ETHNIC DIFFERENCES IN SOCIAL ANXIETY BETWEEN INDIVIDUALS OF
ASIAN-HERITAGE AND EUROPEAN-HERITAGE: A META-ANALYTIC REVIEW

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ABSTRACT

Differences between Asian-heritage and European-heritage individuals have been found in both the prevalence and expression of social anxiety. Previous research suggests higher social anxiety among AH individuals, but both the methodology and the findings have been mixed and the effect sizes varied widely. The purpose of this meta-analytic study was to examine whether the AH/EH differences in social anxiety were robust across various moderators, and how these differences may be accounted by ethnic differences in self-construal and acculturative stress. The meta-analysis revealed a moderate mean effect size of $d = 0.36$, CI [0.27, 0.44]. Moderator analyses demonstrated that these effects were robust across moderators. Results of meta-regression analyses indicated that independent self-construal significantly contributed to social anxiety. Directions for future research include exploration of measurement issues, and a need to develop a theoretical model that includes factors that mediate the ethnic differences in independent self-construal and differences in social anxiety.

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INTRODUCTION

Social anxiety refers to the experience of intense anxiety and fear related to social interaction or performance (Good and Kleinman, 1985; Mesquita and Frijda, 1992). Social anxiety is characterized by the persistent fear of social situations in which one's behavior may be scrutinized by others, an experience that often leads to anticipation of embarrassment or humiliation (American Psychiatric Association, 2000). Symptoms of social anxiety include high physiological arousal (e.g., shortness of breath, sweating) in feared situations, self-defeating cognitions regarding one's own social performance and others' evaluation, as well as avoidance and/or anticipation of feared situations (American Psychiatric Association, 2000; Heimberg, Brozovich, and Rapee, 2010). Social anxiety is associated with both occupational and social impairment (Wittchen and Beloch, 1996; Aderka et al., 2012), carrying great cost at both the individual and societal level.

This experience of social anxiety appears to be relatively common with 25-33% of adults reporting intense anxiety and/or avoiding certain social situations at some point in their lives (Kessler, Stein, and Berglund, 1998; Ruscio et al., 2008). Social phobia, the most severe, clinically-significant form of social anxiety, has a 12-month prevalence rate of 7.9%, and lifetime prevalence of 13.3% (Kessler, McGonagle, and Zhao, 1994; American Psychiatric Association, 2000), making it the third most prevalent psychological disorder in the U.S.

There is evidence to suggest that the prevalence rate of social anxiety differs between European-Americans and ethnic minority groups, particularly Asian-Americans, but the findings appear to be mixed (Okazaki, 1997; 2000; 2002; Okazaki et al., 2002; Hsu, 2004; Hsu et al., 2007; 2008; 2012; Lau et al, 2009; Norasakkunkit and Kalick, 2002; 2009; Norasakkunkit, Kitayama, and Uchida, 2012; Lee, Okazaki, and Yoo, 2006; Abe and Zane, 1990; Gordon and Teachman, 2008; Hardin and Leong, 2005; Sue et al, 1983; 1990). For instance, some epidemiological studies reported a greater 12-month prevalence rate for social anxiety amongst European-Americans as compared to Asian-Americans (3.01% and 2.3%, respectively; Smith et al., 2006), while others report the difference being as great as 7.3% (European-Americans: 12.6% and Asian-Americans:

5.3%; Asnaani et al., 2010). This indicates a high magnitude effect in the difference in prevalence rates with greater prevalence amongst European-Americans. In contrast, non-epidemiological studies¹ have demonstrated that individuals of Asian-heritage (AH), tended to report higher levels of social anxiety symptoms than did their European-heritage (EH)² counterparts (Okazaki, 1997; 2000; 2002; Hsu et al., 2012; Lau et al., 2009; Norasakkunkit and Kalick, 2009), creating an apparent discrepancy in the literature.

Given the discrepancy in the literature, the purpose of this study is to review the extant findings on ethnic differences in social anxiety between AH and EH individuals using a meta-analysis. Specifically, the meta-analysis will be used to examine whether there is a robust difference in social anxiety between AH and EH individuals, and whether this ethnic difference is a function of potential moderators such as method of assessment. In addition, I will also review the literature on the sources of ethnic differences in social anxiety, and explore how some causal factors such as acculturative-stress and independent and interdependent self-construal may explain differences in social anxiety between AH and EH individuals.

In the following sections, I will first introduce and compare two theoretical models of social anxiety. Second, I will review and critique some commonly used measures of social anxiety that were developed based on different theoretical models. Third, I will examine the robustness of the ethnic differences in prevalence and

¹ In this report, I refer to epidemiological studies as studies that use diagnostic interviews on large, randomly-selected community samples to estimate the prevalence of a certain disease or disorder in a given population, and non-epidemiological studies as those that use a variety of self-report methods on convenience samples (primarily college students)

² My use of the term “Asian Heritage” (AH) and “European Heritage” (EH) refers to people residing in North America or Australia with either Asian or European ancestry. I chose this term because my study examines not only Asian/European-Americans, but also Asian/European-Canadians and Asian/European-Australians. This term is related to terms such as “race”, “ethnicity”, and “nationality”, but differs in that it is not limited to phenotypical expression, includes multiple ethnicities, and spans national borders and citizenship (see Chin and Kameoka, 2006 for further discussion).

expression of social anxiety between AH and EH individuals, as well as the factors, such as measure of social anxiety, that may potentially moderate these ethnic differences. Finally, I will review two explanatory models that may account for the difference in social anxiety between AH and EH individuals.

Theoretical Models of Social Anxiety

While various models have been proposed to explain the etiology and maintenance of social anxiety (Clark, 2001; Clark and Wells, 1995; Kimbrel, 2008; Rapee and Heimberg, 1997; Heimberg et al., 2010), Schlenker and Leary's (1982) self-presentation model and Rapee and Heimberg's (1997; Heimberg et al., 2010) cognitive-behavioral models have received the most attention. In addition, most measures of social anxiety, to some degree, were developed to capture the components of social anxiety emphasized in these two models.

The Self-Presentation Model of Social Anxiety. This model traces its theoretical roots back to sociologist, Ervime Goffman (1959), and his work on self-presentation as an overarching explanation of social behavior. Shlenker and Leary (1982) connect this perspective with the concept of self-schemas and others-schemas, and assert that a main social goal is to maximize one's positive image and minimize one's negative image by controlling the image of the self before a real or imagined audience. Receiving the anticipated reaction from this audience indicates to the actor that s/he was successful in conveying the desired image of the self. In the context of this model, social anxiety arises in social situations (both real and imagined) where people doubt their ability to make the desired impression and is exacerbated as the discrepancy between the perceived audience reaction and the anticipated reaction increases (Schlenker and Leary, 1982). They place the idea of fear of negative evaluation as the centerpiece of this model, differentiating social anxiety from other types of anxiety by the extent that interpersonal evaluation is present (or imagined) and by the degree of social/non-social components in the anxiety-provoking situation. Other factors that play a part in the maintenance of this negative cognitive cycle and heightened physiological arousal including self-attention (inwardly directed self-consciousness that increases the impact of fear of negative evaluation), low

outcome expectancy (the persistent sense of uncertainty on whether or not social goals can be attained), and impaired behavioral performance (behaviors such as nervous responses, disaffiliation/avoidance, and social image protection that co-occur with social anxiety) (Schlenker and Leary, 1982).

The Cognitive/Cognitive-Behavioral Model of Social Anxiety. This very influential model by Clark and Wells (1995; Clark, 2001) divides the experience of social anxiety into three chronological phases: prior to entering the feared situation, entering the feared situation, and after leaving the feared situation. Before entering a feared social situation, the socially anxious individual's cognitive processes are dominated with ruminations about potential failure, a negative self-image, memories of prior failures, and predictions of poor upcoming social performance. This serves only to heighten the sense of anxiety and anticipation of a negative outcome and to detract cognitive resources from processes that would be more beneficial in preparing for the event. As this socially anxious individual enters the situation, s/he has excessively high standards for adequate social performance, catastrophizes the consequences of perhaps innocuous social blunders, and reinforces negative beliefs about the self. These assumptions followed by the anxious anticipation of the feared situation lead individuals to interpret this situation as threatening and heighten their sensitivity to ambiguous social cues while splitting that attention to focus on internal cues, imagining that feeling anxious is the same as looking anxious (Clark and Wells, 1995; Clark, 2001). In this way, socially anxious individuals perceive themselves as a social object and may engage in safety behaviors (i.e., to cover one's face or avoid hot liquids to circumvent people noticing a blush) to compensate for these maladaptive cognitive biases. After the event, it is common for a socially anxious individual to engage in post-event processing, where s/he reviews the event in a way that is dominated by the feelings of anxiety and a negative self-image to the point where the actual social interaction is seen as much worse than it was in reality. This only reinforces prior beliefs about the self and strengthens the pessimistic outlook on the success of the next social interaction (Clark and Wells, 1995; Clark, 2001).

The Cognitive-Behavioral addition (Rapee and Heimberg, 1997; Heimberg et al., 2010) to Clark and Wells' (1995) Cognitive model elaborates on the mental representation of the self as seen by the audience and makes additions to the behavioral components of social anxiety (e.g., avoidance and 'safety behaviors'). It also reintroduces fear of negative evaluation as a part of the processing of external cues during the event and stresses the interaction of cognitive, physiological, and behavioral symptoms of social anxiety in generating internal feedback to the anxious individual. This addition serves to add concrete, observable behaviors in the feedback loop that assists in generating and perpetuating the experience of social anxiety (Heimberg et al., 2010).

A Comparison between the Self-Presentation and Cognitive Models. Both the self-presentation and cognitive models of social anxiety focus on some of the same components (e.g., fear of negative evaluation, perceived audience, and behavioral compensation) and theoretically connect these components in a very similar way via a feedback loop or cognitive cycle. A key strength to the cognitive/cognitive-behavioral model is how carefully each step and process is broken down and described. This model would be particularly useful to those looking to administer cognitive therapy or cognitive behavioral therapy as an intervention to ameliorate social anxiety symptoms in a clinical setting. In comparison, the self-presentational model conceptualizes underlying goals in social interaction and emphasizes the experience of normative and successful social interaction. In this way, the self-presentational model may better describe social anxiety symptoms in non-clinical community samples. Despite these differences, both models seem to share emphasis on the basic physiological, cognitive, and behavioral components of social anxiety that have been commonly assessed using various measures.

Measurement of Social Anxiety

Related to the self-presentation and cognitive models of social anxiety, different measures have been developed to capture various components or experience of social anxiety (see table 1). Below I review five of the most commonly used measures.

Fear of Negative Evaluation Scale (FNES; Watson and Friend, 1969). The FNES was constructed to capture the central construct of social-evaluative anxiety specifically. It consists of 30 items, rated as “true” or “false”, that represent elements of expectation and distress related to negative evaluations from others. One-month test-retest reliability is estimated between .78 - .94, and its item reliability (Chronbach’s alpha) was estimated in the range of .94 - .96. Example items include “When I am talking to someone, I worry about what they may be thinking about me” and “I am afraid that others will not approve of me”. Evidence for criterion validity was generated via experimental procedures and predicted that those who score high on this scale sought social approval and validation. Additionally, construct validity was supported by high correlations with scales that measure related constructs such as anxiousness and achievement anxiety.

Social Avoidance and Distress Scale (SADS; Watson and Friend, 1969). The SADS was created as the behavioral measure to be used alongside the FNES, which is primarily cognitive. Between the two measures, a broad sampling of items related to social anxiety are presented, but perhaps these items are not related to social phobia per se. It consists of 28 items, rated as “true” or “false”, that represent elements of behavioral avoidance and physiological distress in anxiety-provoking situations. One-month test-retest reliability is estimated between .68 - .79, and its item reliability was estimated as .94. Example items include “I try to avoid situations which force me to be very sociable” and “I often find social occasions upsetting”. Evidence for criterion validity was generated via experimental procedures and predicted that those who score high on this scale were more likely to avoid situations and report more anxiety during a group discussion task. Additionally, construct validity was supported by high correlations with scales that measure related constructs such as anxiousness and achievement anxiety.

