiveness” subscale, which was then included in the SATAQ-4R. These items include but are not limited to “It is important for me to look good in the clothes I wear,” “I want to be good looking,” and “I don’t really think much about my appearance.”

Fourth, although the SATAQ-4 and its previous versions were developed based on the Tripartite Influence model (Thompson et al., 1999), research has suggested that significant others (e.g., romantic partners, teachers, and coaches; Biesecker & Martz, 1999; Carriere & Kluck, 2014; Eisenberg, Berg, & Neumark-Sztainer, 2013) may be sources of influence additional to the three, already established sources of influence – peers, family, and media. Thus, Schaefer and colleagues (2016) developed the “Pressures: Significant Others” subscale, which includes items to assess appearance-related pressures from significant others. Items include but are not limited to “I feel pressure from significant others to improve my appearance” and “I feel pressure from significant others to look in better shape.”

Lastly, during the development of the SATAQ-4, Schaefer and colleagues (2015) observed gender differences, especially when examining muscular-ideal internalization, although the SATAQ-4 exhibited adequate psychometric values in males and females. Therefore, Schaefer and colleagues (2016) created separate versions of the SATAQ-4R for males and females. The SATAQ-4R-Male was created for males, while the SATAQ-

4R was created for females.

According to Schaefer and colleagues (2016), the first factor of the SATAQ-4R is named “Internalization – Thin/Low Body Fat” and reflects a desire to attain a thin figure with low body fat. The second factor is called “Internalization – Muscular” and reflects a desire to attain a muscular physique. The third factor is called “Internalization – General Attractiveness” and reflects an overall concern with appearance and a desire to be physically attractive. The last four factors, “Pressures – Family,” “Pressures – Peers,” “Pressures: Media,” and “Pressures – Significant Others,” reflect perceived sociocultural pressures from family, peers, media, and significant others regarding one’s appearance (Schaefer et al., 2016). The SATAQ-4R has demonstrated adequate validity and reliability with alpha’s ranging from .75 to .96 in both females and males (Schaefer et al., 2016).

Although the SATAQ-4R was a significant improvement over the SATAQ-4 in various ways, the factor structure of the SATAQ-4R has not been examined in an Asian American only sample which means the validity of the scale in this ethnic minority group is not known. The study of the SATAQ-4R by Schaefer and colleagues (2016) included only small numbers of Asians in the U.S. Specifically, each of their samples contained up to 55% Caucasian individuals and only up to 6.8% Asian American women and 12.8% Asian American men. Little research has been conducted using the SATAQ-4R to measure internalization and pressures with Asians and other ethnic minorities. Given the similar rates of eating disorders in Asian Americans and Caucasians, there is a need to further examine sociocultural attitudes towards appearance in Asian Americans as has been done with Caucasians (Cachelin et al., 2000; Cummins et al., 2005; Nicdao et al.

2007).

Only a few studies using one of the SATAQ versions (i.e., the SATAQ and SATAQ-3) have included Asian Americans. In the studies with Asian Americans and Asians among other ethnic and cultural groups using previous versions of the SATAQ, ethnic differences were confirmed (Lai et al., 2013; Madanat et al., 2011). However, even these studies are questionable due to the unclear validity of the respective SATAQ versions in each of these studies. If the factor structure of the SATAQ-4R is validated in Asian Americans, the measure could properly utilized with this ethnic minority group and allow for additional research on ethnic differences regarding sociocultural influences and eating disorder psychopathology. Discrepancies in the factor structure of the SATAQ-4R among Asian Americans and those potentially in validation study of the SATAQ-4R would also be important to identify.

The SATAQ-4R is the most current measure of sociocultural influences on body image and eating disturbance that built upon prior widely used versions of the SATAQ. However, to our knowledge, this measure has not been validated in Asian Americans. Research on the factor structure and other psychometric properties of the SATAQ-4R in Asian Americans would likely increase our understanding of body image disturbance and eating disorder psychopathology in this particular ethnic group. Such research would inform whether the SATAQ-4 can be used to gather important sociocultural information such as internalization and pressures in Asian Americans. The aims of this study are to explore the factor structure of the SATAQ-4R and evaluate the reliability and convergent validity of the measure in samples of Asian American women and men.

CHAPTER THREE

METHODS

Participants

Participants were 97 Asian Americans (61.9% female) ages 18 to 25 years ($M = 20.87$, $SD = 2.29$) recruited from subject pools at La Sierra University and California State University, San Marcos, and via flyers posted and distributed in the community. The sample had BMI's ranging from 17.51 to 41.01 ($M = 24.70$, $SD = 5.49$). The study was approved by the universities' ethics committees for research.

Table 1. Demographics

	<i>n</i> (%)
Ethnic Background	
Asian Indian	3 (3.1)
Cambodian	1 (1.0)
Chinese	16 (16.5)
Japanese	4 (4.1)
Korean	32 (33.0)
Malaysian	1 (1.0)
Filipino	37 (38.1)
Thai	2 (2.1)
Vietnamese	1 (1.0)
Other	5 (5.2)

Measures

Demographics

Participants were asked to provide information regarding their age, ethnicity, height, and weight. Height and weight information were used to calculate BMI.

Sociocultural Attitudes Toward Appearance Questionnaire-4-Revised

The Sociocultural Attitudes Toward Appearance Questionnaire-4-Revised (SATAQ-4R) was used to measure internalization of appearance ideals and appearance-related pressures (Schaefer et al., 2016; Appendix A). The measure was revised from the SATAQ-4 to include a female and male form (SATAQ-4R-Female; SATAQ-4R-Male).

The SATAQ-4R-Female is a 31-item scale encompassing seven factors: (1) Internalization – Thin/Low Body Fat, (2) Internalization – Muscular, (3) Internalization – General Attractiveness, (4) Pressures – Family, (5) Pressures – Peers, (6) Pressures – Media, and (7) Pressures – Significant Others. The SATAQ-4R-Male is a 28-item scale that encompasses the same seven factors as in the SATAQ-4R-Female. However, the SATAQ-4R-Male contains eight items not present in the SATAQ-4R-Female, while the latter contains 11 items not present in the former (Schaefer et al., 2016). Of further note, a total of 20 identical items were in both the male and female versions of the SATAQ-4R. Each item on either forms of the SATAQ-4R is rated on a five-point Likert scale ranging from 1 (“definitely disagree”) to 5 (“definitely agree”). Higher scores indicate greater levels of internalization or pressures.

Both the SATAQ-4R-Female and Male have demonstrated adequate internal consistency reliability with Cronbach’s alphas of .73 to .96 in the current study with the exception of the “Internalization – Muscular” subscale on the SATAQ-4R-Male, which

had an alpha of .63.

Eating Disorder Examination-Questionnaire

The Eating Disorder Examination-Questionnaire (EDE-Q; Appendix B) is a 32-item scale used to measure eating disorder features occurring in the past 28 days (Fairburn & Beglin, 1994). Specifically, the measure assesses the frequency of cognitions and behaviors that are characteristic of eating disorders. The EDE-Q consists of four subscales which measure dietary restraint, eating concern, weight concern, and shape concern. Items are rated on a seven-point Likert scale ranging from 1 (“no days”) to 7 (“every day”). Higher scores indicate greater levels of eating psychopathology. The EDE-Q demonstrated high internal consistency with a Cronbach’s alpha of .94 in the current study.

Eating Disorder Inventory 3-Body Dissatisfaction

The Eating Disorder Inventory 3-Body Dissatisfaction (EDI-3-BD; Appendix C) is a 10-item subscale used to measure an individual’s level of dissatisfaction with certain parts of his or her body (Garner, 2004). Each item is rated on a six-point Likert scale ranging from 1 (“always”) to 6 (“never”). Higher scores reflect greater body dissatisfaction. The EDI-BD demonstrated adequate internal consistency with a Cronbach’s alpha of .84 in the current study.

Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation

The Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation subscale (MBSRQ-AE; Appendix D) is a 7-item measure of appearance satisfaction

(Brown, Cash, & Mikulka, 1990). Each item is rated on a five-point Likert scale ranging from 1 (“definitely disagree”) to 5 (“definitely agree”). Higher scores indicate greater body satisfaction. The MBSRQ-AE demonstrated high internal consistency with a Cronbach’s alpha of .91 in the current study.

Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSES; Appendix E) is a 10-item scale used to measure global self-esteem and general feelings of self-worth (Rosenberg, 1965). Each item is rated on a four-point Likert scale ranging from 1 (“strongly disagree”) to 4 (“strongly agree”). Higher scores indicate higher self-esteem. The RSES has shown adequate internal consistency with Cronbach’s alphas ranging from .87 to .93 (Schaefer et al., 2015) in a diverse sample including Caucasian, Hispanic, African American/Black, and Asian females from various regions of the U.S. as well as outside of the U.S. The scale has also shown good validity (Sinclair et al. 2010). In the current study, the RSES exhibited adequate internal consistency with a Cronbach’s alpha of .89.

