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Posttraumatic Cognitions, Somatization, and PTSD severity among Asian American and White College Women with Sexual Trauma Histories

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Abstract

The need for trauma research with monoracial groups such as Asian Americans (AA) has recently been emphasized to better understand trauma experiences and inform interventions across populations. Given AA cultural contexts, posttraumatic cognitions and somatization may be key in understanding trauma experiences for this group. AA and White American (WA) trauma-exposed college women completed a survey on sexual trauma history, posttraumatic cognitions, somatic symptoms, and PTSD severity. For the overall sample, higher negative cognitions were associated with higher somatization. Asian race was associated with higher negative cognitions, which then predicted higher PTSD. Unexpectedly, WAs more strongly endorsed somatization than AAs. These findings indicate that posttraumatic cognitions may be helpful in understanding relationships between somatization and PTSD severity among those of Asian backgrounds and that the relationship between somatization and PTSD symptoms is culturally complex.

Keywords

Race; Asian Americans; Posttraumatic Cognitions; Somatization; PTSD

Adult sexual assault (nonconsensual sexual encounters, contact, or penetration) among college women is highly prevalent, with approximately 50% of college women reporting having been victimized since the age of 14 (Abbey, Zawacki, Buck, Clinton, & McAuslan, 2001; Ullman, Karabatsos, & Koss, 1999), as compared to conservative estimates of 25% of women nationwide (Abbey et al., 2001). A risk factor for experiencing adult sexual assault is past childhood sexual abuse (e.g., Fergusson, Horwood, & Lynskey, 1997). Not unlike other populations, college students are susceptible to developing posttraumatic stress disorder (PTSD) as a result of sexual assault (Frazier et al., 2009; Watson & Haynes, 2007). With increasing diversification of American college campuses (U.S. Census, 2008a; U.S.

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Census, 2008b), culturally sensitive research on PTSD among diverse samples of college women is necessary.

In a recent commentary on the future of trauma research, Triffleman and Pole (2010) asserted that more research on trauma and posttraumatic outcomes among monoracial groups such as Asian Americans must be conducted. Currently, PTSD and trauma research among Asian Americans is nearly absent from the literature (Pole, Gone, & Kulkarni, 2008). The sparse trauma research conducted with this racial group has tended to focus on trauma related to war or natural disasters among immigrant or refugee populations (e.g., Kroll et al., 1989; Masinda & Muhesi, 2004; Moore & Boehnlein, 1991; Vijayakumar, Kannan, & Daniel 2006). While these types of traumas and populations indeed require research attention, Asian American college students have been overlooked. Currently 71% of Asian American females ages 20 and 21 are enrolled in college (U.S. Census Bureau, 2009). Given high prevalence rates of sexual assault among college women (Abbey et al., 2001), it is important to examine risk factors for the development of PTSD in Asian American college women. While a recent cross-ethnic national study found that Asian Americans have the lowest chance of being diagnosed with PTSD as compared with Whites, African Americans, and Hispanics (Asnaani, Richey, Dimaite, Hinton, & Hofmann 2010), the study consisted of an older sample, with a mean age of 42, and did not examine specific predictors of risk for Asian Americans.

Trauma Responses among Asian Americans

Relevant to cognitive models of the development of PTSD, trauma-related cognitions are thought to play an etiological role in the development and maintenance of the disorder (Ehlers & Clark, 2000; Janoff-Bulman, 1989). Negative cognitions, extreme and inaccurate beliefs related to trauma about the world, the self, and self-blame, are thought to maintain PTSD symptoms (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). Trauma-related cognitions are predictive of PTSD severity (Dunmore, Clark, & Ehlers, 2001; Foa et al., 1999; Startup, Makgekgenene, & Webster, 2007). Reduction in trauma-related cognitions is associated with PTSD improvement following exposure or trauma focused cognitive therapies (Foa & Rauch, 2004; Resick, Nishith, Weaver, Astin, & Feuer, 2002; Resick, Galovski, Uhlmansiek, Scher, Clum, & Young-Xu, 2008).