Social Phobia Scale (SPS; Mattick and Clarke, 1998). The SPS is a 20-item questionnaire, scored on a five-point Likert scale from 0 (not true of me at all) to 4 (extremely true of me). It examines situations that involve being observed by others in the middle of normative activities such as eating or writing. Items were generated by a series of items taken from the FNES and SADS and re-constructed to better fit the DSM

discrimination of specific performance-based anxiety and generalized interaction-based anxiety (see Carter and Wu, 2010). Factor analysis indicated that the SPS contained three factors: general concern of scrutiny, specific fears, and the fear of being ill or losing control in front of others. Four to 12-week test-retest reliability was estimated as ranging between .66 - .93, and its item reliability between .87 - .94. Example items include “I can suddenly become aware of my own voice and others listening to me” and “I would get tense if I had to carry a tray across a crowded cafeteria”. Factor analysis confirmed a one-factor structure for the SIAS, and validity was estimated via correlations with previously established measures of social anxiety and related constructs.

Social Interaction and Anxiety Scale (SIAS; Mattick and Clarke, 1998). The SIAS is a 20-item questionnaire, scored on a five-point Likert scale from 0 (not true of me at all) to 4 (extremely true of me). It examines cognitive, affective, and behavioral reactions towards situations that require interactions with people. Four to 12-week test-retest reliability was estimated as ranging between .86 - .92, and its item reliability between .86 - .94. Example items include “I find myself worrying that I won’t know what to say in social situations” and “I get nervous if I have to speak with someone in authority (teacher, boss, etc.)”. Factor analysis confirmed a one-factor structure for the SIAS, and validity was estimated via correlations with previously established measures of social anxiety and related constructs.

Social Phobia and Anxiety Inventory (SPAI; Turner et al., 1989). The SPAI is a 45-item questionnaire, scored on a 7-point Likert scale from 0 (never) to 6 (always), designed to be a specific measure of social phobia. Its set of items was empirically-derived from previous scales, patient complaints, as well as DSM-III (American Psychiatric Association, 1987) diagnostic categories. It includes two subscales, one measuring social phobia (32 items) and the other for agoraphobia (13 items). To create a pure score for social anxiety, the summed total from the agoraphobia scale is subtracted from the summed total of the social phobia scale. This two-factor subscale structure was confirmed with samples of both college students and social phobics (Turner, Beidel, & Dancu, 1996). Two-week test-retest reliability was estimated as .86, and its item

reliability for the social phobia subscale and agoraphobia subscale was estimated between .94 - .96 and .85 - .86, respectively (Turner et al., 1989). Evidence for validity is indicated by significant correlations with other established measures of social anxiety (Turner et al., 1996).

<INSERT TABLE 1>

A Comparison among the Five Measures of Social Anxiety. Among these measures, a distinction can be made between the FNES and SADS, which were created in the context of the self-presentation model, and the SPS, SIAS, and SPAI, which were designed with the influence of the DSM-III and could possibly resemble the CBT model of social anxiety better than the self-presentation model. Additionally, since each of these measures sample different components or experience of social anxiety (e.g., primarily cognitive components or primarily components related to physiological arousal; see table 1) the effect size of the AH/EH difference in social anxiety may vary among measures, and in that way, help us identify which components manifest this cross-ethnic difference more than others. In comparing ethnic groups in social anxiety, however, there is limited evidence for measurement equivalence across different ethnic groups (Hambrick et al., 2010; Norasakkunkit and Kalick, 2009) For example, it is unclear whether the factor structure of social anxiety measures applies similarly to different ethnic groups (configural invariance) and whether there is an invariant pattern of the item-factor loadings (metric invariance). Without testing the measure equivalence of these scales, results of ethnic group comparisons are difficult to interpret. Furthermore, it is important to note that reliability and validity statistics (outside of Chronbach's alpha) were performed primarily with groups that included very few AH individuals, which compromises the generalizability of these estimates in this population.

Differences in the Prevalence and Expression of Social Anxiety between Asian-Heritage and European-Heritage Individuals

Social epidemiological studies typically found lower levels of social phobic symptomology in Asian-Americans as compared to European-Americans (Smith et al., 2006; Asnaani et al., 2010). In comparison to non-epidemiological studies that are

relatively common in the psychology literature, a social epidemiological study examines the effect of social factors on individual and population health by examining differential prevalence rates of certain disorders based on categories such as sex, race, generation, and social status (Honjo, 2004). In a study interviewing 24,507 randomly-selected EH and 1332 randomly-selected AH samples, Smith et al. (2006) found 12-month prevalence rates for social phobia as measured by the Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS-IV; Grant, Dawson, and Hasin, 2001) for EH community members as 3.01% and AH community members as 2.13%. Similarly, another study (Asnaani et al., 2010) used the Composite International Diagnostic Interview (CIDI; Algeria et al., 2007) with a group of 6,870 randomly-selected EH and 1,628 randomly-selected AH individuals and reported the 12-month prevalence rate as 12.6% and 5.3%, respectively. Two key limitations in both of these studies, however, is that they utilized lay-interviewers, and while using a diagnostic interview based on DSM criteria (constructed via expert opinion) there was no information on either inter-rater reliability or validity of diagnoses in these studies.

While epidemiological studies are characterized by large, random samples and structured diagnostic interviews, non-epidemiological studies use a variety of self-report methods with convenience samples consisting primarily of college students (see table 2 for a comparison). These studies (e.g., Lau, 2009; Hsu et al., 2012; and Okazaki, 1997), using self-report measures of social anxiety, show decent consistency in demonstrating elevated levels of social anxiety symptoms amongst AH individuals compared to EH individuals. For example, in a study examining a group of 200 AH and 200 EH undergraduates recruited from the registrar's list, Okazaki (2002) found that AH students scored significantly higher than EH students on the intensity of social anxiety as measured by the SPAI.

<INSERT TABLE 2>

Not all self-report studies consistently find a statistically significant difference in social anxiety ratings. In a study comparing 47 AH and 41 EH undergraduate students, Lee et al., (2006) found no significant difference in SPAI scores or in the frequency of the

experience of social anxiety as recorded by daily diary entrees. Similarly, Gordon and Teachman (2008) found mixed results when surveying 33 AH and 39 EH undergraduates. While both the FNES and the SADS were administered, only the FNES showed significant between-group differences with AH individuals rated higher than EH individuals. Furthermore, when they elicited social anxiety experimentally no between-group differences were found. Taken together, the findings suggest that the robustness of the AH/EH differences in social anxiety may be contingent upon the type of self-report measure being in prior studies.

While the results of self-report studies mentioned above are in clear contrast to the greater prevalence of social anxiety in EH individuals found in two main epidemiological studies (Asnaani, 2010; Smith et al., 2006), it is premature to assume that the method of assessment (i.e., diagnostic interview vs. self-report questionnaire) was responsible for these discrepant findings. In a study conducted by Okazaki (2000), 39 AH and 42 EH undergraduate students were given both the self-report and interview forms of the Fear of Negative Evaluation Scale (FNES), and no significant AH/EH ethnic differences were observed between methods of assessment. Additionally, some studies (e.g., Hsu, 2004), which employed a smaller sample size of participants recruited from a university setting, found greater instance of social anxiety symptomology amongst AH individuals as compared to EH individuals even when a diagnostic interview was used to assess social anxiety. Hsu and Alden (2007) used a modified version of the ADIS-IV (a diagnostic interview) with a sample of 112 AH and 60 EH undergraduates to assess for differences in not only social anxiety, but impairment as well. Their results showed that AH individuals reported higher degrees of both, suggesting that the discrepant findings on the AH/EH differences in social anxiety may not be necessarily related to methods of assessment.

Explanatory Models for the Ethnic Differences in Social Anxiety between AH and EH Individuals

While the robustness of the ethnic differences in social anxiety is debatable (and will be examined in the proposed study), the relatively higher levels of self-reported

symptoms of social anxiety in AH individuals may be understood using either the Self-Constraint Model or the Acculturative-Stress Model.

The Self-Constraint Model. This model, based on the work of Markus and Kitayama (1991), assumes that there are some fundamental East-West differences in the view of the self in relation to others. In Western societies, ideas such as autonomy, uniqueness, personal rights and achievement are emphasized as cultural values, perhaps contributing to a sense of self that is relatively independent from others (Markus and Kitayama, 1991; Singelis, 1994). In this way, appropriate social behavior in the West includes assertiveness, direct communication, and competitiveness (e.g., Clark, 2001), which underscores one's independence and autonomy of the self. This value system and the corresponding behaviors line up with how Markus and Kitayama (1991) define 'independent self-construal'—viewing the self as independent and autonomous from others. In contrast, traditional cultural values in East Asia focus on creating and maintaining a sense of social harmony, which is accomplished with a sense of heightened sensitivity towards other's feelings, opinions, and negative evaluations during social encounters (Fung, 1999); as well as emotional regulation, specifically suppressing negative emotional responses that may detract from the group's sense of solidarity (Chen and Rubin, 2011). Other behaviors that work to this end are reticence, eye-gaze aversion, non-assertiveness, and more frequent silence (e.g., Baker and Edelmann, 2002; Beidel and Turner, 1999)—all of which may mimic symptoms or behavioral indices of social anxiety as defined by Western theorists (Clark and Wells, 1995). These behaviors, socialized from an early age (Fung, 1999), are designed to promote acceptance by others and help foster a sense of what Markus and Kitayama (1991) call 'interdependent self-construal'—viewing the self as connected with members of the immediate group and surrounding environment (Markus and Kitayama, 1991).

In addition to overarching cultural values and trends, there is also room for intra-group variation in self-construal patterns. When examining differing cultural values and culturally-sanctioned behaviors it is important to acknowledge the wide degree of variance between how well collective values/behaviors reflect individual beliefs and

actions. These aspects may be intrinsically tied to generational and experiential effects that vary widely from person to person and region to region. Specifically, with AH individuals, traditional cultural values may be the effect of residual socialization from parents and grandparents that hold more strongly to these values. Despite possible within-group variation, independent or interdependent self-construal have been found to be contributing factors in explaining AH and EH group differences in reported levels of social anxiety (e.g., Okazaki, 1997; Ho and Lau, 2011). For instance, Ho and Lau (2011) examined the relationship between race/ethnicity and self-construal in predicting social anxiety as measured by a composite score of the FNES, SADS, and the Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998). In their sample of 74 EH, 83 U.S.-born AH, and 72 foreign-born AH undergraduates, the results indicated that both interdependent self-construal and independent self-construal predicted individual scores on social anxiety ($\beta = .15$ [$p < .05$] and ($\beta = -.28$ [$p < .01$], respectively), the combination of these two self-construals completely mediating the AH/EH group difference in social anxiety.

The relationship between self-construal and social anxiety may be that as an individual sees him/herself as more interdependent (or less independent), s/he places increased value on the social relationships with other people, and consequently has increased fears about disrupting this relationship or being negatively evaluated by others. Based on this working model, it was conceptualized that it was the extent of interdependence that would predict social anxiety and that independence is just the opposite construct (Okazaki, 1997). This model—predicting social anxiety from interdependent self-construal—may be mediated by sociotropy, a cognitive style in which individuals exaggerate their closeness to others and compulsively try to please them. People with sociotropic tendencies catastrophize the possibility of losing connection with others and are fearful of being excluded from their group (Blatt & Zuroff, 1992; Robins & Block, 1988). This may be consistent with individuals who have interdependent self-construal, emphasizing group harmony and defining themselves by their relationship with others. Sociotropy is also considered to be a vulnerability to both anxious and depressive types of distress (Bartelstone & Trull, 1995; Beck et al., 1987; Luthar & Blatt, 1993). In a

study by Mak, Law, and Teng (2011), which examined sociotropy as a mediator between self-construal and anxiety and depression in a group of 212 AH and 202 EH individuals, they found that sociotropy completely mediated the relationship between both independent and interdependent self-construal in predicting anxiety. This model fit both AH and EH groups equally well in predicting individual differences in anxiety (see Figure 1).