Procedure

Participants recruited from university subject pools were compensated with credit for their psychology courses and those recruited through flyers were entered into a raffle for one of four \$25 Amazon gift cards. Participants from university subject pools were given information and a link to the study hosted by each respective university via announcements by a professor of a psychology course or other form of notice (e.g., course requirement in syllabus, end-of-semester or quarter assignment). Snowball sampling methods were also used to recruit additional participants from the community.

This recruitment strategy involved asking those who saw flyers posted in the community to disseminate the study flyer or study information to friends, family, and acquaintances via word-of-mouth, social networking websites, and research forums. See Table 1 for additional demographic information.

Participants were asked to complete an online survey consisting of the following questionnaires: SATAQ-4R, EDEQ, EDI-3-BD, MBSRQ-AE, and RSES. Before beginning the online survey, participants were presented with an electronic informed consent form. They were provided with the contact information for the primary investigator to address any questions and concerns or to receive the results of the study. Upon giving consent and agreeing to participate in the study, participants proceeded to the online survey. All participants were compensated with credit for a psychology course or entered into a raffle to win a \$25 Amazon.com gift card.

Statistical Analysis

EQS version 6.1 was used to run a confirmatory factor analysis (CFA) on the SATAQ-4R-Female and SATAQ-4R-Male with a maximum likelihood estimation to test the fit of the factor structure among Asian Americans. More specifically, the factor structure of the SATAQ-4R among Asian American females and males was examined.

In CFA, model fit is assessed using the following fit indices as recommended by Kline (2005): model chi-square (χ^2), the Bentler Comparative Fit Index (CFI), the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA) and the upper limit of its confidence interval (CI). Good fit is indicated by a nonsignificant χ^2 , CFI greater than .90, SRMR less than .10, RMSEA less

than .05, and the upper limit of the 90% CI for RMSEA greater than .10. It is also recommended to examine standardized residuals for values greater than $|\cdot 10|$ (Kline, 2005).

The psychometric properties of the SATAQ-4R among Asians females and males was also examined. Internal consistency reliability for each SATAQ-4R subscale was measured using Cronbach's alpha. Alpha scores of .70 or higher indicate adequate internal consistency (George & Mallery, 2003). Convergent validity was measured using Pearson product-moment correlation coefficients between the SATAQ-4R subscales and the EDEQ, EDI-3-BD, MBSRQ-AE, and RSES. Correlation coefficients of .10 are considered small, .30 are medium, and .50 or higher are large (Cohen, 1988). A Bonferroni correction was used resulting in a significance level of .006.

Results

SATAQ-4R-Female

Correlations and standard deviations of all measured variables for Asian American females are reported in Table 2 and fit indices for all models with this subsample are reported in Table 3.

Table 2. Cronbach's Alpha, Means, and Intercorrelations Among SATAQ-4R Subscales for College Women

	Cronbach's Alpha	Mean (SD)	1	2	3	4	5	6	7
1. Internalization: Thin/Low Body Fat	.73	3.27 (.88)	-						
2. Internalization: Muscular	.87	2.26 (.87)	.28*	-					
3. Internalization: General Attractiveness	.78	4.06 (.65)	.57**	.10	-				
4. Pressures: Family	.92	2.86 (1.38)	.41**	.07	.28*	-			
5. Pressures: Peers	.89	2.34 (1.16)	.45**	-.13	.17	.59**	-		
6. Pressures: Significant Others	.94	2.22 (1.21)	.14	.10	.08	.25	.35**	-	
7. Pressures: Media	.95	3.76 (1.32)	.53**	-.01	.49**	.41**	.47**	.31*	-

Note. The SATAQ-4R-Female was utilized for college women. Composite subscale scores were obtained by averaging observed scores on relevant items.

* $p < .05$

** $p < .01$

Table 3. Fit Indices for Models of SATAQ-4R-Female

	χ^2	<i>df</i>	CFI	SRMR	RMSEA	90% CI
Model 1	38.77***	14	.76	.10	.17	[.11, .24]
Model 2	25.51*	13	.88	.09	.13	[.05, .20]

Note. χ^2 = model chi-square, CFI = Bentler comparative fit index, SRMR = standardized root mean-square residual, RMSEA = root mean-square of approximation, and 90% CI = 90% confidence interval of RMSEA. Model 1 indicates the first model tested and Model 2 indicates the second model tested.

* $p < .05$

*** $p < .001$

Fit indices indicated that the seven-factor model comprising all measured variables of the SATAQ-4R-Female was not well fit for the data in Asian American females. With exception to an ideal SRMR value and the upper limit of the 90% CI for RMSEA being greater than .10, the model had a significant chi-squared value, a CFI less than .90, and a RMSEA greater than .05: $\chi^2(13) = 25.51, p < .05$; CFI = .88, SRMR = .09; RMSEA = .13, 90% CI[.05, .20]. The seven-factor model with all variables included is displayed in Figure 1.

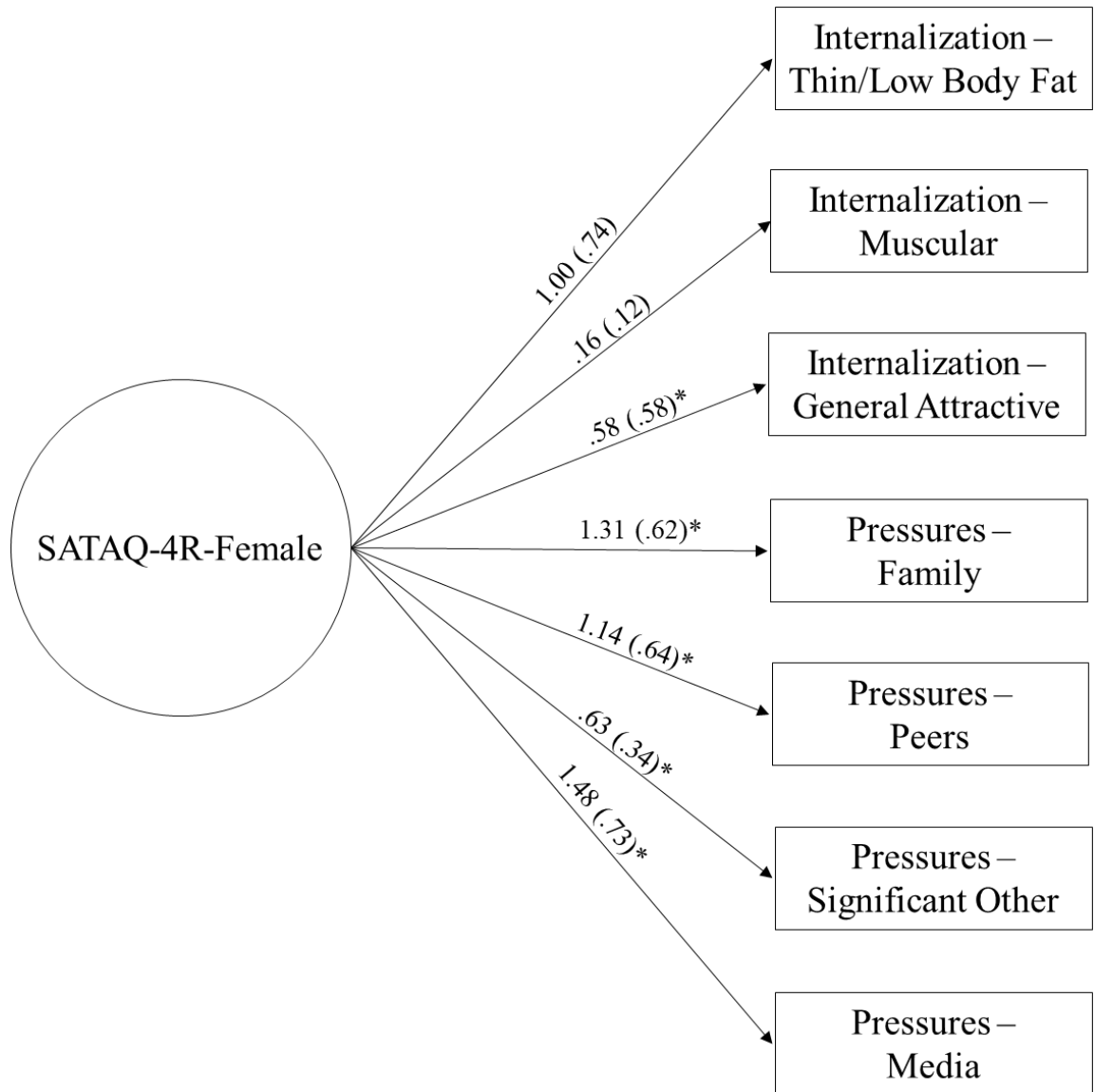


Figure 1. Confirmatory factor analysis on the SATAQ-4R-Female. Unstandardized factor loadings are outside of parentheses and standardized factor loadings are in parentheses. “Internalization – Thin/Low Body Fat” was used to set the metric for the SATAQ-4R-Female. Asterisks denote significance at $p < .05$.