No research to date has specifically focused on trauma-related cognitions among Asian Americans. Although Asian American college women are a heterogeneous group made up of multiple ethnicities, they share several unifying cultural values, legitimizing examining Asian Americans as a group (Kim, Li, & Ng, 2005). Some of these shared values include collectivism (valuing social harmony over individual needs), female chastity (abstaining from sex before marriage), patriarchy, and social face, an Asian tradition of maintaining one's reputation in order to preserve family honor (Hall & Barongan, 1997; Ho, 1990; Kim & Ward, 2007; Mills & Granoff, 1992; Okazaki, 2002). Although these and other culturally shared values can predict subjective well-being (e.g., Chang & Lim, 2007) or protect against delinquent behaviors (e.g., Hall et al., 2005), they can also result in a cultural socialization process for Asian Americans that is more supportive of female chastity and traditional sex roles of patriarchy, where men are more highly valued than women, than mainstream

American culture. Furthermore, Asian Americans may experience a different cultural socialization process than White Americans in relation to sexual aggression (Hall & Barongan, 1997; Hall, Teten, DeGarmo, Sue, & Stephens, 2005). This cultural socialization with shared cultural values may lead to more negative views about the self, self-blame, and shame among Asian American victims of sexual assault (Abraham, 1999; Luo, 2000) and may increase their vulnerability to develop more maladaptive trauma-related cognitions than their White counterparts. Since negative views about the self, self-blame, and shame are central to the construct of posttraumatic cognitions, we hypothesized that Asian American victims of sexual assault would have more negative posttraumatic cognitions than their White counterparts.

Particularly relevant for culturally Asian populations is symptom expression of anxiety disorders through endorsement of somatic symptoms or somatization, i.e., complaints and concerns about the body and/or physical health (e.g., Hinton, Park, Hsia, Hofmann, & Pollack, 2009; Matkin, Nickles, Demos, & Demos, 1996). Much of the research on anxiety and somatization among individuals of Asian descent has focused on the experiences of individuals residing in Asia or on refugees and immigrants (Hinton et al., 2009). However, given the lack of research on PTSD in Asian American college women, it is unclear to what extent this population may demonstrate somatization in response to traumatic events. Moreover, PTSD itself has been found to be associated with somatization (e.g., Escalona, Achilles, Waitzkin, & Yager, 2004; Rutter, Weatherill, Krill, Orazem, & Taft, 2011). Given the tendency to somatize among culturally Asian populations, examining the link between somatization and PTSD is necessary among Asian American female college victims of sexual assault.

Present study

For the present study, a sample of Asian American and White American college women was surveyed about sexual trauma history, posttraumatic cognitions, somatic symptoms, and PTSD severity. Our primary aim was to test a model that posits direct and indirect pathways by which racial group (a proxy for culture) influences PTSD severity and somatization through its effects on posttraumatic cognitions (see Figure 1). We hypothesized that Asian Americans will report more posttraumatic cognitions than White Americans, which will be associated with greater PTSD severity. We also hypothesized that Asian Americans will have higher current somatization symptoms than White Americans, which will be associated with greater PTSD severity. Additionally, because childhood sexual abuse and adult sexual assault/revictimization are key components in predicting PTSD (e.g., Ullman, Najdowski, & Filipas, 2009), exposure to both is hypothesized to predict posttraumatic cognitions and PTSD severity.

Methods

Participants and Procedures

Participants were recruited from a large public university in the Pacific Northwest with approximately 28,000 enrolled undergraduates; in 2001, 10.1% were categorized as Asian American female and 29.7% as White female. This parent study aimed to understand event-