The Acculturative Stress Model. Acculturative stress is conceptualized as the distress that immigrant minority groups experience when adjusting to life in a new country, particularly when the new cultural values and goals conflict with their previously socialized cultural standards (Hsu et al., 2012). This conflict is often related to identity confusion, low self-esteem, depression, and anxiety (Berry et al., 1987; Zheng & Berry, 1991). When social behaviors in a Western setting create an apparent conflict with Asian values, the resulting acculturative or bicultural stress can generate a reaction that holds similar characteristics to symptoms or experience of social anxiety. Hsu et al. (2012) used the Vancouver Index of Acculturation (VIA; Ryder, Alden, & Paulhus, 2000) to test the acculturative-stress model on 309 East-Asian nationals, 280 Asian-Americans, and 103 European-American undergraduates. They found that mono-cultural groups (East-Asian nationals and EH Americans) displayed lower levels of social anxiety and social comparison as compared to the bicultural group (Asian-Americans). It was conceptualized that the conflict between two value systems accounted for increased wariness and anxiety in social situations. Further research gives support for the notion that difficulties in adjustment to the demands of the new culture may be related to greater acculturative-stress, which then predicts decreased social functioning—possibly related to increased social anxiety (see Aikawa, Fujita, and Tanaka, 2007). Studies of East-Asian international students living in North America have found that those who more closely adhered to Western norms experienced better social and psychological adjustment in the new culture (Cross, 1995; Oguri & Gudykunst, 2002). Overall, it appears as if the Acculturative-Stress Model has a strong theoretical rational with empirical evidence to support that this factor could possibly explain some of the differences in increased social anxiety in AH individuals as due to the unique experience of acculturation—and the

associated stress—that EH individuals do not share. However, studies that examine this theory do not measure acculturative-stress directly but just acculturation as a proxy, creating a significant limitation in examining this model.

Comparing the Self-Construal Model and Acculturative-Stress Model. Both models offer a conceptualization of a specific pathway by which an AH individual could develop more social anxiety symptoms than an EH individual. In the Self-Construal Model, this increased awareness and subsequent anxiety works through greater value put on social relationships according to how the individual views him/herself in society (i.e., interdependent vs. independent). In the Acculturative-Stress Model, this group difference in increased anxiety is seen as a product of navigating a new social situation and working through values conflict that is unique to AH immigrants as compared to EH individuals. While both models have received empirical support, it seems that the acculturative-stress model would better explain individual differences amongst AH individuals in levels of social anxiety, and that the self-construal model would better explain between-group differences when comparing AH and EH individuals on measures of social anxiety. Furthermore, acculturative stress is not unique to AH individuals. Other minority groups also experience this stress, however, only AH individuals showed consistent higher social anxiety ratings in comparison to EH individuals. In contrast, among all minority groups, only AH has been consistently linked to interdependent self-construal. This difference in constructs may help explain why self-construal could be a better between-group predictor. In the present analysis, both models will be examined and compared.

Summary

In the previous sections, I outlined two theoretical models of social anxiety, the self-presentation model and the cognitive/cognitive-behavioral model, and reviewed five commonly used measures related to these frameworks. I also discussed some of the differences in epidemiological studies and self-report studies in regards to the robustness of the AH/EH difference in social anxiety as well as some of the key factors that may moderate this relationship, namely method of assessment and type of measure. After

mentioning some of the difficulties in item response bias and other measurement factors, I introduced two explanatory models, the self-construal model and the acculturative-stress model, which may account for the ethnic difference in social anxiety between AH and EH individuals.

Research Questions and Hypotheses

The primary objectives of the current study were to address three research questions using meta-analysis. First, I examined whether AH individuals reported an overall higher degree of social anxiety than EH individuals. Second, I explored whether the difference in social anxiety between AH and EH individuals varied as a function of method of assessment (i.e., interviews vs. self-reports) and/or specific measures of social anxiety. Third, I examined to what extent the self-construal and acculturative-stress models accounted for the differences in social anxiety between AH and EH individuals.

METHOD

Literature Search

Computerized literature searches were performed using 17 databases (see Table 3) covering the years 1980 to 2012. Keywords included: social anxiety* (social anxiety, social anxiety disorder), social phobia* (social phobia, social phobic), fear of negative evaluation, social fear*, taijin kyofusho; and scales: SPAI (Social Phobia and Anxiety Inventory), SAD* (Social Avoidance and Distress [Scale]), FNE (Fear of Negative Evaluation), BFNE (Brief Fear of Negative Evaluation), TKS (Taijin Kyofusho Scale), SPIN (Social Phobia Inventory), LSAS (Liebowitz Social Anxiety Scale), SAS-A (Social Anxiety Scale-Adult), ADIS-SP (Anxiety Disorders Interview Scale-Social Phobia) intersected with Asia* (Asia, Asian, Asian-American) and East* (East, Eastern, Easterner). Of the articles retrieved, I explored the references for previous literature (“ancestor” search) and examined the works that listed citations of these articles (“descendant” search) in each database. In addition, I performed a general name search for each authors who had contributed to the field. Some primary investigators ($n = 8$) were contacted via email and were asked if they knew of any unpublished studies that should be included in this project (a response rate of 75% [6 of 8] resulted in 2 additional entries of currently unpublished work).

<INSERT TABLE 3>

Inclusion/Exclusion Criteria

The following criteria was used to determine the studies’ appropriateness for inclusion in this meta-analysis:

1. The data in the study was accessible in English until August 2012.
2. The study reported a direct and explicit measure of social anxiety/social phobia or its sub-categories (i.e., fear of negative evaluation).
3. The study included both a group of AH participants *and* a group of EH participants.

4. The study contained data (i.e., means and standard deviations) by which an effect size could be calculated. This was only possible when enough information was available either directly or indirectly (e.g., tables, charts) to determine the direction of the effect, and studies that did not contain this information were disregarded.

Using this criterion, 34 studies that had compared AH and EH differences on social anxiety were eligible for inclusion into our meta-analysis.

Coding System and Coding Procedures

Three raters, the primary investigator and two trained research assistants, used a standardized coding system to rate all of the studies (see Table 4). In addition to the listed categorical moderators, sample sizes, inter-item reliability estimates (Chronbach's α), means, standard deviations, test statistics (t , f , r , B , χ^2) and p -values were recorded.

<INSERT TABLE 4>

The overall inter-rater agreement for 941 items amongst 3 raters was Kappa = 0.80, indicating decent agreement amongst raters on the different aspects of the studies in our sample. All disagreements were resolved by discussion.

Additional coding decisions included the following:

1. When the same participants were reported in two different studies, I collapsed the information on these participants and the measures reported in the studies into one entry.
2. When one European-American group was compared to multiple Asian-American groups (i.e., first generation and second generation), I combined the groups by weighting and averaging the means and standard deviations.
3. When multiple measures of social anxiety were used, effect sizes were averaged across measures to attain an overall effect size for ethnicity on self-report symptom per study in each moderator category (i.e., one comparison of social anxiety per study for each specific measure when testing the effect of measure on the AH/EH difference). Half of the studies used for this meta-analysis ($n = 17$) contained two or more measures of social anxiety and were averaged in their respective categories, for the other half ($n = 17$) this procedure was not necessary.

Meta-Analysis

Computation of Effect Size. The effect size used for all social anxiety outcome variables was Cohen's d , which is calculated as the difference between the means of the two groups divided by their pooled standard deviations. We used a between-group comparison design to address the three research questions.

A positive d statistic indicated higher social anxiety in AH participants and a negative d statistic indicated higher social anxiety in EH participants. Standard errors were calculated using the following formula to account for sampling error (Hunter and Schmidt, 2004).

$$Var(e) = \frac{N-1}{N-3} \left(\frac{4 + 4\delta^2}{N8} \right)$$

Test of Homogeneity and Random Effects Model. The homogeneity of the overall effect size was assessed using the homogeneity test statistic Q (Hedges and Olkin, 1985). This was then fitted into a categorical model and tested for homogeneity in each class by generating a χ^2 statistic. Given the diversity of the included studies, I adopt a random effects model that is relatively conservative (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003). All the meta-analyses were carried out using the 'meta' package (Schwarzer, 2012) on the statistical platform 'R' (R Development Core Team, 2012).

Meta-Regression

According to Sutton and Higgins (2008), a meta-regression is "... a combination of meta-analytic principles (of combining results from multiple studies with due attention to within-study precision and among-study variation) with regression ideas (of predicting study effects using study-level covariates)..." (p. 629). In our analysis, the effect size (measured in Cohen's f^2) for each explanatory variable (acculturation, interdependent self-construal, and independent self-construal) was calculated based on zero-order correlation coefficients (Pearson's r). While most studies ($n = 10$) reported correlations based on their entire sample, some studies ($n = 2$) only reported correlations for their AH subsample. Thus, I conducted a preliminary meta-analysis with sample type (AH only

versus AH/EH combined) treated as a moderator. However, no difference in effect size was found between these two groups of studies. Therefore, I included all the ten studies in the meta-regression analyses.

Using an R package called “metafor” (Wolfgang, 2010), I adopted a random-effects model in carrying out the meta-regression analysis. A random effects model can help reveal heterogeneity among studies and accordingly identify potentially important covariate variables (i.e., independent self-construal and interdependent self-construal) that require additional subgroup analyses. The three explanatory variables (i.e., acculturation, interdependent self-construal, and independent self-construal) were dummy coded in the meta-regression analyses.

RESULTS

Descriptive Statistics for the Study Level Variables

The current sample includes studies from six different regions in the U.S., Canada, and Australia with a wide variety of demographic, methodological, and dissemination differences. As shown in Table 4, these differences were coded and entered into the analysis as study level moderators to rule out their relevant influence on the overall effect size. The homogeneity measure indicated significant residual heterogeneity among the effect sizes $Q_E(21) = 6030.87$ ($p = 0.00$), with the overall effect of moderators being significant ($Q_M[12] = 23.81$, $p = 0.02$). However, only one study level variable had a significant effect on the overall effect size (see Table 5); higher percentage of individuals with Japanese ancestry was significantly associated with lowered effect size (Cohen's $d = -0.20$, $p = 0.01$).

<INSERT TABLE 5>

Ethnic Differences in Social Anxiety

Of the 34 independent effect sizes, 30 (88.24%) were positive in direction and 29 (96.67%) were at statistically significant levels. The overall effect size across all studies was $d = 0.36$ (95% CI [.27, 0.44]; see Figure 2), indicating that AH individuals reported higher social anxiety than EH individuals. The file drawer statistic (Rosenthal, 1979) was 2,102, indicating that for the effect size to become non-significant, there needed to be 2,102 unpublished studies that showed no differences in social anxiety between AH and EH individuals. However, consistent with Scargle's (2000) comment on the Rosenthal file drawer statistic, this number would only apply if these unpublished studies were uniform and had little to no bias in effect size distribution, whereas in this sample there was considerable variability (see Figure 3), including two studies with significant negative effect sizes. Nevertheless, there seems to be some preliminary evidence for the robustness of the AH/EH differences in self-reported social anxiety.

<INSERT FIGURE 2>

<INSERT FIGURE 3>

Method of Assessment and Specific Measure

To address the second research question, I specifically examined whether the differences in social anxiety between AH and EH individuals (i.e., effect sizes) were moderated by method of assessment (interview vs. self-report) or specific self-report measure, neither moderator had significant effect: the Cohen's d estimates were 0.02 ($p = 0.91$) and 0.01 ($p = 0.58$), respectively.