A two-factor model comprised of “Internalization” and “Pressure” was also tested for model-fit in Asian American females. Results of the CFA indicated that a two-factor model was not well fit for the data. With exception to the upper limit of the 90% CI for

RMSEA being greater than .10, the fit indices were less than ideal such that the model had a significant chi-squared value, a CFI less than .90, an SRMR of .10, and a RMSEA greater than .05: $\chi^2(14) = 38.77, p < .001$; CFI = .76, SRMR = .10; and RMSEA = .17, 90% CI[.11, .24]. The two-factor model of the SATAQ-4R-Female is displayed in Figure 2.

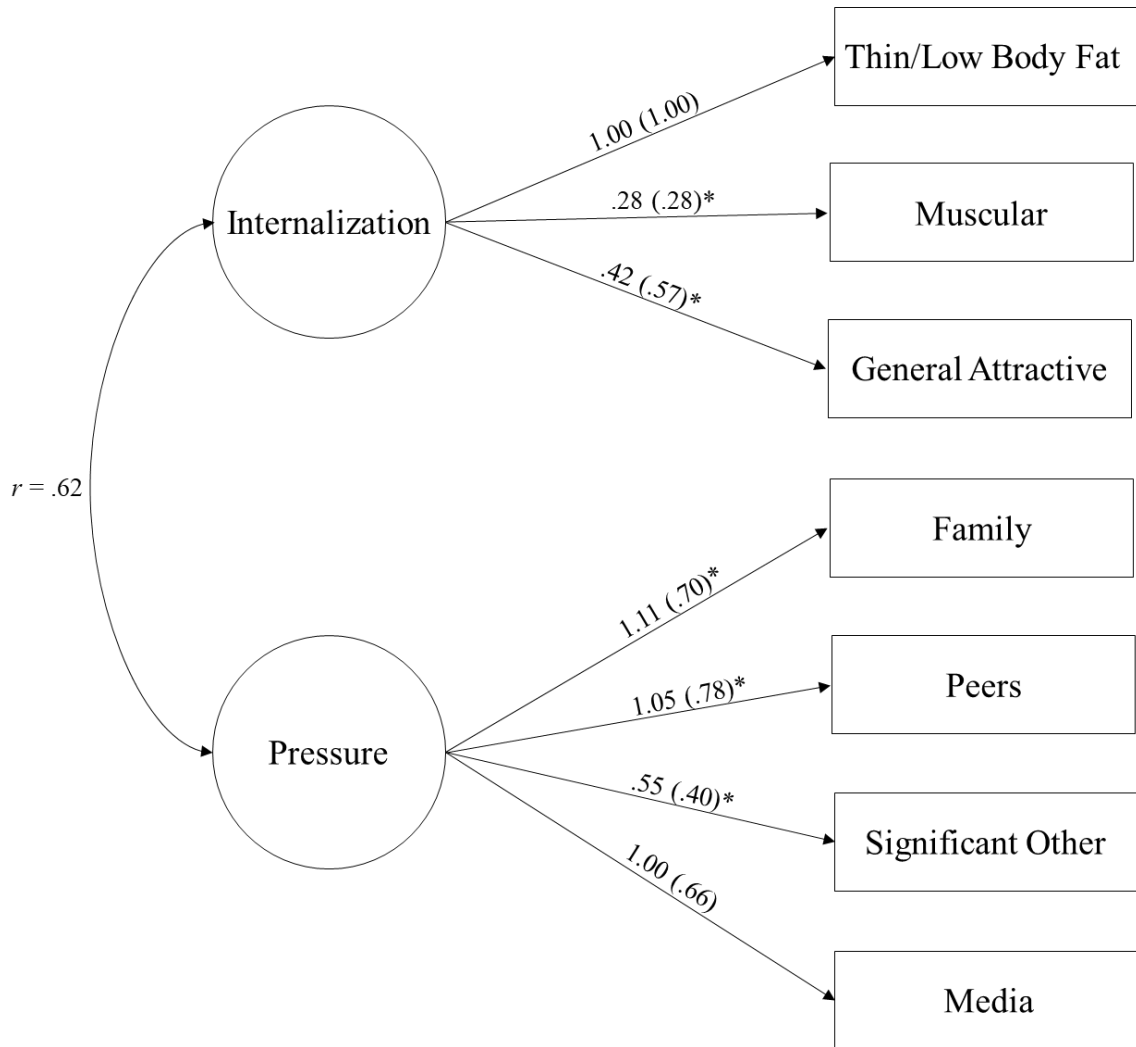


Figure 2. Confirmatory factor analysis on the SATAQ-4R-Female, two-factor model. Unstandardized factor loadings are outside of parentheses and standardized factor loadings are in parentheses. “Internalization – Thin/Low Body Fat” and “Pressures – Media” were used to set the metric for “Internalization” and “Pressure,” respectively. Asterisks denote significance at $p < .05$.

It was determined that for Asian American females, the seven-factor model of the SATAQ-4R-Female comprising all observed variables demonstrated better model fit due to more reasonable fit indices as well as previous support for a seven-factor model in prior research (Schaefer et al., 2016). Unstandardized and standardized factor loadings of the seven-factor model are reported in Figure 1. The factor loading for the SATAQ-4R-Female and “Internalization – Thin/Low Body Fat” was constrained to 1.00 to set the metric. The SATAQ-4R-Female did not significantly predict “Internalization – Muscular.” However, the SATAQ-4R-Female did significantly predict all other factors. More specifically, a one-point increase in the SATAQ-4R-Female was associated with a .58-point increase in “Internalization – General Attractiveness,” $p < .05$. In our sample of Asian American females, a one-point increase in the SATAQ-4R-Female was associated with a 1.31-point increase in “Pressures – Family,” $p < .05$; a 1.14-point increase in “Pressures – Peers,” $p < .05$; a .63-point increase in “Pressures – Significant Other,” $p < .05$; and a 1.48-point increase in “Pressures – Media,” $p < .05$. The SATAQ-4R-Female accounted for 55.1% of the variance in “Internalization – Thin/Low Body Fat,” 1.3% of the variance in “Internalization – Muscular,” 33.4% of the variance in “Internalization – General Attractiveness,” 38.5% of the variance in “Pressures – Family,” 41.2% of the variance in “Pressures – Peers,” 11.5% of the variance in “Pressures – Significant Other,” and 53.8% of the variance in “Pressures – Media” in Asian American females.

According to Schaefer and colleagues (2016), the construct validity of the SATAQ-4R-Female and SATAQ-4R-Male is determined adequate if the subscales are positively associated with measures of eating disorders (i.e., EDE-Q), negatively associated with measures of body satisfaction (i.e., EDI-BD, MBSRQ-AE), and

negatively associated with measures of global self-esteem (i.e., RSES). Correlations between the SATAQ-4R-Female subscales and the EDE-Q subscales, EDI-BD, MBSRQ-AE, and RSES for Asian American females are displayed in Table 4. The SATAQ-4R-Female subscales had small to large positive associations with the EDE-Q subscales, generally small to large negative associations with the EDI-BD and MBSRQ-AE, and generally small to medium positive associations with the RSES in Asian American females. Consistent with previous research (Schaefer et al., 2016), there were small associations between the “Internalization – Muscular” subscale of the SATAQ-4R-Female and all other measures. Of note, there was a small positive association between the “Internalization – Muscular” subscale and the MBSRQ-AE in addition to a relatively large positive association between the “Internalization – Thin/Low Body Fat” subscale and RSES. Overall, results support adequate convergent validity of the SATAQ-4R-Female in Asian American females.

Table 4. Correlations Between SATAQ-4R-Female Subscales, EDE-Q Subscales, EDI-BD, MBSRQ-AE, and RSES

Variable	Internalization			Pressures			
	Thin/Low Body Fat	Muscular	General Attractiveness	Family	Peers	Significant Others	Media
EDE-Q-Restraint	.42**	.25	.49***	.31*	.31*	.27	.37**
EDE-Q-Eating Concern	.47***	.14	.35*	.52***	.41**	.15	.32*
EDE-Q-Shape Concern	.51***	.08	.60***	.53***	.47***	.32*	.56***
EDE-Q-Weight Concern	.55***	.24	.56***	.69***	.54***	.35*	.48***
EDE-Q-Global Score	.54***	.22	.58***	.62***	.48***	.31*	.49***
EDI-BD	-.63***	-.19	-.55***	-.54***	-.54***	-.25	-.51***
MBSRQ-AE	-.47***	.09	-.49***	-.45***	-.47***	-.22	-.44***
RSES	.49***	.08	.31*	.41**	.29*	.10	.34*

Note. The SATAQ-4R-Female was utilized for college women. EDE-Q = Eating Disorder Examination-Questionnaire; EDI-BD = Eating Disorder Inventory - Body Dissatisfaction subscale; MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire - Appearance Evaluation subscale; RSES = Rosenberg Self-Esteem Scale.