level relationships between PTSD and alcohol use among young college women (for parent study description, see Naragon-Gainey, Simpson, Moore, Varra, & Kaysen, 2012). Women aged 18 and older were randomly selected from the university's undergraduate registrar list via computer algorithm in the R statistical package. Invitations to the screening survey that described a study on trauma exposure and alcohol use in college women were sent via mail and email. The screening process for the parent study was comprised of two web-based assessments: 1) a screening survey and 2) a baseline survey. Of the 11,544 invited to participate in the screening survey, 4,225 agreed to participate and 4,098 completed the survey. Eligibility criteria for the parent study included 1) consuming 4 or more drinks on one occasion at least twice in the past month, and 2) either no lifetime Criterion A trauma exposure OR reporting a history of sexual assault (childhood sexual abuse OR adult sexual assault that was not within the past three months). Eligible women were then invited to participate in the baseline survey and were automatically provided a link. The median time between starting the screening survey and ending the baseline survey was .44 days (approximately 10 hours; $M = 3.19$ days, $SD = 7.22$). Of the 860 women invited to the baseline survey, 792 completed it. Participants were paid \$10 for completing screening and \$35 for baseline. The university's Human Subjects Review Board approved all procedures and a Federal Certificate of Confidentiality was obtained.

Although follow-up data were collected for the parent study, current study analyses were conducted with only screening and baseline assessments. Only individuals who identified as "Asian/Asian American" or "Caucasian/White/European American" and reported a history of any childhood or adult sexual assault were included. Out of 792 participants, 630 met these criteria. The resulting sample was 112 Asian and 518 White undergraduate women. Those who identified as more than one racial group were excluded from analyses, resulting in a monoracial sample. Mean age of the sample was 20.43 years old ($SD = 1.93$). No differences existed between Asians and Whites in severity of alcohol use, as evidenced by mean number of drinks per week ($M_{\text{Asian (A)}} = 10.11$, $SD = 6.56$; $M_{\text{White (W)}} = 11.82$, $SD = 8.21$), per weekend evening ($M_A = 4.45$, $SD = 3.71$; $M_W = 4.51$, $SD = 2.88$), and peak BAC ($M_A = .19$, $SD = .09$; $M_W = .20$, $SD = .11$) in the past month.

Measures

Childhood sexual abuse and adult sexual assault were assessed in the screening survey, while posttraumatic cognitions, PTSD, and somatization were assessed in the baseline survey.

Sexual assault—To identify trauma-exposed participants and to include trauma exposure in our model, childhood and adult sexual assault were assessed. Participants who endorsed at least one of these experiences were included in the study sample. The Childhood Victimization Questionnaire (Finkelhor, 1979) assessed childhood sexual abuse. Childhood sexual abuse was defined as "any sexual activity that seemed coercive or forced and occurred before the age of 14 with someone 5 or more years older." Eleven unwanted sexual experiences were presented, ranging from a sexual invitation to intercourse, and participants were asked how many times, if any, had each happened to them before and a sum score was

calculated. This sum score was calculated based on how many times the participant endorsed each type of victimization.

Adult sexual assault was measured by the Sexual Experiences Survey (SES; Koss & Oros, 1982; Koss & Gidycz, 1985). Sexual assault was defined as any “oral-genital contact, vaginal/anal intercourse, and/or penetration by objects since the age of 14,” including due to coercion, intoxication, or force. The SES included questions regarding attempted and completed unwanted sexual encounters. Participants were asked to rate how many times, if any, had each happened to them before and a sum score was calculated. This sum score was calculated based on how many times the participant endorsed each type of victimization.

Posttraumatic cognitions—The Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) was used as a measure of trauma-related thoughts and beliefs. Participants were presented 36 statements and were asked how much they agreed or disagreed with each statement, in reference to their self-identified most traumatic event. Response options ranged from 0 = *totally disagree* to 6 = *totally agree*. The PTCI can be broken down into three subscales: 1) negative cognitions about the self; 2) negative cognitions about the world; and 3) self-blame. Examples of negative cognitions about the self include “I can’t trust that I will do the right thing” and “I am inadequate.” The negative cognitions about the world presented include “I have to be on guard at all times,” “people are not what they seem,” and “I can’t rely on other people.” Finally, self-blame questions included “the event happened because of the way that I acted” and “somebody else would not have gotten into this situation.” Good internal consistency was shown with this sample (Cronbach’s $\alpha = .96$).

PTSD symptomatology—PTSD severity was assessed with the Posttraumatic Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997). The PDS can be used to clinically diagnose PTSD through DSM-IV criteria. Participants were asked to refer to their worst sexual assault when they were presented 17 PTSD symptoms. They also reported how much their symptoms impaired different areas of their life in the last month, which was not included in calculating PTSD severity. Response options were based on a Likert scale of 0 = *not at all* to 3 = *very much*. With this sample, internal consistency was good (Cronbach’s $\alpha = .92$).