I further explored the relation between the first moderator, method of assessment and the AH/EH difference in social anxiety, by carrying out a follow-up meta-analysis that only included the studies using interview measures of social anxiety ($n = 5$). As shown in Figure 4, of the 5 independent effect sizes, 3 were positive and significant. The overall effect size across all studies was $d = 0.37$ (95% CI [-0.09, 0.82]; see Figure 4). Given the non-significant moderating effect of method of assessment, it is not surprising that the overall effect for interview studies is very similar to the overall effect found with the entire sample of studies.

<INSERT FIGURE 4>

Similarly, I also explored the relation between the second moderator: specific measure and the AH/EH difference in social anxiety by conducting a follow-up meta-analysis that only included the studies using self-report measures of social anxiety ($n = 30$). As shown in Figure 5, of the 47 independent effect sizes, 41 were positive and 40 were significant. The overall effect size across all specific measures was $d = 0.37$ (95% CI [0.28, 0.46]).

<INSERT FIGURE 5>

The Roles of Self-Constraint and Acculturative-Stress

To examine the extent to which independent self-construal, interdependent self-construal, and acculturative-stress accounted for the differences in social anxiety between AH and EH individuals, a meta-regression analysis was conducted with ten studies that included either a measure of acculturation, self-construal, or both. The three explanatory variables were treated as moderators in the analyses. The results showed that only

independent self-construal accounted for a significant amount of the variance ($f^2 = 0.28$, $p = 0.00$), whereas the effect sizes for acculturation and interdependent self-construal were small $f^2 = 0.05$, and $f^2 = 0.09$, $p = 0.80$ and 0.36 , respectively. The effect sizes across the ten studies were relatively homogenous ($Q_E [29] = 2.49$, $p = 0.99$)³, indicating uniformity across these studies⁴.

Given that different effects were found for the variables associated with the explanatory models, two more meta-analyses were conducted to further explore the effects of these three moderators. The first meta-analysis included eight studies and compared self-report social anxiety scores between foreign-born (1st generation) and U.S.-born (2nd generation or higher) Asian Americans. The results showed that five effect sizes were positive and significant. The overall effect size for these 8 studies was $d = -0.21$ (95% CI [-1.96, 1.55]; see Figure 6). Given the wide range⁵ of the 95% CI, there was no conclusive evidence to suggest that the difference in social anxiety between foreign-born AH and EH individuals was higher than the difference in social anxiety between U.S.-born AH and EH individuals.

³ In addition to the reported Cochran's Q test, I also performed a Permutation test, which has been shown to be more conservative and more conducive to meta-regressions with a single predictor variable and low number of observations (see Gagnier et al., 2012). I found the same results with only a slightly elevated (but still significant) p-value compared to Cochran's Q.

⁴ As mentioned in the methods section, two studies did not include the EH subsample in the Pearson's r correlations used to calculate the effect size. I performed another analysis excluding these studies and found very similar results. Only the results from the entire sample are reported here.

⁵ The wide range confidence interval is related to the inclusion of two studies, one with a large positive effect size (Okazaki et al., 2002), one with a large negative effect size (Breslau and Chang, 2006). I reran the meta-analysis without these two 'extreme effect' studies, and the results were $d = 0.15$ (95% CI [-0.11, 0.41]). These results still include the null hypothesis and demonstrate no ethnic difference.

The second follow-up meta-analysis included eleven studies and compared self-report social anxiety scores between Asian Nationals (AH people born, raised, and currently residing in an Asian country) and EH individuals. The results showed that ten effect sizes were positive and eight of these were significant. The overall effect size for these nine studies was $d = 0.26$ (95% CI [0.12, 0.40]; see Figure 7). This overall effect for the nine studies was positive and significant like the main analysis, but slightly lower in magnitude of effect.

<INSERT FIGURE 6>

<INSERT FIGURE 7>

DISCUSSION

Ethnic differences in social anxiety have received considerable attention from researchers in the last 30 years. However, there have been some inconsistencies in the results from these studies, making a meta-analytic synthesis necessary to identify study-wide themes and effects. As shown in Table 4, the current study examined the extant findings of AH/EH ethnic differences in social anxiety in a wide variety of studies that employed various methods that examined different types of participants from different regions of the U.S., Canada, as well as Australia, and that were disseminated in different decades and in different ways. The results indicated that AH individuals tended to report higher levels of social anxiety and this effect was robust across most study-level variables, including method of assessment and specific measure. Furthermore, the current study investigated how the three most commonly examined explanatory variables: independent self-construal, interdependent self-construal, and acculturation may account for AH/EH differences in social anxiety. The results indicated that only independent self-construal accounted for significant variance in AH/EH differences in social anxiety.

AH/EH Differences in Social Anxiety

In addressing the first research question, I found a moderate overall effect size (Cohen's $d = 0.36$), indicating higher self-reported social anxiety amongst AH individuals as compared to EH individuals. This result corresponds to AH/EH ethnic differences in related constructs such as shyness (e.g., Paulhus, 2002) as well as the personality traits of extraversion and neuroticism (e.g., Iwawaki, Eysenck, and Eysneck, 1980; Loo and Shiomi, 1982), which Kotov et al. (2010) demonstrated through a meta-analysis to be related to social anxiety.

Method of Assessment and Specific Measures as Moderators

Given the diversity of the methods and samples of each of the studies examined in the current analysis, my second research question was to examine whether this overall effect was robust or whether any variable moderated the difference. The results indicated that neither method of assessment (interview or written self-report) or specific type of

measure significantly moderated the AH/EH differences in social anxiety. Thus, it appears that the AH/EH difference in social anxiety was relatively robust. It should be noted that when I only examined the studies that incorporated a diagnostic interview, the 95% confidence intervals included the null hypothesis and the AH/EH difference in social anxiety could not be found. These findings suggest that if looking at the selection of studies that only included an interview, we would be unable to determine if AH individuals report greater levels of social anxiety than EH individuals. This may be because of greater variability in different aspects of an interview that may not be present in a self-report questionnaire, such as rapport between the interviewer and interviewee or the tone in which the questions were asked. The main difference when using either diagnostic interview or self-report measure is interpersonal interaction. This dynamic process of having a face-to-face interview may account for a disclosure bias that would lead to being unable to consistently detect the AH/EH ethnic difference. While it is possible that EH individuals report similar, if not higher, social anxiety in an interview (i.e., an over-disclosure effect), AH individuals may hesitate to disclose experiences of social anxiety to the interviewer, possibly due to a concern of social desirability or “saving face” in front of strangers (Chan, 1998). AH individuals may show higher self-disclosure when interviews are conducted in a culturally appropriate way. Alternatively, the possibility exists that diagnostic interviews are better in assessing social anxiety, whereas questionnaires may carry more opportunity for disclosure effects due to lack of interpersonal interaction.

The Roles of Independent Self-Construal, Interdependent Self-Construal, and Acculturation

Given the relative robustness of the AH/EH differences in social anxiety, it was imperative to address the third research question and explore whether acculturative-stress or self-construal, accounted for the AH/EH differences in social anxiety. Specifically, three explanatory variables (acculturation, interdependent self-construal, and independent self-construal) were entered into a meta-regression, and the variance explained by each variable was estimated and compared. The results showed that only independent self-

construal significantly accounted for the variance in AH/EH differences in social anxiety. In addition, a follow-up analysis that compared foreign-born and U.S.-born Asian-Americans, found that the differences in social anxiety between foreign-born Asian Americans and EH individuals were not significantly higher than the differences in social anxiety between U.S.-born Asian Americans and EH individuals.

While acculturation may tap into experiences that are relatively unique to minority populations such as AH individuals, independent and interdependent self-construal, regardless of which is more prominent than the other, can be found in both AH and EH individuals. Perhaps acculturation plays a stronger role in within-(AH) group individual differences in social anxiety, whereas self-construal does a better job capturing between-group (i.e., AH versus EH) variations in social anxiety.

It should be noted that some measurement problems may have contributed to the non-significant influence of acculturation on AH/EH differences in social anxiety found in the current study. First, acculturative-stress was not directly measured; instead, acculturation was used as a proxy for acculturative-stress, which may have confounded the estimated explained variance of AH/EH differences in social anxiety. .

Second, most existing measures of acculturation often fail to capture multidimensional and dynamic nature of acculturative process (see Yoon et al., 2013 for a review). Compared to unilinear measures (e.g., Suinn et al., 1987) that treats acculturation as a unidimensional process ranging from orientation to one's natal culture to host culture, bilinear measures of acculturation (e.g., Berry, 1993; Stephenson, 2000) assume that individuals may adopt a bicultural acculturation style that maintains aspects of one's natal culture while selectively acquiring some of the host culture (Berry, 1993). Thus, one's orientation to host culture, such as the use of English and participation in American cultural activities, is not necessarily in conflict with his or her orientation to natal culture. Unfortunately, the measures of acculturation included in the current study were all unilinear, thus limiting explanatory power of acculturation in understanding AH/EH differences in social anxiety.

Another follow-up analysis found that the differences in social anxiety between Asian Nationals and EH individuals were similar to what were found between AH and EH individuals in the main analyses. The similarity between Asian Nationals and AH individuals, such as interdependent self-construal and/or lack of independent self-construal, may partly explain these findings. However, given our findings that interdependent self-construal did not significantly account for the AH/EH differences in social anxiety, lack of independent self-construal may be most likely to explain why AH individuals tended to report higher social anxiety than EH individuals.

The relation between independent self-construal and social anxiety had been examined in experimental studies. For instance, in a study of 127 Japanese nationals and 126 European-Americans, Norasakkunkit et al. (2009) manipulated and primed independent self-construal to elicit (the lack of) social anxiety. Their results indicated that amongst participants in both groups priming for independent self-construal significantly lowered self reported levels of social anxiety. The priming effect of independent self-construal on social anxiety found in this study was also similar to what was found in my meta-analyses. In their 2 (priming) x 2 (ethnicity) ANOVA analyses, Norasakkunkit et al. (2009) found significant priming effect and ethnic differences in social anxiety. The relative effect sizes were $d = .97$ for the AH/EH ethnicity effect, and $d = .49$ for the effect of independent self-construal priming. The lack of an interaction effect indicated that the success of independent self-construal priming did not vary across ethnic groups, suggesting that the relation between independent self-construal and social anxiety may be similar for both AH and EH individuals.

Additionally, our findings were in line with the results of a meta-analysis (Oyserman, Coon, and Kemmelmeier, 2002) in which individualism and collectivism were compared between East Asians and Americans. Oyserman et al. (2002) found that Americans were just as collectivistic (related to interdependent self-construal) as Japanese and Koreans, but they scored higher on individualism (related to independent self-construal). Thus, the differences between AH and EH individuals may lie in their levels of independent self-construal/individualism (or lack of), rather than in their interdependent self-construal/collectivism.

Limitations and Future Directions

General Limitations. Some limitations that apply to the current study are consistent with those that apply to meta-analyses in general. In an article by Walker, Hernandez, and Kattan (2008), several of these limitations are pointed out and carefully discussed. The first category of potential problems with meta-analytical methods is related to the identification and selection of studies. Studies with positive results are more likely to be published than studies that report the null hypothesis (publication bias, aka. the “file drawer effect”). Furthermore, search terms may bias the studies that are located by the investigator if they are not comprehensive. These two biases can often be indicated by a skewed effect size on a funnel plot (figure 3), but even if there is no apparent skewness, there may still be bias in the studies that were published and located. Another set of limitations is related with unaccounted heterogeneity (dissimilarity in the results of individual studies). In many cases, heterogeneity can be traced back to inherent differences in the studies that can be coded as moderators and subsequently help explain the variability in effect sizes. However, when there is heterogeneity that cannot be explained by study level moderators, it begs the question on whether or not the set of studies can be equally compared. Heterogeneity also influences the investigator’s decision on whether to use a random effects model or a fixed effects model to analyze the effect sizes. Both models have pros and cons, depending on how much weight should be given to sample size. The random effects model generally produces larger confidence intervals, and is considered to be more conservative (especially with heterogeneous studies). It is important to note that when the overall effect size is large, there is very little difference between the estimates generated by these models. While great care and consideration was taken to address each of these issues in the current meta-analysis, the potential for bias (albeit undetected) remains and must be taken into consideration when interpreting the results.