* $p < .05$

** $p < .01$

*** $p < .001$

SATAQ-4R-Male

Correlations and standard deviations of all measured variables for Asian

American males are reported in Table 5 and fit indices for all models for this subsample are reported in Table 6.

Table 5. Cronbach's Alpha, Means, and Intercorrelations Among SATAQ-4R Subscales for College Men

	Cronbach's		1	2	3	4	5	6	7
	Alpha	Mean (SD)							
1. Internalization: Thin/Low Body Fat	.81	2.55 (.99)	-						
2. Internalization: Muscular	.63	3.49 (.59)	-.03	-					
3. Internalization: General Attractiveness	.86	3.47 (.93)	.09	.17	-				
4. Pressures: Family	.83	2.19 (.90)	.38*	.16	-.09	-			
5. Pressures: Peers	.92	2.36 (1.11)	.44**	-.20	-.01	.71**	-		
6. Pressures: Significant Others	.96	2.31 (1.12)	.37*	.04	-.13	.47**	.64**	-	
7. Pressures: Media	.96	2.68 (1.16)	.51**	-.09	-.10	.31	.40*	.41*	-

Note. The SATAQ-4R-Male was utilized for college men. Composite subscale scores were obtained by averaging observed scores on relevant items.

* $p < .05$

** $p < .01$

Table 6. Fit Indices for Models of SATAQ-4R-Male

	χ^2	<i>df</i>	CFI	SRMR	RMSEA	90% CI
Model 1	25.09*	14	.84	.09	.14	[.04, .23]
Model 2	24.84*	13	.83	.09	.16	[.05, .24]

Note. The SATAQ-4R-Male was utilized for college men. Composite subscale scores were obtained by averaging observed scores on relevant items.

* $p < .05$

** $p < .01$

Fit indices indicated that the seven-factor model comprising all measured variables of the SATAQ-4R-Male was not well fit for the data in Asian American males. With exception to an ideal SRMR value and the upper limit of the 90% CI for RMSEA being greater than .10, the model had a significant chi-squared value, a CFI less than .90, and a RMSEA greater than .05: $\chi^2 (13) = 24.84, p < .05$; CFI = .83, SRMR = .09; RMSEA = .16, 90% CI [.05, .24]. The seven-factor model with all variables included is displayed in Figure 3.

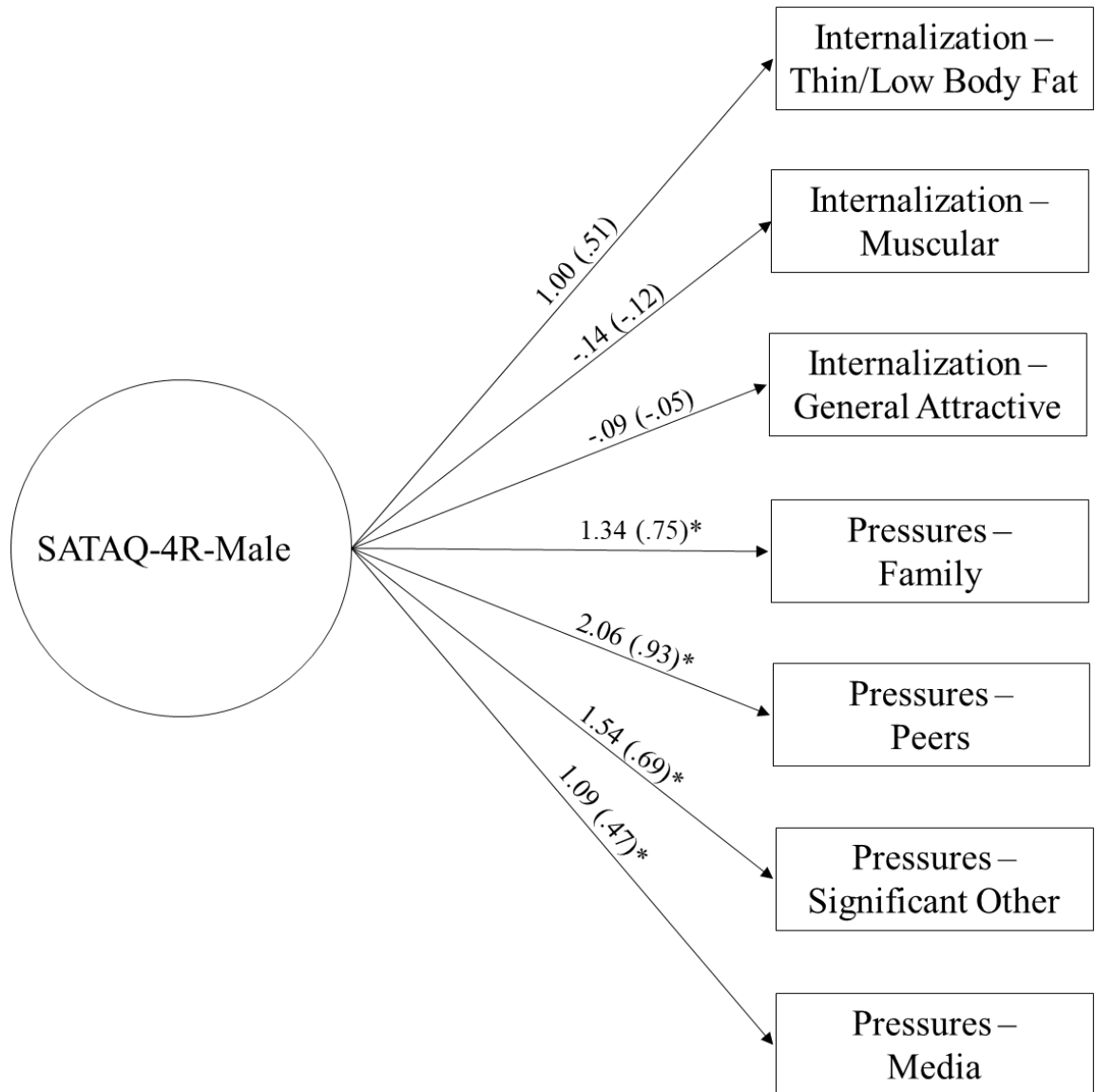


Figure 3. Confirmatory factor analysis on the SATAQ-4R-Male. Unstandardized factor loadings are outside of parentheses and standardized factor loadings are in parentheses. “Internalization – Thin/Low Body Fat” was used to set the metric for the SATAQ-4R-Male. Asterisks denote significance at $p < .05$.

A two-factor model comprised of “Internalization” and “Pressure” was also tested for model-fit in Asian American males. Results of the CFA indicated that a two-factor model of the SATAQ-4R-Male was not well fit for the data. With exception to a SRMR value less than .10 and an upper limit of the 90% CI for RMSEA greater than .10, the fit

indices were less than ideal such that the model had a significant chi-squared value, a CFI less than .90, and a RMSEA greater than .05: $\chi^2 (14) = 25.09, p < .05$; CFI = .84, SRMR = .09; and RMSEA = .14, 90% CI[.04, .23]. The two-factor model of the SATAQ-4R-Male is displayed in Figure 4.