Somatization—The Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982) summed score was used to index frequency of health-related concerns. Participants were presented 54 health complaints and were asked to indicate how frequently they experience each symptom. Response options were as follows: 0 = *Have never or almost never experienced the symptom*; 1 = *Less than 3 to 4 times a year*; 2 = *Every month or so*; 3 = *Every week or so*; and 4 = *More than once a year*. Internal consistency was acceptable with this sample (Cronbach’s $\alpha = .90$).

Results

Analysis Plan

To test the hypotheses, a path analysis model (see Figure 1) was conducted in Mplus 6. Missing data accounted for 1.24% of the dataset and maximum likelihood estimation (MLE)

was used for missing data. In assessing model fit, root mean square error of approximation (RMSEA) standard root mean square residual (SRMR), and comparative fit index (CFI) will be used. Chi square will not be used to assess model fit as it is not a good indicator of fit with MLE. Good model fit was indicated with RMSEA values less than .06, SRMR values less than .06, and CFI values greater than .90 (Kline, 2005). If the hypothesized model did not have a good fit as indicated by the previously mentioned model fit indices, standardized residuals would be examined to determine what paths to re-examine.

Descriptives and Initial Data Analyses

For descriptive statistics and correlations of the variables included in the model, see Table 1. CSA experiences ranged from 0 to 44 and ASA experiences ranged from 0 to 17. Although only overall posttraumatic cognitions was included in the model, significant differences of the three PTCI subscales between racial groups were assessed using a multivariate analysis of variance test. Overall, differences were found for PTCI, $\lambda = .95$, $F(3,607) = 9.77$, $p < .01$. An examination of the between-subjects effects indicated significant differences for the subscale self, $M_A = 1.13$, $SD = 1.07$ and $M_W = 0.89$, $SD = 0.97$, $F(1,609) = 4.89$, $p = .03$; and the subscale world, $M_A = 3.03$, $SD = 1.45$ and $M_W = 2.47$, $SD = 1.49$, $F(1,609) = 12.55$, $p < .001$; but not for self-blame, $M_A = 2.15$, $SD = 1.36$ and $M_W = 2.39$, $SD = 1.49$, $F(1,609) = 1.58$, $p = .12$.

Pearson correlations were computed separately by race with variables included in the model. For both groups, PTSD severity was correlated with somatization ($r_A = .31$, $r_W = .53$, $p < .001$) and posttraumatic cognitions ($r_A = .54$, $r_W = .59$, $p < .001$). For both groups, somatization and posttraumatic cognitions were highly correlated ($r_A = .99$, $r_W = .73$, $ps < .001$). Using an established method to test correlation coefficient differences (Preacher, 2002), a z -score of 16.29 was calculated, indicating a significant difference between these correlations ($p < .001$).

Path Analysis

Hypothesized model—Overall, the originally hypothesized model (see Figure 1) was not found to be a good fit, RMSEA = .14, SRMR = .08, and CFI = .88. An analysis of the modification indices and previous research about the relationships between the constructs indicated a relationship between somatization and posttraumatic cognitions. Therefore, we included this relationship in the final model.

Final model—Overall, the final model (see Figure 2) was found to be a good fit, RMSEA = .04, SRMR = .03, and CFI = .99, $\chi^2(4) = 7.83$, $p = .098$. The squared multiple correlations suggest that a moderate amount of variance was accounted for in this model for posttraumatic cognitions ($R^2 = .14$), PTSD severity ($R^2 = .41$), and somatization ($R^2 = .10$). The indirect effect of child sexual abuse on posttraumatic cognitions through adult sexual assault was significant, such that child sexual abuse was associated with more posttraumatic cognitions. The indirect effect of child sexual abuse on PTSD severity through adult sexual assault and posttraumatic cognitions was significant. The indirect effect of child sexual abuse on somatization through adult sexual assault and posttraumatic cognitions was also significant. The indirect effect of adult sexual assault on PTSD severity through

posttraumatic cognitions was significant; the indirect effect of adult sexual assault on somatization through posttraumatic cognitions was also significant. There was a significant indirect difference based on race for PTSD severity through posttraumatic cognitions. Similarly, there was a significant indirect difference based on race for somatization through posttraumatic cognitions. See Table 2 for statistics on indirect effects.