Limitations Related to Self-Report. An individual's report of social anxiety or "feeling anxious" is only one indicator that an "anxiety-like" process is present, albeit a very useful indicator that has shown much clinical utility (e.g., De Los Reyes et al., 2012). Other indicators that may also provide valuable information about this process are whether an individual is "acting anxious" (observed behavior) or experiencing negative repercussions resulting from the feelings of social anxiety (outcome measures). These two additional indicators have been examined particularly in the literature related to children's shyness (Coplan et al., 1994; 2008; Coplan, Wichmann, and Lagacé-Séguin, 2001).

To these alternative indicators, two studies in the current sample provide information on observational measures used to compliment the self-report measures in their studies. In Sue, Sue, and Ino's (1990) study with 36 AH and 19 EH women, they found no group difference in behavioral rating on a role playing task that required the participant to be assertive with an experimenter (both ethnically-matched and unmatched), while still finding a significant group difference on a social anxiety questionnaire. Similarly, Okazaki, Liu, Longworth, and Minn (2002) asked 40 AH individuals and 40 EH individuals to participate in a 3-minute performance task, where their microlevel behaviors (e.g., fidgeting, gaze avoidance) were recorded in addition to their emotional state before and immediately after the task. While there were ethnic differences on trait measures of social anxiety (SPAI) as well as emotion ratings before and after the task, there were no group differences on behavioral indicators of social anxiety. The authors concluded that this inconsistency underscores the importance of using multiple modes of assessment.

In addition to behavioral observation, three additional studies examined the impact of this ethnic difference in social anxiety on outcome variables related to general psychological well-being. Differences in social anxiety should indicate differences in adaptive functioning and adjustment. In Abe and Zane's (1990) study with 61 EH, 46 foreign-born AH, and 29 U.S.-born AH undergraduates, they presented participants with a measure for social anxiety and measure for general psychological maladjustment (as measured through the Omnibus Personality Inventory; Heist and Yonge, 1968). They

found significant group differences with both social anxiety and psychological maladjustment, indicating that foreign-born AH individuals reported more social anxiety and psychological maladjustment than U.S.-born AH individuals, who reported more than EH individuals even when the variance from social desirability, self-consciousness (social anxiety), other-directedness, and extraversion were partialled out. These results demonstrate that group differences in social anxiety also correspond with group differences in psychological maladjustment. However, other studies (Ho and Lau, 2011; Norasakkunkit and Kalick, 2009) show that differences in social anxiety and well-being may not correspond. Ho and Lau (2011) recruited 74 EH, 72 foreign-born AH, and 83 U.S.-born AH undergraduates and administered measures of social anxiety (Social Anxiety Scale for Adolescents) and general psychological well-being (Psychological General Well-being Schedule; Dupuy, 1984). They found that while higher scores on social anxiety predicted lower psychological well-being for members within each of the three groups, group membership (i.e., being a AH individual) was a non-significant predictor of psychological well-being. Similarly, Norasakkunkit and Kalick (2009) examined this relationship between social anxiety and psychological well-being amongst 127 Japanese nationals and 126 EH Americans. They administered the SADS and the FNES to measure social anxiety and the General Good Feelings (GGF) scale to measure psychological well-being. They found group differences demonstrating more self-reported social anxiety amongst Japanese nationals, but at the same time, significantly more psychological well-being compared to EH Americans. Furthermore, they found that while the social anxiety levels were successfully manipulated by priming independent self-construal, psychological well-being was not influenced by this prime. Norasakkunkit and Kalick (2009) concluded that conventionally used measures of social anxiety equate mental health with independent self-construal when there may not be evidence of that clear relationship.

As noted in these studies, future studies that examine the relationship between AH and EH ethnicity and social anxiety should use multiple indicators (e.g., a behavioral measure in addition to self-report) in order to better identify the presence of an anxious process. Likewise, future studies may want to consider including some sort of outcome

variable to ensure that social anxiety in an AH context fits in the nomological network in the same way that it does for EH individuals.

Limitations Related to Cross-Culture Measurement. Heine, Lehman, Peng, and Greenholtz (2002) identified and reviewed some key methodological and measurement issues associated with East/West (AH/EH) cross-cultural comparisons. These potential issues have to do with translation errors, normativeness of questionnaires, moderacy in response style, modesty in response style, and the reference group effect. A key issue when conducting cross-cultural comparisons between two different linguistic groups using quantitative measures is to ensure that the language is equivalent for each group and that a different meaning is not conveyed (Heine, Lehman, Peng, and Greenholtz, 2002; Brislin, 1970). To date, it appears that a helpful method in addressing this problem are the translation/back-translation method described by Brislin (1970). In addition to concerns about linguistic equivalence, the experience of completing a written questionnaire may be different for people in different groups. Members of some cultures may have more familiarity with completing questionnaires than do other members within the same culture group or members from other culture groups (Greenfield, 1997). One of the response biases detected amongst AH individuals compared to EH individuals is moderacy in response set, where AH individuals tend to choose middle-ranked items of a scale more-so than EH individuals (Chen, Lee, & Stevenson, 1995). This has been shown to reflect differences in individual scores on individualism/collectivism scales, and could be because AH individuals respond on the basis of group norms while EH people respond on the basis of individual preference (Chen et al., 1995). Similar to the moderacy response bias, AH individuals have been shown to respond to scale items in a way that reflects modesty compared to EH individuals. It is plausible that they may be more likely to disguise their responses behind a facade of socially-sanctioned modesty than are people from other cultures (Heine, Takatata, & Lehman, 2000). This modesty seems to be related to social desirability and may occur either consciously or unconsciously (Paulhus, 1984). Responding in a socially desirable way, whether intentional or not, has been found to consistently contribute to the invalidity of self-reported measures of psychopathology

(Klassen, Hornstra, & Anderson, 1976; Sackeim & Gur, 1979; Paulhus, 1984). Another issue that confounds cross-cultural measurement is reference group effect, where members of a given group compare themselves to that group when giving a subjective self-rating (Heine et al., 2002). These shifting standards are particularly pronounced when responses are measured with subjective Likert scales (Biernat et al., 1991), due to the lack of context or anchors by which to rate a trait or feeling relative to standards that would apply to both groups.

Above and beyond the previously described issues in cross-cultural measurement, further concerns arise when an interview is incorporated as the method of assessment. Many East Asian traditional cultures stress hierarchical relationships and sensitivity to power differentials, thus a clinical interview with an adult stranger who may be in a position of authority may warrant deferential behavior and misguide the examiner in certain areas of the assessment (Yee, Huang, and Lew, 1998).

Outside specific cultural factors that impact different types of measurement, the current findings hinge on the extent to which these measures reflect the construct of social anxiety (as oppose to a related construct) both in general and between groups. Many studies on the taxonomy of anxiety in adulthood (e.g., Feldman, 1993) were unable to discriminate between subtypes of anxiety and depression, and instead only found a single internalizing factor. To date, one model that has been effective in providing discriminate validity amongst subtypes of anxiety is the Tripartite Model (Clark and Watson, 1991). In a review by Anderson and Hope (2007) on studies examining differences between subtypes of anxiety and depression on negative affect, positive affect, and physiological hyperarousal, they found that social phobia was uniquely related to low positive affect, while being similarly related to high negative affect and high physiological arousal as compared to other subtypes of anxiety. Additionally, one specific study that they included in their review, Brown, Chorpita, and Barlow (1998), found factor analytic evidence for the discrimination of anxiety and mood disorders, using the Tripartite Model among 350 patients referred from an outpatient clinic.

In order to address the issues discussed in this section, future studies should take care to 1) provide evidence for criterion and discriminant validity for social anxiety measures, 2) ensure conceptual and measurement equivalence of quantitative measures between groups, 3) examine the distribution of item responses and compare between groups in order to detect item-level biases, and 4) take into account cultural barriers in regards to both questionnaires and interviews.

Limitations Related to Intra-Group Variation. An additional measurement and conceptual difficulty is the intra-group diversity amongst Asian-heritage individuals. According to Chin and Kameoka (2006), the category “Asian” can encompass more than 30 distinct ethnic groups, each with their own unique values, beliefs, culture, language, political/economic conditions, and ethnic as well as immigration history. They go on to write that the heterogeneity of this group is so compelling that any ethnic variation could possibly be viewed as a measurement artifact due to an arbitrary system of classification.

While up to this point no study was able to detect specific within AH group differences in self-reported social anxiety (e.g., differences between people of Korean and Chinese ethnicity), when aggregating samples across all studies and examining sample characteristics as in the current study, a within Asian-heritage group difference was detected. The results indicated that amongst all study-level variables, only Japanese ethnicity significantly moderated the AH/EH ethnic difference in social anxiety (Cohen’s $d = -0.161$, $p = 0.037$). This may be because Japanese-Americans in the U.S. have a very unique history of immigration and acculturation (see Xie and Goyette, 2004 for a review).

Japanese immigration to the United States began in the 19th century, and mostly comprised of men seeking employment in the agriculture industry in Hawaii and the West Coast region. Upon settling into farms or businesses, many sent for wives to work with them and establish families. Compared to other Asian immigrant groups during this time, Japanese immigrants were more intentional on settling and raising families in the United States (Xie and Goyette, 2004). In 1907, Japanese immigration, along with all other immigration from East Asia, was restricted and then completely prohibited in 1924. This

further separated Japanese-Americans from their Japanese counterparts and allowed natural sustained population growth in the United States for two generations before other Asian immigrant groups started re-entering under the 1965 Immigration Nationality Act (Xie and Goyette, 2004).

Because of this history and sociological trend, Japanese-Americans differ from other Asian-heritage groups in several ways: 1) they have the highest rate of citizenship, 2) are least likely to speak their language of origin, and 3) have the highest out-group marriage rate (Xie and Goyette, 2004; Kikumura and Kitano, 1973). It has also been noted that Japanese-Americans have the higher rates of assimilation to “mainstream American culture” (Xie and Goyette, 2004), perhaps acting as a marker of smaller differences cultural values (such as self-construal) compared with EH individuals, where this increased similarity would further distinguish the expression of social anxiety among individuals with Japanese ancestry with other AH individuals. Due to evidence for intra-group variation amongst people with Asian heritage, future studies should be cautious when combining multiple east Asian ethnicities and comparing them to EH individuals.

Limitations Related Theoretical Working Models. In addition to difficulties with self-report, measurement, and within-group variability, it seems that both of the competing explanatory models of acculturative-stress and self-construal may have fundamental problems in either measurement or theory or both, which in turn undermines its ability to make strong causal attribution, and leaves much of the overall variance in AH/EH ethnic differences in social anxiety unexplained. Future studies should focus on either 1) identifying additional factors that would explain more variance (e.g., potentially self-presentation variables) or 2) revising the theories or measurement related to these two existing models, offering a direct mechanism that works as a mediator to link AH/EH ethnicity through self-construal (or acculturation) to social anxiety. As a possibility, self-construal and ethnic differences in social anxiety may be mediated by ethnic differences in threat-biased situational appraisal. According to the cognitive model of social anxiety, anxious anticipation of a feared situation may lead individuals to interpret situations as threatening and heighten their sensitivity to ambiguous social cues (Clark and Wells,

1995; Clark, 2001). This is consistent with studies that have examined threat-bias in people with tendencies toward social anxiety (see Bar-Haim et al., 2007 for a meta-analysis and review). In research that describes an Asian view of the self, Hamaguchi (1985) stated that for the Japanese, "a sense of identification with others (sometimes including conflict) pre-exists and selfness is confirmed only through interpersonal relationships— Selfness is not a constant like the [Western] ego but denotes a fluid concept, which changes through time and situations according to interpersonal relationships" (p. 302). The anthropologist, Sumie Takayama Lebra (1976) commented that this translates into a *constant concern* for belongingness, dependency, empathy, and occupying one's proper place. It may be that people who have less independent self-construal view their self-concept as more fluid, and each social contact as potentially threatening their sense of self (i.e., their ego integrity). This could cause someone to place greater importance on social situations, resulting in more sympathetic arousal and hypervigilance (both characterizing social anxiety). In contrast, people with more of an independent self-construal may view social encounters as exterior to themselves and thereby consider it less threatening, resulting in lower importance placed on the situation. Further research should examine independent self-construal as a protective factor that impacts threat-biased situational appraisal between the two groups. This would further provide evidence for or against this potential working model, and potentially fill in missing steps between self-construal and social anxiety.