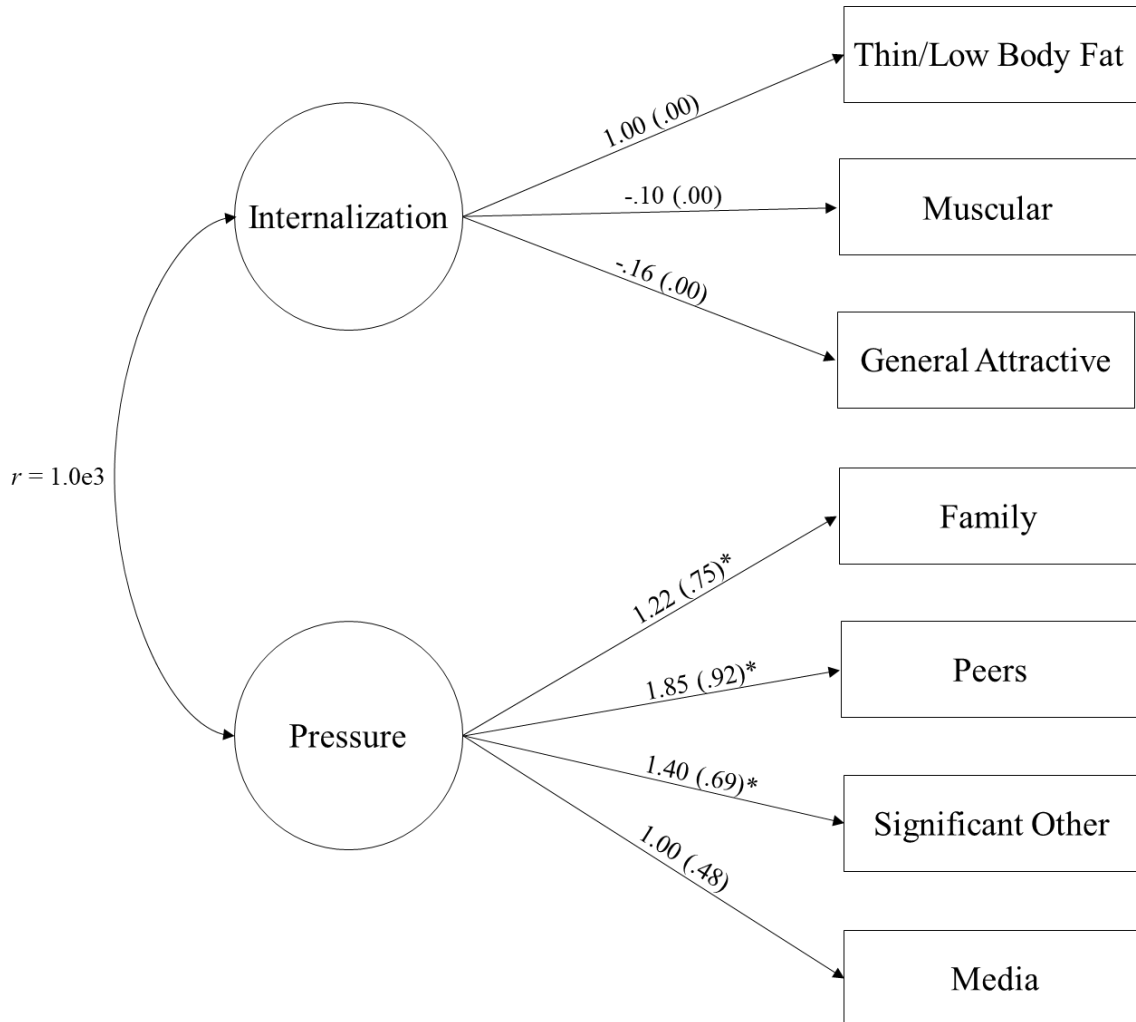


Figure 4. Confirmatory factor analysis on the SATAQ-4R-Male, two-factor model. Unstandardized factor loadings are outside of parentheses and standardized factor loadings are in parentheses. “Internalization – Thin/Low Body Fat” and “Pressures – Media” were used to set the metric for “Internalization” and “Pressure,” respectively. Asterisks denote significance at $p < .05$.

It was determined that for Asian American males, the seven-factor model of the SATAQ-4R-Male comprising all observed variables demonstrated better model fit, as Schaefer and colleagues (2016) suggested the overall fit of a seven-factor model. Unstandardized and standardized factor loadings of the seven-factor model are reported in Figure 3. The factor loading for the SATAQ-4R-Male and “Internalization – Thin/Low Body Fat” was constrained to 1.00 to set the metric. The SATAQ-4R-Male did not significantly predict “Internalization – Muscular” nor “Internalization – General Attractiveness.” However, the SATAQ-4R-Male did significantly predict other variables in Asian American males. Specifically, a one-point increase in the SATAQ-4R-Male was associated with a 1.34-point increase in “Pressures – Family,” $p < .05$.; a 2.06-point increase in “Pressures – Peers,” $p < .05$.; a 1.54-point increase in “Pressures – Significant Other,” $p < .05$.; and a 1.09-point increase in “Pressures – Media,” $p < .05$. For Asian American males, the SATAQ-4R-Male accounted for 25.6% of the variance in “Internalization – Thin/Low Body Fat,” 1.4% of the variance in “Internalization – Muscular,” .2% of the variance in “Internalization – General Attractiveness,” 55.9% of the variance in “Pressures – Family,” 85.9% of the variance in “Pressures – Peers,” 47.3% of the variance in “Pressures – Significant Other,” and 22.1% of the variance in “Pressures – Media.”

Correlations between the SATAQ-4R-Male subscales and the EDE-Q subscales, EDI-BD, MBSRQ-AE, and RSES for Asian American males are displayed in Table 7. The SATAQ-4R-Male subscales had variable, small to large positive associations with the EDE-Q subscales and small to large negative associations with the EDI-BD and MBSRQ-AE. Generally, there were small to medium positive associations between the

SATAQ-4R-Male subscales and RSES with exception to the “Internalization – General Attractiveness” subscale of the SATAQ-4R-Male, which had a medium negative association with the RSES. Overall, the SATAQ-4R-Male demonstrated adequate convergent validity.

Table 7. Correlations between SATAQ-4-Male Subscales, EDE-Q Subscales, EDI-BD, MBSRQ-AE, and RSES

Variable	Internalization			Pressures			
	Thin/Low Body Fat	Muscular	General Attractiveness	Family	Peers	Significant Others	Media
EDE-Q-Restraint	.28	-.03	.23	.28	.32*	.21	.45**
EDE-Q-Eating Concern	.34*	.23	.21	.59***	.66***	.31	.24
EDE-Q-Shape Concern	.27	.14	.31	.50**	.61***	.38*	.34*
EDE-Q-Weight Concern	.05	.20	.28	.43**	.55***	.31	.15
EDE-Q-Global Score	.25	.20	.35*	.49**	.61***	.33	.34*
EDI-BD	-.08	-.00	-.14	-.18	-.45**	-.33	-.03
MBSRQ-AE	-.01	-.07	-.01	-.50**	-.61***	-.31	-.02
RSES	.11	.03	-.38*	.32	.34*	.30	.19

Note. The SATAQ-4R-Male was utilized for college men. EDE-Q = Eating Disorder Examination-Questionnaire; EDI-BD = Eating Disorder Inventory - Body Dissatisfaction subscale; MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire - Appearance Evaluation subscale; RSES = Rosenberg Self-Esteem Scale.

* $p < .05$

** $p < .01$

*** $p < .001$

CHAPTER FOUR

DISCUSSION

The current study examined the model fit and validity of SATAQ-4R in college-aged, Asian American women and men. A total of four models – two models for women and two models for men – were tested. Although the original seven-factor models suggested by Schaefer and colleagues (2016) appeared to demonstrate better fits for both women and men, confirmatory factor analyses revealed poor fit for all four models for Asian American women and men. However, results should be interpreted with caution due to the small sample sizes of Asian American women and men.

The poor fit of the seven-factor model of the SATAQ-4R for Asian American females may indicate that the internalization of appearance ideals and/or pressures to pursue such ideals are distinct in this population. It is possible that Asian American women internalize appearance ideals differently, such that the mechanisms influencing the internalization of appearance ideals may differ when compared to a general population consisting of diverse ethnic backgrounds. In the study conducted by Schaefer and colleagues (2016) on the validation of the SATAQ-4R, all study samples – two college women samples, a college women test-retest sample, a sample of adolescent girls, and a sample of college men – were primarily comprised of Caucasian individuals with 48.6% to 55.4% Caucasians. In a study by Javier and Belgrave (2015), results indicated that the tripartite influence model of body image and eating disturbance was partially supported for Asian American, college females. Specifically, pressures from media and peers were found to significantly predict body dissatisfaction through the effects of thin-ideal internalization, but family was not. This is important given that the SATAQ-4R and its

previous iterations were developed on the basis of the tripartite influence model (Schaefer et al., 2016). According to Javier and Belgrave (2015), family may be less influential than peers in determining body dissatisfaction for Asian American, college females who are second-generation, aged 18-25, and more exposed to Western influences. This lack of influence, or pressure, from family to internalize appearance ideals is consistent with the study results indicating that factor structure of the SATAQ-4R does not fit Asian American females.

With regards to other possible differences in pressures experienced by Asian American women, racial stressors may be a key factor to consider. Cheng, Tran, Miyake, and Kim (2017), found that Asian American women experiencing racial stressors, such as perceived racial discrimination and teasing, may be more likely to internalize media portrayals of beauty. Perceived racial discrimination has been defined as a form of objectification and dehumanization as one's identity and wholeness becomes judged as less than human or not human (Moradi, 2010). In a study by Alvarez, Juang, and Liang (2006), 98% of an Asian American college student sample reported experiencing racial discrimination. Racial and ethnic teasing have been described as involving explicit or subtle social diminishment of physical characteristics and appearance (e.g., skin color, facial features, cultural dress) associated with a racial or ethnic minority culture (Iyer & Haslam, 2003; Reddy & Crowther, 2007). Moradi (2010) suggested that Asian American women who experience or perceive racial discrimination and teasing may feel a diminishment or denigration of their racial or ethnic physical features. In this context, Asian American women may be more susceptible to buying into and pursuing the mainstream Western ideals of beauty, acceptance, and respect, which in turn increases the

risk of unhealthy behaviors such as disordered eating (Moradi, 2010). Cheng and colleagues (2017) found that racial stressors were linked with body surveillance, body shame, and disordered eating. Thus, racial stressors may be another form of pressure to include alongside media, family, peers and significant others among Asian Americans.