An examination of the standardized coefficients in the path analysis (see Figure 2) suggests that all predictors in the model were significant. Child sexual abuse predicted adult sexual assault, posttraumatic cognitions, and PTSD severity. Adult sexual assault predicted posttraumatic cognitions, and PTSD severity. Asian race predicted posttraumatic cognitions and somatization. Lastly, posttraumatic cognitions predicted PTSD severity and somatization. The correlation between PTSD severity and somatization was also significant. See Figure 2 for statistics on direct effects.

Discussion

The aim of the present study was to test a model that posits direct and indirect pathways by which childhood and adult sexual assault and race influences PTSD severity and somatization through its effects on posttraumatic cognitions. Results indicate that our revised model fits the data. As hypothesized, childhood sexual abuse was associated with adult sexual assault, posttraumatic cognitions, and PTSD severity; and adult sexual assault was associated with posttraumatic cognitions and PTSD severity. Also, as hypothesized, Asian American college women endorsed more maladaptive beliefs about the sexual assault than White American college women, which in turn was associated with higher PTSD symptom severity. Further, as hypothesized, higher PTSD symptom severity was associated with greater somatization among the entire sample. Posttraumatic cognitions were also found to be directly associated with somatic concerns where more maladaptive beliefs about the sexual assault were associated with higher somatization. A significant association between race and somatization was found but in the opposite direction of our hypothesis, where White race was associated with higher somatization. Lastly, higher posttraumatic cognitions were associated with more somatization, which was added to our model.

Although no other studies have examined trauma-specific maladaptive cognitions among Asian Americans, our findings are consistent with extant research indicating that Asian American college students endorse more rape-supportive attitudes, or myths about rape, such as beliefs that women are responsible for preventing rape and victims cause rape (Koo et al., 2011; Mills & Granoff, 1992). These attitudes have been linked to certain Asian cultural beliefs and values regarding maintaining female chastity and social face, and victim-blaming or silencing and shaming victims of sexual assault (Ho, 1990; Kim & Ward, 2007; Okazaki, 2002). In Asian cultures, female chastity is highly valued (Luo, 2000), and it is often associated with family honor such that, as a woman, losing one's chastity would not only bring shame to herself but also to her whole family (Okazaki, 2002). Thus, the loss of chastity occurring from rape has led many victims to feel damaged, incomplete, and shameful for dishonoring the family (Abraham, 1999). Further, some victims are even encouraged to marry their rapist to avoid being ridiculed and ostracized by their social network and to save their family from dishonor (Luo, 2000). It is possible that some Asian

cultural contexts may increase risk of maladaptive beliefs following a sexual assault such as increased beliefs that the world is an unsafe place. Indeed, if victims are blamed within their cultural context, and they are at risk for losing their social network, it may create an environment that reinforces more extreme and negative cognitions regarding sexual assault. Furthermore, in the current study, Asian American college women were more likely than their White counterparts to endorse negative posttraumatic cognitions about the self and the world, but not self-blame. Consistent with these cultural mores, this suggests that maladaptive cognitions about not being able to trust oneself and the world may be especially relevant for an Asian American woman. These practices, beliefs, and attitudes held in some Asian/Asian American communities may be facilitating an environment that increases risk for beliefs that can lead to PTSD. It is important to note that although racial differences in these posttraumatic cognitions were statistically significant, differences were small in absolute terms; effect sizes were calculated as small (Cohen's $d = .24$) and medium (Cohen's $d = .38$). However, these findings are consistent with cultural theories about and research findings with Asians/Asian Americans. Interpretations of these findings are speculative and require more research to replicate and elucidate meaningful differences.