CONCLUSION

The current study examined the extant findings of AH/EH ethnic differences in social anxiety in a wide variety of studies that employed various methods that examined different types of participants from different regions and that were disseminated in different decades. The results indicated that AH individuals tended to report higher levels of social anxiety and this effect was robust across most study-level variables, including method of assessment and specific measure. The current study also investigated the degree to which the two explanatory models may account for AH/EH differences in social anxiety. Between the Acculturative-Stress Model and the Self-Constraint Model, self-construal (independent type) was the only variable that accounted for significant amount of the variance in social anxiety. Through finding themes and general effects in the extant literature as well as identifying limitations, this study intends to synthesize current research on ethnic differences in social anxiety and open the path to the next generation of research on the topic.

APPENDICES

Appendix A: Tables

Table 1. Percent of social anxiety-related components sampled in five common scales.

Scale	Behavior	Cognitive	Physiological Arousal
SADS (N=24)	46.4%	3.6%	50.0%
FNES (N=30)	3.3%	80.0%	16.7%
SPS (N=20)	5.0%	60.0%	35.0%
SIAS (N=20)	30.0%	30.0%	40.0%
SPAI [C-P] (N=26)	15.0%	8.0%	77.0%

Note: This is a conceptual model with percentages derived from scores assigned by the first author

Table 2. A comparison between epidemiological and non-epidemiological studies.

Feature	Epidemiological Studies	Non-epidemiological Studies
Sampling	Random	Convenience
Sample Size	Large	Small - Medium
Assessment	Diagnostic Interview	Multi-methods
Analysis	Prevalence Rate	Hypothesis Testing

Table 3. Databases used to generate literature.

Electronic Databases	
1	BioOne Abstracts and Indexes
2	ERIC
3	Ethnic Newswatch
4	Google Scholar
5	International Bibliography of Social Sciences
6	JSTOR
7	Medline
8	PILOTS: Published International Literature On Traumatic Stress
9	Proquest Psychology Journals
10	Proquest Sociology Journals
11	PsycARTICLES
12	PsycINFO
13	PubMed
14	Social Science Abstracts
15	Social Services Abstracts
16	Sociological Abstracts
17	Web of Science

Table 4. System of coding categories.

Variable	Coding Description
Population	
Age Group	1 = Adolescents 2 = Young Adults 3 = Adults
Population	1 = Student 2 = Community 3 = Clinical
Methodology	
Sampling Method	1 = Random Sampling 2 = Recruitment
Definition of Ethnicity	0 = Not Defined 1 = Self-identification 2 = Census Questions 3 = Not Reported 4 = Country of Residence 5 = Last Name
Percent Chinese	0 = Unknown 1 = No Chinese 2 = Few Chinese (1% - 40%) 3 = Half Chinese (41% - 59%) 4 = Many Chinese (60% - 99%) 5 = All Chinese
Percent Japanese	0 = Unknown 1 = No Japanese 2 = Few Japanese (1% - 40%) 3 = Half Japanese (41% - 59%) 4 = Many Japanese (60% - 99%) 5 = All Japanese
Percent Korean	0 = Unknown 1 = No Korean 2 = Few Korean (1% - 40%) 3 = Half Korean (41% - 59%) 4 = Many Korean (60% - 99%) 5 = All Korean
Percent Foreign-born	0 = Unknown 1 = No Foreign-born 2 = Few Foreign-born (1% - 40%) 3 = Half Foreign-born (41% - 59%) 4 = Many Foreign-born (60% - 99%) 5 = All Foreign-born
Procedure	1 = Self-report 2 = Quasi-Experiment 3 = Epidemiological Study

Table 4. (Continued) System of coding categories.

Social Anxiety Measure	1 = SPAI (Social Phobia and Anxiety 2 = SADS (Social Avoidance and Distress 3 = FNE (Fear of Negative Evaluation) 4 = SPIN (Social Phobia Inventory) 5 = LSAS (Liebowitz Social Anxiety 6 = SAS-A (Social Anxiety Scale-Adult) 7 = TKS (Taijin Kyofusho Scale) 8 = Clinical Interview 9 = SIAS (Social Interaction Anxiety 10 = SPS (Social Phobia Scale) 11 = FQ-SP (Fear Questionnaire - Social 12 = SAI (Social Anxiety Index [Chinese]) 13 = SCS-A (Self Consciousness Scale -
Analysis Technique	1 = Means Comparison 2 = Linear Model 3 = Odds-Ratio
Explanatory Moderators	0 = Not Used 1 = Acculturation-Stress 1 = Self-Construal 1 = Gender Comparison
Dissemination Decade	1 = 2010's 2 = 2000's 3 = 1990's 4 = 1980's
Region	1 = Northeast 2 = Midwest 3 = Southeast 4 = Southwest 5 = West Coast 6 = Non-mainland U.S. 7 = Canada 8 = Australia
Publication	1 = Peer-reviewed 2 = Dissertation 3 = Unpublished

Table 5. List of study level covariates and their impact on the overall effect size.

Variable	Estimate	SE	P-value	95% CI	
Population					
Region	0.006	0.019	0.740	-0.030	0.042
Age Group	0.096	0.123	0.435	-0.146	0.338
Population	-0.187	0.131	0.154	-0.443	0.070
Methodology					
Sampling Method	0.067	0.159	0.676	-0.246	0.379
Procedure	-0.182	0.125	0.144	-0.426	0.062
Group Categorization					
Definition of Ethnicity	0.068	0.046	0.133	-0.021	0.158
Percent Chinese	0.029	0.035	0.414	-0.040	0.097
Percent Japanese	-0.200	0.081	0.013	-0.358	-0.042*
Percent Korean	0.104	0.076	0.172	-0.046	0.254
Percent Foreign-born	0.045	0.041	0.268	-0.035	0.125
Dissemination					
Decade	0.025	0.081	0.755	-0.184	0.134
Publication Type	-0.019	0.068	0.784	-0.151	0.114

Test of Moderators: $Q_M(12) = 23.81$, $p = 0.02$

Note: Asterisk (*) indicates $p < 0.05$

Appendix B: Figures

Figure 1. Model acceptable fit predicting distress from self-construal. Reprinted from “Cultural Model of Vulnerability to Distress: The Role of Self-Construal and Sociotropy on Anxiety and Depression Among Asian Americans and European Americans,” by W. S. Mak, 2011, *Journal of Cross-Cultural Psychology*, 42 (1), 83. Copyright 2011 by Sage Publications.

Figure 2. Meta-analysis: overall results for Asian-heritage/European-heritage ethnic differences in social anxiety.

Note: Positive effect sizes indicate greater reported social anxiety amongst Asian-heritage individuals, while a negative effect size indicates greater reported social anxiety amongst European-heritage individuals.

Figure 3. Funnel plot for the overall results.

Figure 4. Meta-analysis examining studies that use an interview.

Figure 5. Meta-analysis testing the moderating effect of individual self-report measures.

Figure 5. (Continued) Meta-analysis testing the moderating effect of individual self-report measures.

Figure 6. Follow-up meta-analysis examining the differences in social anxiety between foreign-born and U.S.-born Asian-Americans.

Note: Positive effect sizes indicate greater reported social anxiety amongst U.S.-born Asian-Americans, while a negative effect size indicates greater reported social anxiety amongst foreign-born Asian-Americans.

Figure 7. Follow-up meta-analysis examining the differences in social anxiety between Asian-heritage individuals residing in East Asia and European-heritage individuals residing in North America/Australia (international comparison).

Note: Positive effect sizes indicate greater reported social anxiety amongst Asian nationals, while a negative effect size indicates greater reported social anxiety amongst European-heritage individuals.

REFERENCES

- *Abe, J., & Zane, N. (1990). Psychological maladjustment among asian and white american college students: Controlling for confounds. *Journal of Counseling Psychology*, 37(4), 437-444.
- Aderka, I. M.; Hofmann, S. G.; Nickerson, A.; Hermesh, H.; Gilboa-Schechtman, E.; Marom, S. (2012). *Journal of Anxiety Disorders*, 26(3), 393-400.
- Aikawa, A., Fujita, M., & Tanaka, K. (2007). The relationship between social skills deficits and depression, loneliness, and social anxiety: Rethinking a vulnerability model of social skills deficits. *The Japanese Journal of Social Psychology*, 23(1), 95-103.
- Alegria, M., Mulvaney-Day, N., Woo, M., Torres, M., Gao, S., & Oddo, V. (2007). Correlates of past-year mental health service use among latinos: Results from the national latino and asian-american study. *American Journal of Public Health*, 97(1), 76-83.
- American Psychiatric Association (1987). Diagnostic and statistical manual of mental disorders (3rd ed., rev. ed.). Washington, DC: Author.
- American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders (4th ed., text rev.). Washington, DC: Author.
- Anderson, E. R., & Hope, D. A. (2008). A review of the tripartite model for understanding the link between anxiety and depression in youth. *Clinical Psychology Review*, 28, 275-287.
- *Asnaani, A., Richey, J. A., Dimaite, R., Hinton, D. E., & Hofmann, S. G. (2010). A cross-ethnic comparison of lifetime prevalence rates of anxiety disorders. *Journal of Nervous and Mental Disease*, 198(8), 551-555.
- Baker, S. R., & Edelmann, R. J. (2002). Is social phobia related to lack of social skills? Duration of skill-related behaviours and ratings of behavioural adequacy. *British Journal of Clinical Psychology*, 41, 243-257.
- Bakermans-Kranenburg, M. J., van Ijzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, 129, 195-215.
- Bar-Haim, Y., Lamy, D., Pergamin, L., Bakersman-Kranenburg, M. J., & van Ijzendoorn, M. H. (2007). Threat-related attentional bias in anxious and nonanxious individuals: A meta-analytic study. *Psychological Bulletin*, 133(1), 1-24.

All references that were used in any of the analyses in the current study are indicated with an asterisk (*)

- Bartelstone, J. H., & Trull, T. J. (1995). Personality, life events, and depression. *Journal of Personality Assessment*, 64, 279-294.
- Beck, A. T., Brown, G., Eidelson, J. I., Steer, R. A., & Riskind, J. H. (1987). Differentiating anxiety and depression: A test of the cognitive content-specificity hypothesis. *Journal of Abnormal Psychology*, 96, 179-183.
- Beidel, D. C., & Turner, S. M. (1999). The natural course of shyness and related syndromes. In L. A. Schmidt & J. Schulkin (Eds.), *Extreme fear, shyness, and social phobia: Origins, biological mechanisms, and clinical outcomes*. New York, NY: Oxford University Press: 203-223.
- *Berger, L. & Zane, N. Stigmatized attitudes toward the mentally ill among young adults in college. Unpublished Manuscript.
- Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *International Migration Review*, 21, 491-511.
- Berry, J. W. (1993). Ethnic identity in plural societies. *Ethnic identity: Formation and transmission among Hispanics and other minorities*. M. E. B. G. P. Knight. Albany, NY, US, State University of New York Press: 271-296.
- Biernat, M., Manis, M., & Nelson, T. E. (1991). Stereotypes and standards of judgment. *Journal of Personality and Social Psychology*, 60, 485-499.
- Blatt, S. J., & Zuroff, D. C. (1992). Interpersonal relatedness and self-definition: Two prototypes for depression. *Clinical Psychology Review*, 12, 527-562.
- *Breslau, J., & Chang, D. F. (2006). Psychiatric disorders among foreign-born and US-born asian-americans in a US national survey. *Social Psychiatry and Psychiatric Epidemiology*, 41(12), 943-50.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1(3), 185-216.
- Brown, T. A., Chorpita, B. F., & Barlow, D. H. (1998). Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. *Journal of Abnormal Psychology*, 107(2), 179-192.
- Carter, S. A., & Wu, K. D. (2010). Symptoms of specific and generalized social phobia: an examination of discriminant validity and structural relations with mood and anxiety symptoms. *Behavior Therapy*, 41, 254-265.
- Carter, K. A., & Dinnel, D. L. (1997). Conceptualization of self-esteem in collectivistic and individualistic cultures. Paper presented at the Annual Convention of the Western Psychological Association, Seattle, WA.