The poor fit of the seven-factor model of the SATAQ-4R may also be due to Asian American females having different appearance ideals as compared to other females. In a study by Frederick, Kelly, Latner, Sandhu, and Tsong (2016), Asian American women reported lower overall appearance satisfaction and greater dissatisfaction with the appearance of their facial features, particularly their eyes, than Caucasian women. According to Frederick, Bohrnstedt, Hatfield, and Bersheid (2014), face satisfaction is a distinct factor apart from body satisfaction. Kaw (1993) proposed that some Asian American women are so dissatisfied with their face image (i.e., eyes) that they seek blepharoplasty (eyelid surgery) to look more like the Western appearance ideal of female attractiveness, which are generally phenotypically White and thin (Thompson et al., 1999). Furthermore, Holliday and Elfving-Hwang (2012) argue that Korean women have sought cosmetic surgery for reasons other than appearance comparisons to the Western ideal. They have proposed that Korean women underwent surgical procedures to enhance Korean features, which further emphasizes the importance of face image as a separate factor apart from body image. Thus, it is possible that some Asian American women report dissatisfaction with their appearances more than Caucasian females due to face image disturbance in addition to body image disturbance (Frederick et al., 2016). The absence of items focused on facial features in the SATAQ-4R may have contributed to the poor fit of the factor structure in Asian American women.

As suggested for Asian American women, the poor model fit of the seven-factor structure of the SATAQ-4R in Asian American men may be related to mechanistic differences in the internalization of appearance ideals and/or pressures to pursue attaining such ideals. Cheng, McDermott, Wong, and La (2016) found that for Asian American men, greater acculturation to Western culture and experiencing racial stressors (i.e., perceived perpetual foreigner racism) predicted drive for muscularity – the degree to which one pursues a muscular body or appearance – above and beyond internalization of media portrayals of ideal appearance for men. According to Liang, Li, and Kim (2004), perpetual foreigner racism occurs when minorities, especially those who physically appear to be of a minority group (e.g., Asian Americans), are perceived as cultural outsiders and questioned as authentic Americans regardless of citizenship status or generational lineage in the U.S. Cheng and colleagues (2016) suggested that the high degree to which Asian American men internalize muscularity is associated with the negative racial stereotypes associated with Asian American men (e.g., small, non-athletic, nerdy, socially awkward, lacking sexual and romantic competence; Larson, 2006; Wilson et al., 2009). Such racial stress may be pressuring Asian Americans to further endorse and internalize Western appearance ideals, particularly muscularity (Cheng, 2016).

The importance of racial stressors, specifically racial discrimination and perceived perpetual foreigner racism, has, thus, been highlighted in previous literature. Keum (2016) argued that greater internalization of Western appearance ideals is associated with higher levels of social comparison which, in turn, is associated with greater acculturative stress in Asian American men. Keum (2016) also purported that acculturative stress was a predictor of internalization of Western media appearance ideals. Other studies have

suggested that racial stressors may heighten insecurities about physical features in Asian American men, which may then prompt them to engage in behaviors in pursuit of the male appearance ideal (i.e., muscularity; Chen, 1999; Lu & Wong, 2013). This may mean that, with the amount of importance placed on acculturation and racial stress on the internalization of appearance ideals, the SATAQ-4R may not be well fit for Asian American males due to a lack of items that account for such acculturative and racial stressors.

Limitations and Strengths of the Study

A number of study limitations should be noted. The current study consisted of small sample sizes of females and males and therefore, results should be interpreted with caution. Additional research in this area with larger samples of Asian Americans are needed, especially with Asian American women, as recent studies have shown that Asian American young adult females may be prone to developing eating disorders at rates similar to European American young adult females (Gordon, 2001; Nouri, Hill, & Orrell-Valente, 2011; Pike & Dunn, 2015). Another limitation of the current study was the use of self-report questionnaires, which are subject to human error and biases. Lastly, the current study used a cross-directional design, which does not allow for the examination of causal relationships.

Despite the study limitations, to our knowledge, the current study is the first to examine the factor structure of the SATAQ-4R, an established measure for assessing the internalization of appearance ideals and pressures to pursue attaining such ideals, in Asian American women and men. The study also used well-established and highly

reliable measures in analyses. Another strength of the study was the use of SEM, a robust analysis that allows for examination of multiple statistics including multiple regression and mediation analyses in addition to confirmatory factor analyses.

Conclusion

The findings suggest that while the SATAQ-4R is an effective measure of internalization of appearance ideals and pressures to achieve such appearance ideals in a general population, adding items encompassing factors such as other types of appearance features (e.g., eye shape, nose shape, face shape) could make the measure more applicable to Asian Americans. Schaefer and colleagues (2016) found that specifying the SATAQ-4R for males and females improved upon the previous iteration of the SATAQ – the SATAQ-4 – which did not include different forms for males and females. It is likely that as the versions developed for males and females, modifying the SATAQ-4R for ethnic minorities such as Asian Americans would also lead to improvement of the measure. Given that the SATAQ-4R was previously tested in predominantly Caucasian samples for both females and males (Schaefer et al., 2016), more specific examination of the utility of the SATAQ-4R in other ethnic groups is warranted.

Future research should continue to examine and expand upon the factor structure of the SATAQ-4R in diverse samples. Although efforts were made to observe the factor structure and construct validity of the SATAQ-4R in a sample of Asian Americans, the small sample size of the current study limited the interpretability of the results. Furthermore, if it is true that the factor structure of the SATAQ-4R is not well fit for either female or male Asian Americans, future research should aim to identify other

variables, such as face evaluation and racial stressors, that might be associated with the internalization of appearance ideals and pressures experienced to endorse appearance ideals in this population.

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APPENDIX A

SOCIOCULTURAL ATTITUDES TOWARDS APPEARANCE

QUESTIONNAIRE – 4R

Sociocultural Attitudes Towards Appearance Questionnaire – 4R – Female

Directions: Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

Definitely Disagree = 1
 Mostly Disagree = 2
 Neither Agree Nor Disagree = 3
 Mostly Agree = 4
 Definitely Agree = 5

- | | | | | | |
|---|---|---|---|---|---|
| 1. It is important for me to look muscular. | 1 | 2 | 3 | 4 | 5 |
| 2. It is important for me to look good in the clothes I wear. | 1 | 2 | 3 | 4 | 5 |
| 3. I want my body to look very thin. | 1 | 2 | 3 | 4 | 5 |
| 4. I think a lot about looking muscular | 1 | 2 | 3 | 4 | 5 |
| 5. I think a lot about my appearance. | 1 | 2 | 3 | 4 | 5 |
| 6. I think a lot about looking thin. | 1 | 2 | 3 | 4 | 5 |
| 7. I want to be good looking. | 1 | 2 | 3 | 4 | 5 |
| 8. I want my body to look muscular. | 1 | 2 | 3 | 4 | 5 |
| 9. I don't really think much about my appearance. | 1 | 2 | 3 | 4 | 5 |
| 10. I don't want my body to look muscular. | 1 | 2 | 3 | 4 | 5 |
| 11. I want my body to look very lean. | 1 | 2 | 3 | 4 | 5 |
| 12. It is important to me to be attractive. | 1 | 2 | 3 | 4 | 5 |
| 13. I think a lot about having very little body fat | 1 | 2 | 3 | 4 | 5 |
| 14. I don't think much about how I look. | 1 | 2 | 3 | 4 | 5 |
| 15. I would like to have a body that looks very muscular. | 1 | 2 | 3 | 4 | 5 |

16. I feel pressure from family members to look thinner.	1	2	3	4	5
17. I feel pressure from family members to improve my appearance.	1	2	3	4	5
18. Family members encouraged me to decrease my level of body fat.	1	2	3	4	5
19. Family members encourage me to get in better shape.	1	2	3	4	5
20. My peers encourage me to get thinner.	1	2	3	4	5
21. I feel pressure from my peers to improve my appearance.	1	2	3	4	5
22. I feel pressure from my peers to look in better shape.	1	2	3	4	5
23. I get pressure from my peers to decrease my level of body fat.	1	2	3	4	5
24. Significant others encourage me to get thinner.	1	2	3	4	5
25. I feel pressure from significant others to improve my appearance.	1	2	3	4	5
26. I feel pressure from significant others to look in better shape.	1	2	3	4	5
27. I get pressure from significant others to decrease my level of body fat.	1	2	3	4	5
28. I feel pressure from the media to look in better shape.	1	2	3	4	5
29. I feel pressure from the media to look thinner.	1	2	3	4	5
30. I feel pressure from the media to improve my appearance.	1	2	3	4	5
31. I feel pressure from the media to decrease my level of body fat.	1	2	3	4	5

Sociocultural Attitudes Towards Appearance Questionnaire – 4R – Male

Directions: Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

Definitely Disagree = 1
 Mostly Disagree = 2
 Neither Agree Nor Disagree = 3
 Mostly Agree = 4
 Definitely Agree = 5

