

Cultural Validity and the Measurement of Social Anxiety: Asian American Groups are not Psychometrically Equivalent

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Abstract

The present study examined the psychometric ethnic equivalence of the Social Phobia Scale (SPS) and the Social Interaction Anxiety Scale (SIAS). Results from a confirmatory factor analysis (CFA) revealed a 3-factor solution for the South-Asian American sample that largely resembles results found in prior research conducted with Caucasian American samples. An exploratory factor analysis for the East-Asian American sample revealed a 5-factor solution. Four of the five factors consisted of items from both scales indicating the two scales do not assess social interaction versus social performance anxiety exclusively among East-Asian Americans. For both groups, correlations among measure total scores and individual factors indicated ethnic identity and self-construal did not influence the expression of social anxiety on these self-report scales. These findings suggest that the construct of social anxiety as measured by these scales differs between Asian American cultures and highlights the need to consider culture in the interpretation of these scales.

Keywords: Ethnicity; Social anxiety; Asian American; Psychometric equivalence

Introduction

Research on the assessment of social anxiety among Asian Americans is controversial and incomplete. Specifically, a review of the extant literature illustrates a paradox regarding the incidence and expression of social anxiety among Asian Americans. Research has shown that Asian Americans frequently report elevated levels of social anxiety on standardized measures of distress compared to their Caucasian American counterparts [1,2]. However, previous literature also indicates that as a group, Asian Americans are socialized to act against emotional expression [3-6]. One reason for the discrepancy may be that the majority of the research addressing social anxiety has suffered from the major limitation of treating all Asian Americans as the same by including a variety of Asian Americans in one sample. One purpose of this study was to evaluate the psychometric properties of two frequently administered measures of social anxiety (the Social Phobia Scale and the Social Interaction Anxiety Scale) among Asian Americans. The second, and perhaps more important, purpose of this study was to examine the validity of these scales in two distinct samples of Asian Americans.

Ethnic identity has been postulated to be a potential moderator variable accounting for the inconsistency in the prevalence of social anxiety among Asian Americans [1,7]. Fundamentally, collectivistic countries are said to assign importance to the preservation of group harmony, while individualistic cultures are commonly understood to value the expression of individual wants and needs. Schreier et al. [8] note that researchers have reported that individuals from collectivistic countries (e.g., those from Asian cultures) are more willing to validate negative characteristics than those from individualistic societies and thus, are more willing to engage in self-criticism [9-11]. Heinrichs et al. [12] suggested that such a readiness to endorse negative attributes

might explain an association between social anxiety and ethnic beliefs. It seems that elevated levels of self-reported social anxiety may typify a response style associated with collectivistic cultures, as opposed to representing an authentic difference in social anxiety between cultures [8].

The self-construal, an essential component of ethnic identity, may provide the necessary link to understanding elevated levels of social anxiety in Asian American populations. The term self-construal refers to the content and structure of the inner-self that is influenced by one's culture and relationship to others [4]. Markus and Kitayama [4] define the Western "independent" self-construal as an identity embodied mostly in individualistic countries. Individuals with an independent self-construal act in accordance with their own thoughts and feelings and recognize relationships with others as important, but primarily as a reference for reaffirming their inner selves [4]. The "interdependent" self-construal, on the other hand, is predominantly seen in individuals who identify with non-Western, collectivistic countries, such as Asian Americans. Markus and Kitayama [4] define an individual possessing an interdependent self-construal as a person whose behavior, thoughts, and feelings are determined by the thoughts and feelings of others [4]. Because social anxiety is defined by the fear of negative evaluation by others [13], it is reasonable that this disorder may converge with interdependent self-construal ideals.

Currently, researchers tend to subsume individuals from a variety of areas on the larger continent of Asia, under a single region of descent. Lau, et al. [7], for instance, aggregated their Asian participants across East and Southeast groups due to common customs and cultural norms known to structure expectations about social and interpersonal relations for these individuals. This decision, however, speaks to the larger representation of standards within a collectivistic area, and not necessarily differences related to East versus South Asia specifically.