We did not find significant group differences in self-blame in this sample. Self-blame, which is specific to self-blame about reactions to the experienced trauma(s), is different than more general negative cognitions about the self and the world. Thus, although Asian American college women may not blame themselves for their reactions to the trauma any more than their counterparts, they are endorsing more general negative attitudes about themselves and the world possibly as a result of the trauma. In this sample, both groups rated self-blame relatively low. It is possible that initiatives raising awareness of sexual assault and normal responses to assault on college campuses were effective. However, these efforts may not address more general negative cognitions about the world and about the self as being permanently affected by a sexual trauma that are often affected by a traumatic event. Given that, to our knowledge, this is the first study that examines posttraumatic cognition differences between these groups, these novel findings require further investigation to replicate and identify cultural and contextual variables that may be driving these differences.

Previous research suggests that maladaptive beliefs play a role in the development and maintenance of PTSD symptoms and are predictive of higher PTSD symptom severity (Dunmore, Clark, & Ehlers, 2001; Foa, et al., 1999). In our study, Asian American college women similarly had more maladaptive cognitions regarding their trauma than their White counterparts, which was associated with increased PTSD severity. Racial differences in PTSD rates may be in part a function of how individuals create meaning out of these events.

Results also replicated findings that PTSD is associated with increased somatization (e.g., Escalona, Achilles, Waitzkin, & Yager, 2004; Rutter, Weatherill, Krill, Orazem, & Taft, 2011). This study added to this literature by better understanding the role of culture and maladaptive cognitions in this relationship. An indirect association between Asian race and somatization was found through posttraumatic cognitions. This finding is consistent with extant literature (Matkin et al., 1996) and also suggests that distress associated with extreme and negative beliefs about traumatic events can increase somatization for this group. This may help to explain findings that PTSD treatment that directly targets these beliefs has a

larger effect on somatization than exposure based treatment alone (Galovski, Monson, Bruce, & Resick, 2009). Contrary to our expectations, there was a significant direct association between White race and increased reported somatization. This result is inconsistent with research indicating that Asians residing in Asia are more likely than White North Americans to express psychological problems with somatic symptoms (Hinton et al., 2009; Matkin et al., 1996; Ryder et al., 2008). We speculate that the inconsistency between our results and past research may be due to differences in sample characteristics. In contrast to the majority of research on Asian trauma-exposed samples, our sample consisted of younger Asian American women attending a U.S. university, and there is research suggesting that somatization and older age may be related (Iwata & Roberts, 1996). Although this finding may be sample-specific, it is noteworthy to caution treatment providers against assuming Asian Americans will somaticize more than others. Additionally, separately for both groups, posttraumatic cognitions and somatization were highly correlated; this correlation was significantly stronger among the Asian group. Thus, regardless of race, targeting maladaptive thoughts about trauma may be helpful in reducing somatization but may have added impact for those who racially identify as Asian. Future research that includes culturally congruent psychosocial constructs is necessary to replicate and explain these findings.

Study limitations must also be considered. Although using self-report measures to collect data may be subject to response bias, all efforts were made to ensure confidentiality of reporting. This data was cross-sectional, which prevented causal explanations. Thus, even though our model significantly fit the data, we cannot conclude that identifying with a racial group causes the endorsement of posttraumatic cognitions or posttraumatic cognitions cause PTSD severity and somatization. We assumed directions of relationships based on previous research on racial and ethnic differences in posttraumatic cognitions and somatization as well as research that finds reductions in posttraumatic cognitions leads to reductions in PTSD severity (Foa & Rauch, 2004; Matkin, Nickles, Demos, & Demos, 1996). However, PTSD could also cause more distorted beliefs. Additionally, we only considered sexual trauma but non-sexual traumas may have impacted posttraumatic cognitions, PTSD severity, and somatization. However, our analyses of sexual trauma addressed a specific gap in the literature with Asian American college women. Additionally, only those who have had at least two episodes of having consumed at least four drinks on a drinking occasion over the past month were included. While this inclusion criterion limits generalizability of our findings, binge drinking is common among college women, and recent evidence suggests binge drinking among some Asian ethnic subgroups are comparable to their undergraduate counterparts (Iwamoto, Takamatsu, & Castellanos, 2012). Moreover, binge drinking increases risk of sexual victimization in college women suggesting that studying this group has great clinical relevance due to their elevated risk (Testa & Hoffman, 2012). Cultural constructs such as acculturation have been shown to influence Asian American college students' endorsement of rape attitudes (Kennedy & Gorzalka, 2002; Koo et al., 2011; Mori et al., 1995), and we did not directly measure such constructs, limiting our interpretation of the data. However, to compensate for the absence of culturally congruent measures, separate correlations by race were presented to further demonstrate that these correlational differences are tapping into underlying cultural constructs. Although it is legitimate to