- Chan, S. (1998). Families with Asian roots. In E.W. Lynch & M.J. Hanson (Eds.), *Developing cross-cultural competence: A guide for working with children and their families*. Baltimore: Paul H. Brookes Publishing Co: 251-344.
- Chen, C., Lee, S. Y., & Stevenson, H. W. (1995). Response style and cross-cultural comparisons of rating scales among east asian and north american students. *Psychological Science*, 6(3), 170-175.
- Chen, X. (Ed); Rubin, K. H. (Ed), (2011). *Socioemotional development in cultural context. Social, emotional, and personality development in context*. New York, NY: Guilford Press: 99-127.
- Chen, D., & Kameoka, V. A. (2006). Sociocultural influences. In F. Andrasik (Ed.), *Comprehensive handbook of personality and psychopathology: Adult Psychopathology*. Hoboken, NJ: John Wiley & Sons Inc: 67-84.
- *Choy, Y., Schneier, F. R., Heimberg, R. G., Kang-Seob, O., & Liebowitz, M. R. (2008). Features of the offensive subtype of taijin-kyofu-sho in us and korean patients with dsm-iv social anxiety disorder. *Depression and Anxiety*, 25, 230-240.
- Clark, D. M. (2001). A cognitive perspective on social phobia. In W. R. Crozier L. E. Alden (Eds.), *International handbook of social anxiety: Concepts, research, and interventions relating to the self and shyness*. New York: John Wiley & Sons: 405-430.
- Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. A. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment*. New York, NY: Guildford Press: 69-93
- Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology*, 100, 316-336.
- Cooper, H., & Hedges, L. V. (1994). *The handbook of research synthesis*. New York: Russell Sage Foundation.
- Coplan, R. J., Rubin, K. H., Fox, N. A., Calkins, S. D., & Stewart, S. L. (1994). Being alone, playing alone, and acting alone: Distinguishing among reticence and passive and active solitude in young children. *Child Development*, 65(1), 129-137.
- Coplan, R. J., Wichmann, C., & Lagacé-Séguin, D. (2001). Solitary-active play: A marker variable for maladjustment in preschool? *Journal of Research in Childhood Education*, 15, 164-172.
- Coplan, R. J., & Arbeau, K. A. (2008). The stresses of a brave new world: Shyness and adjustment in kindergarten. *Journal of Research in Childhood Education*, 22, 377-389.

Cross, S. (1995). Self construals, coping, and stress in cross-cultural adaptation. *Journal of Cross-Cultural Psychology*, 26, 673– 697.

De Los Reyes, A., Aldao, A., Thomas, S. A., Daruwala, S., Swan, A. J., Van Wie, M., Goepel, K., & Lechner, W. V. (2012). Adolescent self-reports of social anxiety: Can they disagree with objective psychophysiological measures and still be valid?. *Journal of Psychopathology and Behavioral Assessment*, 34(3), 308-322.

*Dinnel, D. L., Kleinknecht, R. A., & Tanaka-Matsumi, J. (2002). A cross-cultural comparison of social phobia symptoms. *Journal of Psychopathology and Behavioral Assessment*, 24(2), 75-84.

Dupuy, H. J. (1984). The Psychological General Well-Being Index. In N. Wenger, M. Matteson, C. Furburg, & J. Elinson (Eds.), *Assessment of quality of life in clinical trials*. New York: LeJacq: 170-183.

Endo, Y., Heine, S., & Lehman, D. (1998). Relationship-serving biases: Positive ways of thinking across eastern and western cultures. Paper presented at the Annual Convention of the American Psychological Society, Washington, DC, May.

Feldman, L. A. (1993). Distinguishing depression and anxiety in self-report: evidence from confirmatory factor analysis on nonclinical and clinical samples. *Journal of Consulting and Clinical Psychology*, 61, 631–38.

Fung, H. (1999). Becoming a moral child: The socialization of shame among young Chinese children. *Ethos*, 27, 180 –209.

Gagnier, J. J., Moher, D., Boone, H., Bombardier, C., Beyene, J. (2012). An empirical Study using permutation-based resampling in meta-regression. *Systematic Reviews*, 1 (18), 1-9.

Goffman, E. (1959). *The presentation of self in everyday life*. New York: Doubleday.

Good, B., & Kleinman, A. (1985). Culture and anxiety: Cross-cultural evidence for patterning of anxiety disorders. In A. H. Tuma & J. D. Maser (Eds.), *Anxiety and the anxiety disorders*. Hillsdale: Erlbaum: 297-324.

*Gordon, T. L., & Teachman, B. A. (2008). Ethnic group differences in affective, behavioral, and cognitive markers of anxiety. *Journal of Cross-Cultural Psychology*, 39(4), 424-446.

Grant, B. F., Dawson, D. A., & Hasin, D. S. (2001). The Alcohol Use Disorder and Associated Disabilities Interview Schedule – DSM-IV Version. *National Institute on Alcohol Abuse and Alcoholism*. Bethesda, MD.

Greenfield, P. M. (1997). You can't take it with you: Why ability assessments don't cross

cultures. *American Psychologist*, 52(10), 1115-1124.

Gudykunst, W. B., Gao, G., Schmidt, K. L., & Nishida, T. (1992). The influence of individualism–collectivism, self-monitoring, and predicted-outcome value on communication in ingroup and outgroup relationships. *Journal of Cross-Cultural Psychology*, 23, 196–213.

Hamaguchi, E. (1985). A contextual model of the Japanese: Toward a methodological innovation in Japan studies. *Journal of Japanese Studies*, 11, 289–321.

*Hambrick, J. P., Rodebaugh, T. L., Balsis, S., Woods, C. M., Mendez, J. L., & Heimberg, R. G. (2010). Cross-ethnic measurement equivalence of measures of depression, social anxiety, and worry. *Assessment*, 17(2), 155-171.

*Hardin, E. E. (2002). Depression and social anxiety among asian and european americans: The roles of self-discrepancy, optimism, and pessimism. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 2056.

*Hardin, E. E., & Leong, F. T. L. (2005). Optimism and pessimism as mediators of the relations between self-discrepancies and distress among asian and european americans. *Journal of Counseling Psychology*, 52(1), 25-35.

Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. Orlando: Academic Press.

Heimberg, R. G., Brozovich, F. A., & Rapee, R. M. (2010). A cognitive-behavioral model of social anxiety disorder: Update and extension. In S. G. Hofmann P. M. DiBartolo (Eds.), *Social anxiety: Clinical, developmental, and social perspectives*. San Diego: Elsevier Academic Press: 395-422.

Heine, S. J., Lehman, D. R., Peng, K., & Greenholtz, J. (2002). What's wrong with cross-cultural comparisons of subjective likert scales?: The reference-group effect. *Journal of Personality and Social Psychology*, 82(6), 903-918.

Heine, S. J., Takata, T., & Lehman, D. R. (2000). Beyond self-presentation: Evidence for self-criticism among japanese. *Personality and Social Psychology Bulletin*, 26(1), 71-78.

Heist, P., & Yonge, G. (1968) Omnibus Personality Inventory. New York: Psychological Corporation.

*Ho, L. Y., & Lau, A. S. (2011). Do self-report measures of social anxiety reflect cultural bias or real difficulties for asian american college students?. *Cultural Diversity and Ethnic Minority Psychology*, 17(1), 52-58.

*Hong, J. J., & Woody, S. R. (2007). Cultural mediators of self-reported social anxiety. *Behaviour Research and Therapy* 45. 8, 1779-1789.

Honjo, K. (2004) Social epidemiology: Definition, history, and research

examples. *Environmental Health Prevention Medicine*. 9(5), 193-199.

*Hsu, L. (2004). Patterns of social anxiety and chinese and european canadian students (Master's thesis). Retrieved from Circle.ubc.ca.

*Hsu, L., & Alden, L. (2007). Social anxiety in chinese- and european-heritage students: The effect of assessment format and judgments of impairment. *Behavior Therapy*, 38(2), 120.

*Hsu, L., & Alden, L. E. (2008). Cultural influences on willingness to seek treatment for social anxiety in chinese- and european-heritage students. *Cultural Diversity and Ethnic Minority Psychology*, 14(3), 215-223.

*Hsu, L., Woody, S. R., Lee, H., Peng, Y., Zhou, X., & Ryder, A. G. (2012). Social anxiety among east asians in north america: East asian socialization or the challenge of acculturation? *Cultural Diversity and Ethnic Minority Psychology*, 18(2), 181-191.

Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis*. (2 ed.). Thousand Oaks, CA: Sage Publications Inc.

*Ingman, K. A. (1999). An examination of social anxiety, social skills, social adjustment, and self-construal in chinese and american students at an american university. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 4374.

Iwawaki, S., Eysenck, S. B., & Eysenck, H. J. (1980). Japanese and English personality structure: A cross-cultural study. *Psychologia: An International Journal of Psychological Sciences*, 23(4), 195-205.

Kessler, R. C., McGonagle, K. A., & Zhao, S. (1994). Lifetime and 12-month prevalence of DSM-III—R psychiatric disorders in the United States: Results from the National Comorbidity Survey. *Archives General Psychiatry* 51(1), 8-19.

Kessler, R. C., Stein, M. B., & Berglund, P. (1998). Social phobia subtypes in the National Comorbidity Survey. *American Journal of Psychiatry*, 155, 613– 619.

Kikumura, A., & Kitano, H. H. L. (1973). Interracial Marriage: A Picture of Japanese Americans. *Journal of Social Issues*, 29 (2), 67-81.

*Kim, J., Rapee, R. M., Oh, K. J., & Moon, H-S. (2008). Retrospective report of social withdrawal during adolescence and current maladjustment in young adulthood: cross-cultural comparisons between australian and south korean students. *Journal of Adolescence*, 31, 543-563.

Kim, M. S., Hunter, J. E., Miyahara, A., Horvath, A. M., Bresnahan, M., & Yoon, H. J. (1996). Individual vs. culture-level dimensions of individualism and collectivism: Effects on preferred conversation styles. *Communication Monographs*, 63, 29–49.

Kimbrel, N. A. (2008). A model of the development and maintenance of generalized social

phobia. *Clinical Psychology Review*, 28, 592-612.

Klassen, D., Hornstra, R. K., & Anderson, P. B. (1976). Influence of social desirability on symptom and mood reporting in a community survey. *Journal of Consulting and Clinical Psychology*, 43, 448-452.

*Kleinknecht, R. A., Dinnel, D. L., Kleinknecht, E. E., Hiruma, N., & Harada, N. (1997). Cultural factors in social anxiety: A comparison of social phobia symptoms and taijin kyofusho. *Journal of Anxiety Disorders*, 11(2), 157-177.

Kotov, R., Gamez, W., Schmidt, F., & Watson, D. (2010). Linking "big" personality traits to anxiety, depressive, and substance abuse disorders: A meta-analysis. *Psychological Bulletin*, 136(5), 768-821.

La Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, 26(2), 83-94.

*Lampert, M. D., Isaacson, K. L., & Lyttle, J. (2010). Cross-cultural variation in gelotophobia with the united states. *Psychological Test and Assessment Modeling*, 52(2), 202-216.