The effect of cultural differences in various regions of Asia on the experience and expression of social anxiety may be compounded by regional differences associated with living in the United States, and likely, emersion in westernized culture. Nagra, et al. [14], for example, note that Asian-Indian males in the United States experience significant stress associated with debt accrued from pursuing their academic goals in America, in addition to worries related to their burgeoning careers. This type of need for self-enhancement has been postulated to be particularly important in Westernized culture (such as the United States), while not as relevant in East Asian culture [4,15]. Literature suggests that in Eastern culture, the value of modesty, or the underrepresentation of one's positive abilities and/or traits in public, is most prominent [15]. It has been suggested that for individuals identifying from Eastern culture, positive self-regard actually stems from successfully demonstrating modest behavior, a cultural value that lacks significance in the United States [15]. With this in mind, it seems that the pathology experienced by individuals from either Western or Eastern descent could be quite different when compared to one another as a result of salient cultural differences. It may be that individuals identifying from areas with more strict social ideals (like Eastern culture) could also be individuals whose culture influences the type and strength of pathology experienced. The strict social standards for behavior documented in East-Asian culture [4,15], seem to be relevant only to that specific region of Asia. As such, individuals of Eastern descent may be experiencing anxiety related to constructs not typically associated with those from Western culture. In this respect, it seems that South-Asian individuals, like the males described above, may be more similar to Caucasian American individuals in some respects than East-Asian individuals.

Standardized scales of social anxiety are typically administered to a variety of populations under the assumption that the measures are culture neutral. These scales, however, have been developed for individuals who identify with a Western, individualistic culture, and consequently, an independent self-construal. Heinrichs et al. [12], for example, found that people from collectivistic countries, such as Asian Americans, report significantly higher levels of social anxiety compared to those from individualistic countries. Heinrichs et al. [12] reasoned that collectivistic countries tolerate socially withdrawn behaviors. Consequently, those from collectivistic countries might perceive socially reticent behaviors as more acceptable and endorse them freely on Western standardized measures of distress.

Additionally, Okazaki [1] found that individuals who scored lower on independent self-construal variables reported experiencing higher levels of social anxiety using the Social Avoidance and Distress Scale (SAD) and the Fear of Negative Evaluation (FNE) scale. Thus, the individuals who were more socially anxious were not necessarily the individuals who endorsed an interdependent self-construal, but those who simply did not score highly on levels of independent self-construal.

The Social Phobia Scale (SPS) and the Social Interaction Anxiety Scale (SIAS) are two commonly used measures in the assessment of social anxiety. Developed by Mattick and Clark [16], these scales have demonstrated acceptable reliability and validity across numerous research studies. The SPS, typically a two-factor measure, was designed to measure fears of performing in the presence of others [16]. The SIAS, on the other hand, is designed to assess anxiety in interacting with others.

Carleton et al. [17] investigated the joint factor structures of the SPS and SIAS in a predominantly Caucasian sample using an exploratory

factor analysis and discovered SIAS items comprising one factor and SPS items comprising two other factors. In their findings, factor one (the SIAS items), could be conceptualized as social interaction anxiety [17]. The SPS items, on the other hand, comprised factors two and three, conceptualized as fear of overt evaluation and fear of attracting attention, respectively [17]. Safren et al. [18] had also investigated the joint factor structure of the SPS and the SIAS in a Caucasian American sample using an exploratory common factor analysis of the items from both scales and discovered three factors: "interaction anxiety," "anxiety about being observed by others," and "fear that others will notice anxiety symptoms," which all represent different aspects of a single higher-order factor, "social anxiety." The factor model of the current analysis is based on prior EFA results from Safren et al. [18], who utilized the 20-item versions of the SPS and SIAS.

Hambrick et al. [19] discovered that in comparisons of Caucasian participants with Asian American participants, most items of the SIAS displayed significant differential item functioning that renders Asian American undergraduates more likely to endorse pathological responses at each level of social interaction anxiety. Hambrick et al. [19] also noted that individual questions on the SIAS performed as well, if not better, in discriminating Asian American individuals on the basis of social interaction anxiety. Asian Americans, however, were more likely to endorse pathological responses due to differential item properties [19]. It is important to note that high scores on these social anxiety measures can be attained by reporting a higher frequency of anxiety experiences in a limited number of situations, or by reporting a lower frequency of anxiety experiences across a wider range of situations. Thus, if even only a few items on these measures are inadvertently culture specific, minority groups like Asian Americans may unintentionally score highly on these social anxiety scales.

Though there is support from Hambrick et al. [19] that the SIAS performs differently for Asian Americans compared to Caucasian Americans, no study has examined the factor structure of the SPS or SIAS in a diverse Asian American sample. The purpose of this study was two-fold. First, to examine the factor structure of the SPS in South Asian Americans compared to East Asian Americans to identify if it is an appropriate tool for assessing social anxiety in these minority populations. We also included the SIAS in our study since it is commonly given in conjunction with the SPS. Second, we examined the relationship between ethnic identity, self-construal, and the expression of social anxiety in individuals identifying from both regions.