1. It is important for me to look muscular.	1	2	3	4	5
2. I want my body to look very thin.	1	2	3	4	5
3. I think a lot about looking muscular	1	2	3	4	5
4. I think a lot about looking thin.	1	2	3	4	5
5. I want my body to look muscular.	1	2	3	4	5
6. I don't really think much about my appearance.	1	2	3	4	5
7. I don't think much about how I look.	1	2	3	4	5
8. I would like to have a body that looks very muscular.	1	2	3	4	5
9. I feel pressure from family members to look thinner.	1	2	3	4	5
10. I feel pressure from family members to improve my appearance.	1	2	3	4	5
11. Family members encourage me to get in better shape.	1	2	3	4	5
12. I feel pressure from family members to be more muscular.	1	2	3	4	5
13. Family members encourage me to increase the size or definition of my muscles.	1	2	3	4	5
14. I feel pressure from my peers to improve my appearance.	1	2	3	4	5
15. I feel pressure from my peers to look in better shape	1	2	3	4	5
16. I feel pressure from my peers to be more muscular.	1	2	3	4	5
17. My peers encourage me to increase the size or definition of my muscles	1	2	3	4	5

18. I feel pressure from significant others to improve my appearance.	1	2	3	4	5
19. I feel pressure from significant others to look in better shape.	1	2	3	4	5
20. I get pressure from significant others to decrease my level of body fat.	1	2	3	4	5
21. I feel pressure from significant others to be more muscular.	1	2	3	4	5
22. I feel pressure from significant others to increase the size or definition of my muscles.	1	2	3	4	5
23. I feel pressure from the media to look in better shape.	1	2	3	4	5
24. I feel pressure from the media to look thinner.	1	2	3	4	5
25. I feel pressure from the media to improve my appearance.	1	2	3	4	5
26. I feel pressure from the media to decrease my level of body fat.	1	2	3	4	5
27. I feel pressure from the media to be more muscular.	1	2	3	4	5
28. I feel pressure from the media to increase the size or definition of my muscles.	1	2	3	4	5

APPENDIX B

EATING DISORDER EXAMINATION-QUESTIONNAIRE

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each questions carefully. Please answer all of the questions.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

On how many of the past 28 days...		No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1.	Have you been deliberately <i>trying</i> to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
2.	Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?	0	1	2	3	4	5	6
3.	Have you <i>tried</i> to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4.	Have you <i>tried</i> to follow definite rules regarding your eating (e.g., a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5.	Have you had a definite desire to have an <i>empty</i> stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6
6.	Have you had a definite desire to have a <i>totally flat</i> stomach?	0	1	2	3	4	5	6

7.	Has thinking about <i>food, eating, or calories</i> made it very difficult to concentrate on things you are interested in (e.g., working, following a conversation, or reading)?	0	1	2	3	4	5	6
8.	Has thinking about <i>shape or weight</i> made it very difficult to concentrate on things you are interested in (e.g., working, following a conversation, or reading)?	0	1	2	3	4	5	6
9.	Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10.	Have you had a definite fear that you might gain weight?	0	1	2	3	4	5	6
11.	Have you felt fat?	0	1	2	3	4	5	6
12.	Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

Questions 13 – 18: Please fill in the appropriate number in the boxes on the right.
Remember that the questions only refer to the past four weeks (28 days).

Over the past four weeks (28 days)...

13. How many *times* have you eaten what other people would regard as an unusually large amount of food (given the circumstances)? _____
14. On how many of these times did you have a sense of having lost control over your eating (at the time you were eating)? _____
15. How many DAYS have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food *and* have had a sense of loss of control at the time)? _____
16. How many *times* have you made yourself sick (vomit) as a means of controlling your shape or weight? _____
17. How many *times* have you taken laxatives as a means of controlling your shape or weight? _____
18. How many *times* have you exercised in a “driven” or “compulsive” way as a means of controlling your weight, shape or amount of fat, or to burn off calories? _____

Questions 19 – 21: Please circle the appropriate number. *Please note that for these questions, the term “binge eating” means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.*

19.	Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)? ...Do not count episodes of binge eating.	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
		0	1	2	3	4	5	6
20.	On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight? ...Do not count episodes of binge eating.	None of the times	A few of the times	Less than half	Half of the times	More than half	Most of the times	Every time
		0	1	2	3	4	5	6
21.	Over the past 28 days, how concerned have you been about other people seeing you eat? ...Do not count episodes of binge eating.	Not at all	Slightly		Moderately		Markedly	
		0	1	2	3	4	5	

Questions 22 – 28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).

Over the past 28 days...		Not at all		Slightly	Mode- rately	Mark- edly	
22.	Has your weight influence how you think about (judge) yourself as a person?	0	1	2	3	4	5 6
23.	Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5 6
24.	How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5 6

- | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|
| 25. | How dissatisfied have you been with your weight? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 26. | How dissatisfied have you been with your shape? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 27. | How uncomfortable have you felt seeing your body (e.g., seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 28. | How uncomfortable have you felt about others seeing your shape or figure (e.g., in communal changing rooms, when swimming, or wearing tight clothes)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

What is your weight at present? (Please give your best estimate)

What is your height? (Please give your best estimate)

If female: Over the past three to four months, have you missed any menstrual periods?

- If so, how many?
- Have you been taking the “pill”?

APPENDIX C

EATING DISORDER INVENTORY-3-BODY DISSATISFACTION

For the items below, please indicate to what extent each statement is true of you.

1 = Always 2 = Usually 3 = Often 4 = Sometimes 5 = Rarely 6 = Never

1.	I think that my stomach is too big.	1	2	3	4	5	6
2.	I think that my thighs are too large.	1	2	3	4	5	6
3.	I think that my stomach is just the right size.	1	2	3	4	5	6
4.	I feel satisfied with the shape of my body.	1	2	3	4	5	6
5.	I like the shape of my buttocks.	1	2	3	4	5	6
6.	I think my hips are too big.	1	2	3	4	5	6
7.	I feel bloated after eating a normal meal.	1	2	3	4	5	6
8.	I think that my thighs are just the right size.	1	2	3	4	5	6
9.	I think my buttocks are too large.	1	2	3	4	5	6
10.	I think that my hips are just the right size.	1	2	3	4	5	6

APPENDIX D

MULTIDIMENSIONAL BODY SELF-RELATIONS QUESTIONNAIRE-

APPEARANCE EVALUATION SUBSCALE

Using the scale below, please circle the number that best matches your agreement with the following statements.

Definitely Disagree	Mostly Disagree	Neither Agree Nor Disagree	Mostly Agree	Definitely Agree
1	2	3	4	5

- | | | | | | |
|---|---|---|---|---|---|
| 1. My body is sexually appealing. | 1 | 2 | 3 | 4 | 5 |
| 2. I like my looks just the way they are. | 1 | 2 | 3 | 4 | 5 |
| 3. Most people would consider me good-looking. | 1 | 2 | 3 | 4 | 5 |
| 4. I like the way I look without my clothes on. | 1 | 2 | 3 | 4 | 5 |
| 5. I like the way my clothes fit me. | 1 | 2 | 3 | 4 | 5 |
| 6. I dislike my physique. | 1 | 2 | 3 | 4 | 5 |
| 7. I am physically unattractive. | 1 | 2 | 3 | 4 | 5 |

APPENDIX E

ROSENBERG SELF-ESTEEM SCALE

The scale is a ten item Likert scale with items answered on a four point scale - from strongly agree to strongly disagree. The original sample for which the scale was developed consisted of 5,024 High School Juniors and Seniors from 10 randomly selected schools in New York State.

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

- | | | | | | |
|-----|--|----|---|---|----|
| 1. | On the whole, I am satisfied with myself. | SA | A | D | SD |
| 2. | At times, I think I am no good at all. | SA | A | D | SD |
| 3. | I feel that I have a number of good qualities. | SA | A | D | SD |
| 4. | I am able to do things as well as most other people. | SA | A | D | SD |
| 5. | I feel I do not have much to be proud of. | SA | A | D | SD |
| 6. | I certainly feel useless at times. | SA | A | D | SD |
| 7. | I feel that I'm a person of worth, at least on an equal plane with others. | SA | A | D | SD |
| 8. | I wish I could have more respect for myself. | SA | A | D | SD |
| 9. | All in all, I am inclined to feel that I am a failure. | SA | A | D | SD |
| 10. | I take a positive attitude toward myself. | SA | A | D | SD |

APPENDIX F

INFORMED CONSENT FOR PARTICIPANTS FROM UNIVERSITY SUBJECT POOLS



LOMA LINDA UNIVERSITY

INFORMED CONSENT

TITLE: **ETHNICITY, BODY IMAGE, AND HEALTH BEHAVIORS**

SPONSOR: Loma Linda University Department of Psychology

PRINCIPAL INVESTIGATOR: Sylvia Herbozo, Ph.D.
11130 Anderson Street
Loma Linda, CA 92350
909-558-7680

1. WHY IS THIS STUDY BEING DONE?

The purpose of the student-led study is to learn more about the relationship between ethnicity, body image, and health behaviors in college women, particularly with issues around eating and smoking.