*Lau, A. S. (in press). What happens when you *can't read the air*?: cultural fit and aptitude by values interactions on social distress. *Journal of Cross-cultural Psychology*.

*Lau, A. S., Fung, J., Wang, S., & Kang, S. (2009). Explaining elevated social anxiety among asian americans: Emotional attunement and a cultural double bind. *Cultural Diversity & Ethnic Minority Psychology*, 15(1), 77-85.

Lebra, S. T. (1976). Japanese patterns of behavior. Honolulu, HI: University Press of Hawaii.

*Lee, M. R., Okazaki, S., & Yoo, H. C. (2006). Frequency and intensity of social anxiety in Asian Americans and European Americans. *Cultural Diversity & Ethnic Minority Psychology*, 12(2), 291-305.

*Leung, A. W., Heimberg, R. G., Holt, C. S., & Bruch, M.A. (1994). Social anxiety and perception of early parenting among American, Chinese American, and social phobic samples. *Anxiety*, 1(2), 80-9.

Loo, R., & Shiomi, K. (1982). The Eysenck personality scores of Japanese and Canadian undergraduates. *The Journal of Social Psychology*, 118(1), 3-9.

Luthar, S. S., & Blatt, S. J. (1993). Dependent and self-critical depressive experiences among inner-city adolescents. *Journal of Personality*, 61(3), 365-386.

Mak, W. W., Law, R.W., & Teng, Y. (2011). Cultural model of vulnerability to distress: the role of self-construal and sociotropy on anxiety and depression among Asian Americans and European Americans. *Journal of Cross-Cultural Psychology*, 42, 75-88.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98(2), 224-253.

Matsumoto, D. (1999). Culture and self: An empirical assessment of markus and kitayama's theory of independent and interdependent self-construal. *Asian Journal of Social Psychology*, 2(3), 289-310.

Matsumoto, D., Kudo, T., & Takeuchi, S. (1996). Changing patterns of individualism and collectivism in the united states and japan. *Culture & Psychology*, 2(1), 77-107.

Matsumoto, D., Weissman, M. D., Preston, K., Brown, B. R., & Kupperbush, C. (1997). Context-specific measurement of individualism-collectivism on the individual level: The individualism-collectivism interpersonal assessment inventory. *Journal of Cross-Cultural Psychology*, 28(6), 743-767.

Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy*, 36, 455-70.

Mesquita, B., & Frijda, N. (1992). Cultural variation in emotions: A review. *Psychological Bulletin*, 112(2), 179-204.

*Miwa, R. (2005). Understanding symptoms of social phobia and taijin kyofusho: A cross cultural comparison of japanese and united states university students. Pepperdine University). *ProQuest Dissertations and Theses*, 171.

*Norasakkunkit, V., & Kalick, S. M. (2002). Culture, ethnicity, and emotional distress measures: The role of self-construal and self-enhancement. *Journal of Cross-Cultural Psychology*, 33(1), 56-70.

*Norasakkunkit, V., & Kalick, S. M. (2009). Experimentally detecting how cultural differences on social anxiety measures misrepresent cultural differences in emotional well-being. *Journal of Happiness Studies*, 10(3), 313-327.

*Norasakkunkit, V., Kitayama, S., & Uchida, Y. (2012). Social anxiety and holistic cognition: Self-focused social anxiety in the united states and other-focused social anxiety in japan. *Journal of Cross-Cultural Psychology*, 43(5), 742-757.

*Norton, P. J. & Weeks, J. W. (2009). A multi-ethnic examination of socioevaluative fears. *Journal of Anxiety Disorders*, 23, 904-908.

Oguri, M., & Gudykunst, W. B. (2002). The influence of self-construals and communication styles on sojourners' psychological and sociocultural adjustment. *International Journal of Intercultural Relations*, 26, 577-593.

*Okazaki, S. (1997). Sources of ethnic differences between asian american and white

american college students on measures of depression and social anxiety. *Journal of Abnormal Psychology*, 106, 52-60.

*Okazaki, S. (2000). Asian american and white american differences on affective distress symptoms: Do symptom reports differ across reporting methods? *Journal of Cross-Cultural Psychology*, 31(5), 603-625.

*Okazaki, S. (2002). "Self-other agreement on affective distress scales in Asian Americans and white Americans". *Journal of Counseling Psychology*, 49(4), 428-437.

*Okazaki, S., Liu, J. F., Longworth, S. L., & Minn, J. Y. (2002). Asian american-white american differences in expressions of social anxiety: A replication and extension. *Cultural Diversity and Ethnic Minority Psychology*, 8(3), 234-247.

*Okazaki, S., & Kallivayalil, D. (2002). Cultural norms and subjective disability as predictors of symptom reports among asian americans and white americans. *Journal of Cross-Cultural Psychology*, 33(5), 482-491.

Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, 128(1), 3-72.

Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology*, 46(3), 598-609.

Paulhus, D. L. (2002). Socially desirable responding: The evolution of a construct. In H. Braun, D. Jackson & D. Wiley (Eds.), *The role of constructs in psychological and educational measurement*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers: 49-69.

R Development Core Team (2012). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0. <http://www.R-project.org/>.

Rapee, R. M. & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy*, 35, 741-756.

*Rapee, R. M., Kim, J., Wang, J., Liu, X., Hoffman, S. G., Chen, J., Oh, K. Y., Bogels, S. M., Arman, S., Heinrichs, N., Alden, L. E. (2011). Perceived impact of socially anxious behaviors on individuals' lives in western and east asian countries. *Behavior Therapy*, 42, 485-492.

Robins, C. J. & Block, P. (1988). Personality vulnerability, life events, and depressive symptoms: a test of a specific interactional model. *Journal of Personality and Social Psychology*, Vol. 54(5), 847-852.

Robins, C. J., Ladd, J., Welkowitz, J., Blaney, P. H., Diaz, R., & Kutcher, G. (1994). The Personal Style Inventory: Preliminary validation studies of new measures of sociotropy

and autonomy. *Journal of Psychopathology and Behavioral Assessment*, 16, 277-300.

Rosenthal, R. (1979). The “file drawer problem” and tolerance for null results. *Psychological Bulletin*, Vol. 86(3), 638-641.

Ruscio, A. M., Brown, T. A., Chiu, W. T., Sareen, J., Stein, M. B., & Kessler, R. C. (2008). Social fears and social phobia in the USA: Results from the National Comorbidity Survey Replication. *Psychological Medicine*, 38, 15–28.

Ryder, A. G., Alden, L. E., & Paulhus, D. L. (2000). Is acculturation unidimensional or bidimensional? A head-to-head comparison in the prediction of personality, self-identity, and adjustment. *Journal of Personality and Social Psychology*, 79, 49 – 65.

Sackeim, H. A., & Gur, R. C. (1979). Self-deception, other-deception, and self-reported psychopathology. *Journal of Consulting and Clinical Psychology*, 47(1), 213-215.

Scargle, J. (2000). Publication bias: The “file-drawer” problem in scientific inference. *Journal of Scientific Exploration*, Vol. 14(1), 91-106.

*Saw, A., & Okazaki, S. (2010). Family emotion socialization and affective distress in asian american and white american college students. *Asian American Journal of Psychology*, 1(2), 81-92.

Schlenker, B. R., & Leary, M. R. (1982). Social anxiety and self-presentation: A conceptualization and model. *Psychological Bulletin*, 92, 641-669.

*Schreier, S., Heinrichs, N., Alden, L., Rapee, R. M., Hofmann, S. G., Chen, J., Oh, K. J., & Bogels, S. (2010). Social anxiety and social norms in individualistic and collectivistic countries. *Wiley-Liss, inc*, 27, 1128-1134.

Schwarzer, G. (2012). meta: Meta-Analysis with R. R package version 2.1-1. <http://CRAN.R-project.org/package=meta>

Singelis, T. M. (1994). The measurement of independent and interdependent self-construals. *Personality and Social Psychology Bulletin*, 20, 580-591.

*Smith, S. M., Stinson, F. S., Dawson, D. A., Goldstein, R., Huang, B., & Grant, B. (2006). Race/ethnic differences in the prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: Results from the national epidemiologic survey on alcohol and related conditions. *Psychological medicine*, 36, 987-998.

Stephenson, M. (2000). Development and validation of the stephenson multigroup acculturation scale (smas). *Psychological Assessment*, 12(1), 77-88.

*Sue, D., Ino, S., & Sue, D. M. (1983). Nonassertiveness of asian americans: An inaccurate assumption? *Journal of Counseling Psychology*, 30(4), 581-588.

- *Sue, D., Sue, D. M., & Ino, S. (1990). Assertiveness and social anxiety in chinese-american women. *Journal of Psychology: Interdisciplinary and Applied*, 124(2), 155-163.
- Suinn, R. M., Rickard-Figueroa, K., Lew, S., & Vigil, P. (1987). The Suinn-Lew Asian Self-Identity Acculturation Scale: An initial report. *Educational and Psychological Measurement*, 47(2), 401-407.
- Sutton, A. J. & Higgins, J. P. T. (2008). Recent development in meta-analysis. *Statistics in Medicine*, 26(5), 625-650.
- *Swift, A. (2001). Implications of culturally based understandings of the self for the psychological health of caucasian and asian american women. *Proquest Dissertations and Theses*. Ann Arbor, MI: Bell & Howell Information and Learning Company.
- Turner, S. M., Beidel, D. C., Dancu, C. V., & Stanley, M. A. (1989). An empirically derived inventory to measure social fears and anxiety: The social phobia and anxiety inventory. *Psychological Assessment*, 1, 35-40.
- Turner, S. M., Beidel, D. C., Dancu, C. V., & Stanley, M. A. (1996). Scale development and psychometric properties. *SPAI: Social Phobia and Anxiety Inventory*. North Tonawanda, NY: Multi-Health Systems, Inc.
- Walker, E., Hernandez, A.V., & Kattan, M.W. (2008). Meta-analysis: Its strengths and limitations. *Cleveland Clinic Journal of Medicine*, 75(6), 431-439.
- Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology*, 33, 448-457.
- Wittchen, H.U., & Beloch, E. (1996). The impact of social phobia on quality of life. *International Clinical Psychopharmacology*, 11(suppl 3), 15-23.
- Wolfgang, V. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, 36(3), 1-48. <http://www.jstatsoft.org/v36/i03/>.
- Xie, Y., & Goyette, K. (2004). A demographic portrait of asian americans. Washington D.C.: Russell Sage Foundation. Retrieved from <http://www-personal.umich.edu/~yuxie/Research/brief/Xie-Goyette.pdf>
- *Xie, D., Leong, F. T. L., & Feng, S. (2008). Culture-specific personality correlates of anxiety among chinese and caucasian college students. *Asian Journal of Social Psychology*, 11(2), 163-174.
- Yee, B. W. K., Huang, L. N., & Lew, A. (1998). Families: Life-span socialization in a cultural context. In L. Lee & N. Zane (Eds.), *Handbook of asian american psychology*. 83-135. Thousand Oaks, CA: Sage Publications, Inc.
- Yoon, E., Chang, C., Kim, S., Clawson, A., Cleary, S. E., Hansen, M., Bruner, J. P.,

Gomes, A.M. (2013). A meta-analysis of acculturation/enculturation and mental health. *Journal of Counseling Psychology*, 60(1), 15-30.

*Zhang, Helena. (2012) "The Effect of Primary and Secondary Control on Social Anxiety in Latino and Asian American College Students". *Senior Theses*, Trinity College, Hartford, CT.

*Zheng, X., & Berry, J.W. (1991). Psychological adaptation of chinese sojourners in canada. *International Journal of Psychology*, 26(4), 451-470.

*Zhong, J., Wang, A., Qian, M., Zhang, L., Gao, J., Yang, J., Chen, P. (2008). Shame, personality, and social anxiety symptoms in chinese and american nonclinical samples: A cross-cultural study. *Depression and Anxiety*, 25(5), 449-460.