Method

Participants and procedure

Two hundred and five respondents from American University and the community participated in this study. Of these participants, 120 self-identified as South Asian American and 85 self-identified as East Asian American. Students from American University volunteered to obtain extra credit. Participants from the community were recruited using Facebook and an online recruitment database called "Mechanical Turk." Respondents who indicated that they were biracial, did not speak English as their primary language, and/or were under the age of 18 were excluded from the sample. Students from American University were individually scheduled to complete the informed consent and packet of questionnaires in the Anxiety Disorders Research Laboratory on campus. Each session was scheduled for 30 minutes. Respondents from the community who

were recruited using Facebook or Mechanical Turk were redirected to the website "surveymonkey.com."

Measurements

Social anxiety levels and subsequent factor structure data were obtained using two self-report measures. The Social Phobia Scale (SPS) is a 20-item measure designed to assess fear of scrutiny in situations requiring social performance and presents items detailing conditions in which an individual would be observed by others and asks respondents to rate how comfortable or uncomfortable they would be in each situation [16]. Individuals rate how characteristic each item is from 0 (not at all characteristic of me) to 4 (extremely characteristic of me). Individuals diagnosed with social phobia typically achieve a score of 40 and above and community samples typically score approximately 14 [16]. Prior research shows Asian Americans typically scoring between 15.1 and 18.5 [20,21]. This measure is often administered in conjunction with the SIAS. Internal consistency for this measure is usually high (>.88). The internal consistencies for the present East-Asian American and South-Asian American samples were .95 and .96, respectively. The Social Interaction Anxiety Scale (SIAS) also includes 20 items designed to assess anxiety experienced in interacting with others [16]. Each item is rated from 0 (not at all true of me) to 4 (extremely true of me). The SIAS also has excellent retest reliability (.92) and internal consistency (.94). The internal consistencies for the present East-Asian American and South-Asian American samples were .91 and .93, respectively.

Participant levels of depression and anxiety were evaluated with the administration of two additional measures. The Beck Depression Inventory – Second Edition (BDI-II) is a 21-item self-report questionnaire designed to measure depressive symptom severity [22]. This measure is found to have high internal consistency (.89 to .92). This measure was included in the present analysis to help assess the convergent and discriminant validity of the SPS and SIAS in order to establish good construct validity of these measures in Asian Americans. The internal consistencies for the present East-Asian American and South-Asian American samples were .96 and .97, respectively. The State Trait Anxiety Inventory – Form Y (STAI-Y) was administered to assess participant state and trait anxiety. It is a self-report measure divided into two scales, the Trait-Anxiety Scale (TAS) and the State-Anxiety Scale (SAI), each of which has 20-items rated on a 4-point likert scale [23]. Internal consistency for the trait scale is typically .90, while the internal consistency for the state scale is .93 [24]. The internal consistencies for the present East-Asian American trait and state scales were .91 and .87, respectively. The internal consistencies for the present South-Asian American trait and state scales were .87 and .83, respectively.

Ethnic identity was assessed with the administration of two self-report measures. Specifically, the Multi-group Ethnic Identity Measure – Revised (MEIM-R) is a 12-item scale designed to evaluate overall ethnic identity [25]. Scores for each item are rated from 1 (strongly disagree) to 4 (strongly agree). Summing across items and obtaining the mean yields a final score that indicates the development of an individual's ethnic identity. Scores can range from 1 (low ethnic identity) to 4 (high ethnic identity). Internal consistency for this measure is high (.81 to .92) across a range of ages and ethnic groups. The internal consistencies for the present East-Asian American and South-Asian American samples were .83 and .89, respectively. The Singelis Self-Construal Scale (SCS) was administered to evaluate aspects of participant self-construal. This scale is a 24-item self-report

measure that consists of two, 12-item subscales designed to assess independent and interdependent self-construals [26]. The measure was standardized on an Asian American sample from Hawaii, and uses a 7-point Likert Scale. Respondents are evaluated on their connectedness to relationships with others, which emphasizes an interdependent self-construal that is considered to reflect the cultural ideals of a collectivistic society. Additionally, respondents are assessed on their independence from relationships with others, which highlights features of an independent self-construal that is considered to represent individualistic cultures. Many studies have shown this measure to have decent internal consistency when used with Asian American samples [5,11,26,27] with alphas of .74 for the interdependent subscale and .70 for the independent subscale [26]. The internal consistencies for the present East-Asian American interdependent and independent subscales were .79 and .80, respectively. The internal consistencies for the present South-Asian American interdependent and independent subscales were .92 and .89, respectively.