examine Asian Americans as a unified group (Kim, Li, & Ng, 2005), our small sample size prevented us from examining ethnic subgroups of Asian Americans (e.g., Vietnamese, Chinese, etc.), each of which also has unique cultures. Our future aim is to oversample specific Asian American populations to pursue this line of research. Moreover, because our sample consisted of women who reported heavy drinking and sexual trauma, generalizability to broader populations of Asian women is limited. Despite these limitations, this research is critical given this group's higher risk for PTSD development.

The current study demonstrated the impact of race on posttraumatic cognitions, PTSD severity, and somatization. Asian American college women more strongly endorsed posttraumatic cognitions than their White counterparts, which put them at increased risk for more severe PTSD symptoms and somatization. Identifying and incorporating culturally congruent cognitions into existing treatments for PTSD that target cognitions may further improve effectiveness for Asian Americans. These findings reinforce recommendations to research monoracial groups and trauma (Triffleman & Pole, 2010). Future research should examine specific cultural variables as they relate to posttraumatic cognitions, PTSD symptoms, and somatization, as well as include more refined measures of culture and cultural group affiliation in relation to responses to trauma exposure.

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Figure 1. Hypothesized model of the relation among child sexual abuse, adult sexual assault, race, posttraumatic cognitions, PTSD severity, and somatization.

Figure 2.

Final model of the relation among child sexual abuse, adult sexual assault, race, posttraumatic cognitions, PTSD severity, and somatization.

* $p < .05$; ** $p < .01$

Table 1

Descriptive statistics and correlations of variables in model

Variable	Correlations							
	Asian (<i>n</i> = 112)	White (<i>n</i> = 518)	1.	2.	3.	4.	5.	6.
1. CSA (<i>M, SD</i>)	2.72 (4.95)	1.86 (4.70)	1.00					
2. ASA (<i>M, SD</i>)	2.06 (2.42)	2.67 (2.33)	.20***	1.00				
3. Racial group (%)	18	82	.02	-.18***	1.00			
4. PTCI (<i>M, SD</i>)	59.44 (36.53)	51.48 (35.87)	.17***	.30***	.04	1.00		
5. PTSD severity (<i>M, SD</i>)	5.59 (7.03)	5.58 (7.23)	.18***	.08*	-.002	.56***	1.00	
6. Somatization (<i>M, SD</i>)	60.05 (33.43)	67.55 (29.35)	.17***	.13***	-.13***	.33***	.27***	1.00

* *p* < .05;
** *p* < .01;
*** *p* < .001

Note. Under Variable, parenthetic remarks describe the values under racial group headings. CSA = child sexual abuse, ASA = adult sexual assault, PTCI = posttraumatic cognitions inventory. Racial groups were categorized as Asian = 1 and White = 0. A MANOVA revealed no significant differences between racial groups on any of the variables ($\lambda = .99, F(5,624) = .94, p = .46$).

Table 2

Final Model Beta Weights for Indirect Paths

Path	<i>B</i>
CSA to ASA to PTCI	1.12 **
CSA to ASA to PTCI to PTSD	.01 *
CSA to ASA to PTCI to Somatization	.02 *
ASA to PTCI to PTSD	.15 **
ASA to PTCI to Somatization	1.26 **
Race to PTCI to PTSD	.14 **
Race to Somatization to PTSD	.09 **

*Note.**
 $p < .05$ and**
 $p < .01$. CSA = child sexual abuse, ASA = adult sexual assault, PTCI = posttraumatic cognitions inventory, PTSD = posttraumatic stress disorder.