The rationale for this study is that previous research suggests that there may be ethnic differences in body image and health behaviors. However, other research has shown that there are no ethnic differences. We are interested in further examining these issues in college women.

You are invited to participate in this study because of your enrollment in a psychology course at your university.

2. HOW MANY PEOPLE WILL TAKE PART IN THIS STUDY?

Approximately 1200 students will be participating in this study.

3. HOW LONG WILL THE STUDY GO ON?

The study is expected to continue from May 2017 to May 2018.

4. HOW WILL I BE INVOLVED?

You must meet the following requirements to be in the study:

- Are in the age range of 18 to 25 years old
- Have access to a computer and internet service in order to complete the online survey

Participation in this study involves the following:

- Responding to an online questionnaire
- Questions will focus on areas of body image and health behaviors (e.g., smoking)

Your participation in this study may last from 1 to 1.5 hours on one day.

5. WHAT ARE THE REASONABLY FORESEEABLE RISKS OR DISCOMFORTS I MIGHT HAVE?

You may temporarily experience slight distress while answering some items in the online survey addressing areas such as body image, eating behaviors, and smoking behaviors. However, if you feel distressed, it is likely to be minimal and temporary. You are encouraged to skip any items that create distress or discomfort for you. You are also free to withdraw from the study at any time. If you are receiving course credit, you will not receive course credit for partially completed questionnaires. However, your course grade will not be otherwise affected if you withdraw from the study.

6. WILL THERE BE ANY BENEFIT TO ME OR OTHERS?

You will receive 1-unit of course credit for participation in a research study once the online questionnaire has been completed. The scientific information we learn from the study may benefit education and intervention efforts addressing body image and health.

7. WHAT ARE MY RIGHTS AS A SUBJECT?

Participation in this study is voluntary. Your decision on whether or not to participate or withdraw at any time from the study will not affect your ongoing relationship to your professors and will not involve any penalty to your course grade.

8. WHAT HAPPENS IF I WANT TO STOP TAKING PART IN THIS STUDY?

You are free to withdraw from this study at any time.

9. WHAT OTHER CHOICES DO I HAVE?

The course instructor offering course credit for participation in research will provide alternatives to earn course credit. The alternative assignment will require equal time and effort for the same amount of earned extra credit that you can earn through participation in research.

10. HOW WILL INFORMATION ABOUT ME BE KEPT CONFIDENTIAL?

Efforts will be made to keep your personal information confidential. If your psychology department has a subject pool system through which you are a registered participant, you will automatically receive course credit following completion of the questionnaires. Alternatively, if your psychology department does not have a subject system, you will be provided a link at the end of the survey to another page to enter your contact information for course credit. Your responses will be completely anonymous and will not be combined with your contact information in any way.

11. WHAT COSTS ARE INVOLVED?

There is no cost to you for participating in this study.

12. WILL I BE PAID TO PARTICIPATE IN THIS STUDY?

You will receive course credit for participation in a research study for an eligible course through the human subjects' pool at your university. Total amount of credit you may earn is 1 unit.

13. WHO DO I CALL IF I HAVE QUESTIONS?

If you have any concerns about the study, please contact the research supervisor, Sylvia Herbozo, Ph.D. You may reach Dr. Herbozo at (909) 558-8578 or by email at sherbozo@llu.edu. You may also call Dean Lim, M.A. at (909) 558-7680 and leave him a message if you have additional questions or concerns about this study.

If you wish to contact an impartial third party not associated with this study regarding any

questions about your rights or to report a complaint you may have about the study, you may contact the Office of Patient Relations, Loma Linda University Medical Center,

Loma Linda, CA 92354, phone (909) 558-4647, e-mail patientrelations@llu.edu for information and assistance.

14. SUBJECT'S STATEMENT OF CONSENT

- I have read the contents of the consent form provided by the investigator.
- My questions concerning this study have been answered to my satisfaction.
- Agreeing to participate in this study and completing this consent document does not waive my rights nor does it release the investigators, institution or sponsors from their responsibilities.
- I may call Dean Lim, M.A. during routine office hours at (909) 558-7680 or during non-office hours at (909) 558-7680 and leave him a message if I have additional questions or concerns about this study.
- I hereby give voluntary consent to participate in this study.

Electronic Informed Consent:

Agree to Participate in this study and Acknowledge Informed Consent ☐

Declines to Participate in this Study ☐

APPENDIX G

INFORMED CONSENT FOR PARTICIPANTS RECRUITED VIA FLYERS



LOMA LINDA UNIVERSITY

INFORMED CONSENT

TITLE: **ETHNICITY, BODY IMAGE, AND HEALTH BEHAVIORS**

SPONSOR: Loma Linda University Department of Psychology

PRINCIPAL INVESTIGATOR: Sylvia Herbozo, Ph.D.
11130 Anderson Street
Loma Linda, CA 92350
909-558-7680

1. WHY IS THIS STUDY BEING DONE?

The purpose of the student-led study is to learn more about the relationship between ethnicity, body image, and health behaviors in college women, particularly with issues around eating and smoking.

The rationale for this study is that previous research suggests that there may be ethnic differences in body image and health behaviors. However, other research has shown that there are no ethnic differences. We are interested in further examining these issues in young adult women.

You are invited to participate in this study because you are a student at a community college.

2. HOW MANY PEOPLE WILL TAKE PART IN THIS STUDY?

Approximately 1200 people will be participating in this study.

A Seventh-day Adventist Institution
DEPARTMENT OF PSYCHOLOGY / 11130 Anderson Street, Loma Linda, California 92350

3. HOW LONG WILL THE STUDY GO ON?

The study is expected to continue from May 2017 to May 2018.

4. HOW WILL I BE INVOLVED?

You must meet the following requirements to be in the study:

- Are in the age range of 18 to 25 years old
- Have access to a computer and internet service in order to complete the online survey

Participation in this study involves the following:

- Responding to an online questionnaire
- Questions will focus on areas of body image and health behaviors (e.g., smoking)

Your participation in this study may last from 1 to 1.5 hours on one day.

5. WHAT ARE THE REASONABLY FORESEEABLE RISKS OR DISCOMFORTS I MIGHT HAVE?

You may temporarily experience slight distress while answering some items in the online survey addressing areas such as body image, eating behaviors, and smoking behaviors. However, if you feel distressed, it is likely to be minimal and temporary. You are encouraged to skip any items that create distress or discomfort for you. You are also free to withdraw from the study at any time.

6. WILL THERE BE ANY BENEFIT TO ME OR OTHERS?

You will be entered into a drawing for one of four \$25 gift cards. The money will be given in the form of electronic gift cards to Amazon.com. The scientific information we learn from the study may benefit education and intervention efforts addressing body image and health.

7. WHAT ARE MY RIGHTS AS A SUBJECT?

Participation in this study is voluntary. Your decision on whether or not to participate or withdraw at any time from the study will not affect you.

8. WHAT HAPPENS IF I WANT TO STOP TAKING PART IN THIS STUDY?

You are free to withdraw from this study at any time.

9. HOW WILL INFORMATION ABOUT ME BE KEPT CONFIDENTIAL?

Efforts will be made to keep your personal information confidential. You will be provided a link at the end of the survey to another page to enter your contact information to be entered into the raffle for one of four \$25 Amazon.com gift cards. Your responses will be completely anonymous and will not be combined with your contact information in any way.

10. WHAT COSTS ARE INVOLVED?

There is no cost to you for participating in this study.

11. WILL I BE PAID TO PARTICIPATE IN THIS STUDY?

You will be entered into a drawing for one of four \$25 gift cards. The money will be awarded in the form of electronic gift cards to Amazon.com.

12. WHO DO I CALL IF I HAVE QUESTIONS?

If you have any concerns about the study, please contact the research supervisor, Sylvia Herbozo, Ph.D. You may reach Dr. Herbozo at (909) 558-8578 or by email at sherbozo@llu.edu. You may also call Dean Lim, M.A. at (909) 558-7680 and leave him a message if you have additional questions or concerns about this study.

If you wish to contact an impartial third party not associated with this study regarding any questions about your rights or to report a complaint you may have about the study, you may contact the Office of Patient Relations, Loma Linda University Medical Center, Loma Linda, CA 92354, phone (909) 558-4647, e-mail patientrelations@llu.edu for information and assistance.

13. SUBJECT'S STATEMENT OF CONSENT

- I have read the contents of the consent form provided by the investigator.
- My questions concerning this study have been answered to my satisfaction.
- Agreeing to participate in this study and completing this consent document does not waive my rights nor does it release the investigators, institution or sponsors from their responsibilities.
- I may call Dean Lim, M.A. during routine office hours at (909) 558-7680 or during non-office hours at (909) 558-7680 and leave him a message if I have additional questions or concerns about this study.

- I hereby give voluntary consent to participate in this study.

Electronic Informed Consent:

Agree to Participate in this study and Acknowledge Informed Consent ☐

Declines to Participate in this Study ☐