Data analyses

Several analyses were conducted to elucidate data regarding ethnic identity, anxiety, and the factor structure of the SPS and SIAS in both groups. First, a Pearson's correlation analysis was performed to assess the relationship between ethnic identity and the self-construal in both East-Asian and South-Asian American samples. Following this, Chi-square tests were performed to identify relationships between participant ethnicity and various demographic data. Likewise, several Independent T-tests were conducted to evaluate and compare relationships between participant demographic data and total scores on measures of psychopathology for both groups. Finally, an EFA was performed for both participant samples with SPSS 21, using principal factors analysis and Promax oblique rotation. Factors were isolated with eigenvalues greater than 1.0. SPS and SIAS measure items were considered to load onto a factor if the item's loading score surpassed 0.40. For both populations, items with a loading score greater than 0.40 on more than one factor were retained if the difference between the two factor loading scores was less than 0.10. An item with a difference in scores higher than 0.10 was considered to load onto the factor with the higher factor loading score. Following this analysis, a CFA was conducted in both samples using LISREL 9.1 software. A CFA is performed when a pre-specified factor solution has been generated, against which researchers test how well new data fits the proposed and empirically supported model [28]. The data collected was obtained from measures previously established to have solid empirical and theoretical grounds [28]. As such, these measures provided the underlying structure for the factor analysis, against which we established goodness of model fit.

The CFA for the East-Asian American group failed to produce satisfactory results. The LISREL 9.1 software indicated that the total sample size for this group was smaller than the number of parameters accessible. In addition, the parameter estimates were considered unreliable. As such, only results from the EFA was reported for this sample.

Results

Pearson's correlation analyses

Table 1 illustrates the sample characteristics for East-Asian American and South-Asian American groups. Pearson's correlation

analysis for both the East-Asian and South-Asian American samples between the measures of ethnic identity and self-construal revealed that an increased sense of ethnic identity is associated with increased feelings of both types of self-construal for these groups, as illustrated by a significant, positive correlation between the MEIM-R and SCS-Interdependent (0.43, 0.71, respectively, p 's <0.01,) and SCS-Independent scales (p <0.01, 0.45, 0.71, respectively). This relationship appears much stronger for the sample's South-Asian Americans. The independent subscale of the SCS for the East-Asian and South-Asian American participants was also significantly and negatively correlated with the STAI-State (p <0.01, -0.42, -0.27, respectively) and STAI-Trait (p <0.01, -0.41, -0.26, respectively) scales. This indicates that increased independent self-construal is associated with less pathology.

The SCS-Independent measure, on the other hand, was only significantly negatively correlated with the BDI-II (p <0.01, -0.27) for the East-Asian American participants. Similarly, the SCS-Interdependent and MEIM-R scales were only significantly correlated with the STAI-State (p <0.01, -0.32, -0.27) and STAI-Trait (p <0.01,-0.33,-0.26) scales for the South-Asian American participants. This finding indicates that for South-Asian Americans an increased

sense of ethnic identity and interdependent self-construal are linked to less pathology. Interestingly, the SPS and SIAS were not significantly correlated with any ethnic identity measures for either participant sample.

Chi-square test analyses of demographic variables

A chi-square test was conducted to investigate if males and females were distributed differently across ethnicity. A significant difference for gender was found, $\chi(2)=7.896$, p <0.01, as evidenced in Table 1. A significant difference for participant generation in the United States by ethnicity was also found, $\chi(4)=26.692$, p <0.001. More South-Asian Americans self-identified as third generation citizens compared to East-Asian Americans, who more often self-identified as first and second-generation citizens.

Independent T-test analyses among measures

The results of several Independent T-tests shown in Table 1 revealed significant differences among participants for age, SPS, SIAS, SCS-Interdependent, SCS-Independent, and BDI-II total scores.

	East-Asian American		South-Asian American	
	Mean	SD	Mean	SD
Age	24.78*	4.96	28.24	7.75
SPS total	31.20*	17.11	41.75	16.83
SIAS total	33.84*	13.98	39.33	15.51
SCS-Interdependent Total	4.72*	0.71	4.99	1.04
SCS-Independent Total	4.50*	0.81	4.85	1.00
STAI-State Total	43.23	10.41	43.93	9.89
STAI-Trait Total	46.95	8.87	46.59	8.54
BDI-II Total	22.58*	14.43	29.15	16.08
MEIM-R Total	2.78	0.46	2.92	0.54
Gender	n	%	n	%
Male	43	21.0	82	40.0
Female	41	20.0	35	17.1
Not Reported	1	0.5	3	1.5
Generation	n	%	n	%
First	29	14.1	14	6.8
Second	33	16.1	39	19.0
Third	20	9.8	65	31.7
Other	2	1.0	0	0.0
Not Reported	1	0.5	2	1.0

Note: *Indicates a significant difference in scores between ethnicities.

Table 1: Demographic, scale, and chi square test data of participant demographic variables.

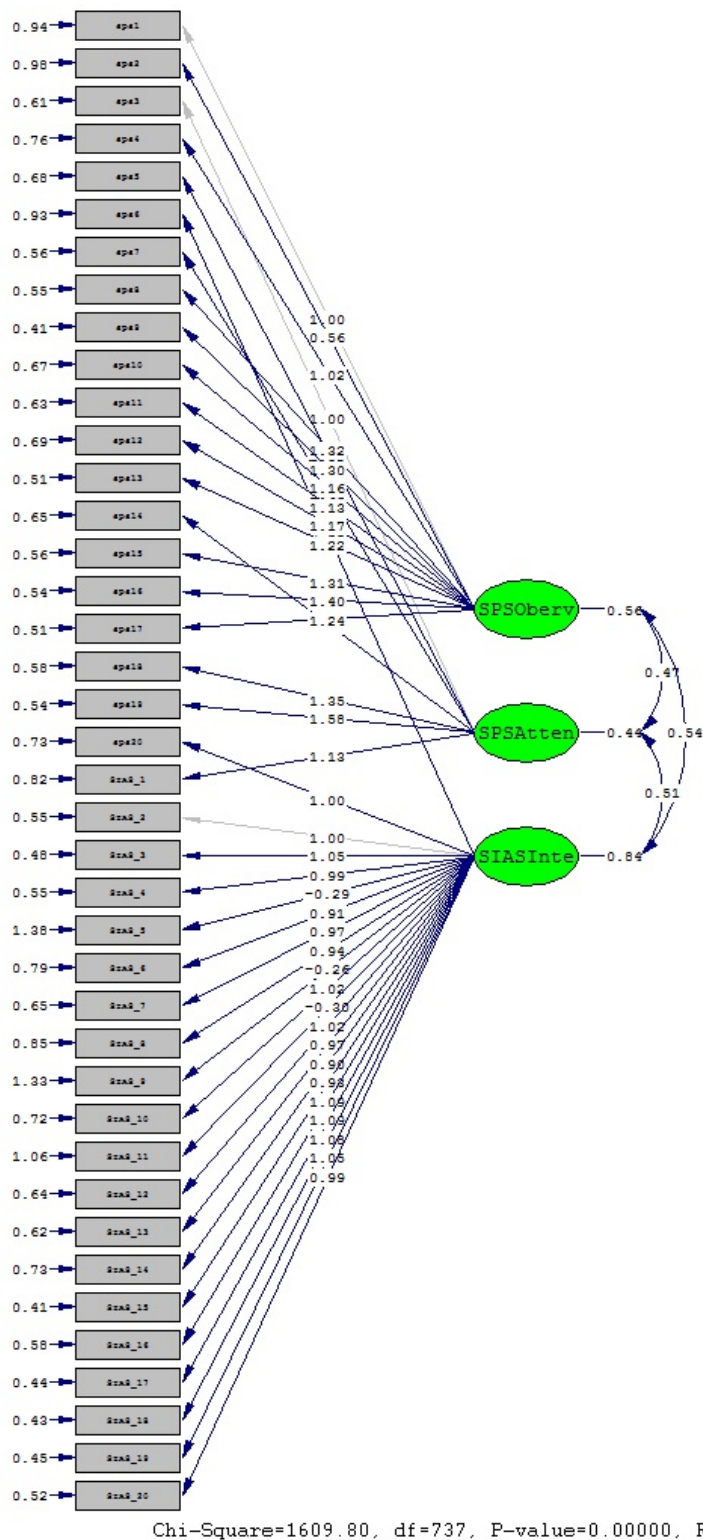


Figure 1: South-Asian American CFA path diagram.

In particular, South-Asian Americans were older, $t(199.789)=-3.880$, $p<.001$, had higher SPS and SIAS scores, $t(184)=-4.204$, $p<.001$ and $t(192)=-2.529$, $p<.01$, respectively, and BDI-II scores, $t(191)=-2.919$, $p<.001$. Finally, South-Asian Americans had higher scores on the SCS-Interdependent and Independent subscales, $t(189.959)=-2.127$, $p<.01$ and $t(191)=-2.580$, $p<.01$, respectively.

South-Asian CFA

A path diagram was created using a 3-factor model that utilized the three subscales from the SPS and SIAS: “fear of being observed by others” (SPS items 8,9,10,14,15,16,17), “fear of attracting attention” (SPS items 3,4,5,6,7,18,20), and “interaction anxiety” (all SIAS items excluding reverse worded items) (Figure 1). Historically, the Chi-Square statistic tends to be deficient in power when used with small sample sizes [29]. As a result, other indices have been developed to assess goodness of fit for various models [29]. The RMSEA, one such fit statistic, typically has a cutoff value close to 0.06, ranging to 0.07 [29].

Results from the CFA for the South-Asian American sample illustrate an RMSEA value well above the cutoff of 0.06 (0.10), indicating that perhaps the model for the South-Asian Americans is not an acceptable fit. Like the Chi-Square statistic, literature and research suggests issues in using the RMSEA statistic to denote goodness of fit, as a result of sensitivity issues [29]. To counterbalance this effect, the CFI was developed to account for sensitivity associated with inadequate sample sizes and performs well even when sample sizes are small [29].

Values for this statistic range from 0.0 to 1.0, with scores approaching the latter value indicating good fit. Typically, a CFI value greater than or equal to 0.95 is accepted as indicative of good fit [29]. TLI, also known as the Non-Normed Fit Index, prefers simpler models and can also be impacted by sensitivity issues associated with small sample size [29]. When small sample sizes are utilized, TLI values can indicate poor fit even when other fit index values suggest otherwise. Like the CFI, a value greater than or equal to 0.95 is indicative of good fit [29]. Based on the cutoff scores previously described, the CFI (0.96) and TLI values (0.95) for the present South-Asian American sample indicate that the 3-factor model is a good fit, though the values for the Chi square and RMSEA would indicate otherwise (Table 2).

χ^2	df	χ^2/df	RMSEA	CFI	NFI	TLI
1,609.79*	737	2.18	0.1*	0.96	0.92	0.95
*p =0.000 χ^2 : chi squared, df: degrees of freedom, RMSEA: Root Mean Square Error of Approximation, CFI: Comparative Fit Index, NFI: Normed Fit Index, TLI: Tucker-Lewis Index						

Table 2: Confirmatory factor analyses of the SIAS and SPS: South Asian.

East-Asian EFA

The EFA produced seven factors, five of which were retained. Factor one, conceptualized as “fear of being observed by others,” consisted of ten SPS items (2,7,8,9,10,11,14,16,17,19) and two SIAS items (4,8). Factor 2, conceptualized as “interaction anxiety,” consisted of one SPS item (5) and six SIAS items (2,6,7,10,17,18). Factor 3,

conceptualized as “fear of attracting attention,” consisted of three SPS items (3,6,15) and two SIAS items (13,14). Factor 4, conceptualized as “fear of being evaluated by others,” consisted of two SPS items (1,18) and one SIAS item (1). Factor 5 contained only the reverse scored SIAS items (5,9,11). Four SIAS items (3,15,16,20) loaded onto factors that were not retained. SPS item 20 loaded onto both factor 3 and factor 4, with a difference in scores lower than 0.10. As such, this item was not retained. Similarly, three additional SPS items (4,12,13) and two SIAS items (12,19) failed to load onto any one factor due to a loading cutoff score less than 0.40. No factor retained from the present EFA corresponds exclusively to the SPS and SIAS, indicating that the scales are not mutually exclusive in assessing social interaction and performance anxiety in this sample of East-Asian Americans. These results seem to highlight five constructs within the larger, more general paradigm of social anxiety for the present study’s East-Asian American population, contrasting the constructs found in previous models.

Construct validity analyses

A Pearson’s correlation analysis among the measures of anxiety, mood, ethnic identity, and self-construal scales (STAI, BDI-II, MEIM-R, SCS-Interdependent, and SCS-Independent), with extracted factor items, was used to evaluate the construct validity of the SPS and SIAS for the current Asian American samples.

The Pearson’s correlation analysis showed that for the East-Asian American participants, factors 1, 2, 3, and 4 were significantly associated ($p<0.01$) with total scores on the STAI-State, STAI-Trait, and BDI-II scales. The correlations varied moderately in strength, between 0.42 and 0.78. The reverse scored SIAS items loading onto factor 5 were only significantly associated with the STAI-Trait scale total scores ($p<0.05$, 0.25). Likewise, the reverse scored SIAS items loading onto factor 5 were also the only items to correlate significantly with the SCS, showing a negative association with the Independent subscale ($p<0.05$, -0.30). All five factors failed to correlate significantly with MEIM-R total scores.

The Pearson’s correlation analysis showed that for the South-Asian American sample, the items from all three factors correlated significantly with STAI-State, STAI-Trait, and BDI-II total scores. Values were moderate ranging from 0.33 to 0.55. Items from factors 1, 2, and 3 did not correlate significantly with total scores for the MEIM-R, SCS-Interdependent, or SCS-Independent scales.

Discussion

This study evaluated the joint factor structure of the SPS and the SIAS and assessed the relationship between social anxiety, ethnic identity, and self-construal for East Asian and South-Asian American participants. The CFA of the combined SPS and SIAS in the current study revealed a 3-factor solution for the South-Asian American sample that largely replicates the 3-factor solutions produced in prior research with Caucasian Americans [17,18] in that the items from the SIAS loaded onto one factor and the SPS items comprised two separate factors. This finding supports the notion that the SPS and SIAS may function very similarly in assessing social anxiety for South-Asian Americans as for Caucasian Americans.

Interestingly, among South-Asian Americans the SPS and SIAS failed to correlate significantly with any measure of ethnic identity used in this study. This suggests that for the present South-Asian Americans, ethnic identity, self-construal, and social anxiety seem to

interact less considerably than originally anticipated. Several factors must be considered in understanding this finding. Firstly, an individual's ethnic identity is dynamic and changes over time [25]. Thus, research on this element of an individual must be interpreted carefully, as ethnicity does not operate alone and often its implications and impact on an individual will vary [30]. Though overall Asian-Americans are thought to retain an interdependent self-construal, it may be that the possession of either type of self-construal is not what effects the experience of social anxiety in this group of South-Asian Americans. Berry et al. [31] analyzed national American identity, thirteen different ethnic identities, and acculturation variables in an international study that included over 5,000 immigrant adolescents, ranging in age from 13-18 years. The largest number of participants demonstrated an "integrated profile" in which their individual ethnic identity and national American identity were both strong and positively correlated [31]. As such, and with the present findings in mind, it may be that ethnic identity and an explicit type of self-construal are playing a much smaller role in ameliorating or exacerbating the experience of social anxiety for South-Asian Americans than previously anticipated.

These findings, coupled with the replicated factor structure found in prior research with Caucasian Americans, support the ethnic equivalence of the SPS and SIAS in South-Asian Americans. Furthermore, the high correlation with measures of depression and anxiety, suggests convergent validity of the SPS and SIAS for this minority group. Based on the current findings, it can be concluded that the utilization of these two measures in assessing social anxiety in this population is acceptable. As previously described, the need for self-enhancement typically found in Western culture parallels the determination and drive that South-Asian American men in the United States experience pursuing a burgeoning career. This cultural similarity, coupled with the fact that the majority of the current South-Asian American participants are male and identified as third generation citizens, lends evidence for the argument that this group is interpreting social interaction and social performance concerns similarly to Caucasian American.

Conversely, the EFA for the East-Asian American sample revealed a 5-factor solution when the SPS and SIAS measures were analyzed together. Four of the five generated factors contained both SPS and SIAS items. Factor 5, however, consisted of solely the reverse worded SIAS items. These results seem to indicate that for the East-Asian Americans, the SPS and SIAS measures are not independent and may not exclusively assess social interaction anxiety or social phobia/performance anxiety for this group. As was found for the South-Asian American participants, the reverse scored SIAS items seem to also interact strangely to discriminate between social unease and social interaction anxiety for the East-Asian American sample. For instance, prior research with Caucasian Americans has found the reverse scored SIAS items to be accounted for by a separate method factor, indicating that these three items seem to be more related to extraversion than social anxiety [32]. Rodebaugh et al. [33] also note that the reverse items of the SIAS appear to tap attitudes and behaviors related to "social ease" and may not necessarily assess a lack of social interaction anxiety as they are intended to. This may be especially applicable in understanding the East-Asian American findings, given that modesty is valued so highly in their social culture. Specifically, the desire to appear modest could be creating social unease around others in this minority group, lending the reverse scored SIAS items more likely to load onto a separate method factor, as opposed to the social interaction anxiety factor. These results highlight the inconsistencies

in the methodological framework of these two scales for the East-Asian American sample compared to the South-Asian American participants and Caucasian Americans in prior research.

The EFA suggests that the psychometric properties of the SPS and SIAS for East-Asian Americans may not adequately capture the variances in social performance versus social interaction concerns for this ethnic group. It seems for the East-Asian Americans in the present study, these two constructs of social anxiety are not mutually exclusive as assessed by the SIAS and SPS. The level of acculturation experienced by the current participants may have an impact on these findings. For instance, the majority of the East-Asian American sample identified as either first or second generation citizens, compared to the South-Asian American group who more frequently reported being third generation. It is possible that for the East-Asian Americans in this study, the effect of biculturalism has a stronger influence on the experience of social anxiety for this group [26]. The interaction of two distinct cultures on the self could be blurring the lines between social interactions versus social performance concerns in this minority group. This is of particular importance given the tendency for researchers to aggregate different Asian participant populations for data analysis based on common customs alone, as previously described [7].

Like the South-Asian American sample, total scores for the East-Asian American participants on the SIAS and SPS, in addition to all five factors, failed to correlate significantly with the MEIM-R. This suggests that for both groups of Asian Americans, the strength of an individual's overall sense of ethnic identity does not influence the expression of social anxiety. Interestingly, Factor 5 (the reverse SIAS items) did correlate negatively and significantly with the SCS-Independent subscale. As previously mentioned, though Asian Americans are thought to possess a more interdependent self-construal, Singelis et al. [26] note that often, a co-existence of these two aspects of the self (independent and interdependent self-construal) tends to exist and may actually contribute to biculturalism. Biculturalism is an interesting phenomenon to apply in interpreting these results since the individuals in this sample identify as American, but are of Asian descent. Thus, there is likely to be a constant interaction of two distinct cultures influencing the present East-Asian American participants' views of themselves. Likewise, the East-Asian American participants in this study also most often reported being second-generation citizens. Having the experience of being born in the United States, but raised by parents born in the United States may have led the majority of these East-Asian Americans to indicate less social discomfort as assessed by the SIAS because they possess a bicultural view of themselves. On the other hand, it may be that some East-Asian Americans in this study embrace a more independent, compared to interdependent view of themselves, and vice versa. In this sense, it could be that biculturalism reduces the influence the self-construal may traditionally have in terms of mediating the experience of social anxiety for this population.

Additionally, there may be aspects of East-Asian culture that cultivates a weaker distinction between social performance and social interaction anxiety, as demonstrated by the EFA results. For instance, as previously mentioned, the value of modesty is most prominent in Eastern Asian culture [15]. Perhaps the value placed on such social reticence reduces the dissimilarity between the aforementioned constructs of social anxiety, creating a more general experience of distress in social situations for this minority group. This may aid in understanding the 5-factor EFA solution found for the present East-

Asian American participants that contrasts results generated in the South-Asian American sample, and in prior research with Caucasian Americans.

Limitations and Implications for Future Work

While this study represents one of the few addressing social anxiety among culturally different Asian American groups, there are limitations. Firstly, the current participant population was recruited from online resources and areas surrounding a university community. Thus, the participants in the present sample were not clinically identified as suffering from social anxiety. Similarly, the measures in this study (though reliable and validated) were self-report scales. Data generated by self-report measures is always susceptible to response biases, with participants wanting to respond in a socially desirable manner despite the anonymity of the questionnaires. Additionally, the current self-report scales used in the current study do not allow for respondents to indicate the level of impairment they feel results from their individual experiences of symptoms and situations related to social anxiety, which would shed light on the degree to which social anxiety is impeding the lives for both groups of Asian Americans. Clinically, this study cautions against interpreting data from the SPS and SIAS as ethnically equivalent in various Asian American populations, particularly for East-Asian Americans. Despite the above-mentioned limitations, the current study's findings should encourage further investigation the measurement equivalence of commonly used social anxiety measures across cultures, in addition to the effect an individual's ethnic identity may have on the manifestation of social anxiety symptomatology between different ethnic groups.

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