

Cultural Factors, Depressive and Somatic Symptoms Among Chinese American and European American College Students



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Abstract

The abstract section contains several lines of text that are heavily obscured by a dense pattern of small, illegible characters and symbols, likely due to a scanning artifact or a corrupted image. The text is not readable.

common and taxing psychological disorders on U.S. college campuses (Eisenberg, Hunt, & Speer, 2013). Close to 30% of male and 36% of female college students in the United States reported experiencing one of the main depressive symptoms, “feeling so depressed that it was difficult to function,” at least once over the past year (American College Health Association, 2015).

Cultural factors can play an important role in the experience, presentation, diagnosis, and treatment of depressive symptoms (e.g., Chentsova-Dutton & Tsai, 2009; Kirmayer & Jarvis, 2006). Although depression has been found across cultures, cross-cultural presentations of depressive symptoms may vary (Kalibatseva & Leong, 2011; Ryder & Chentsova-Dutton, 2012). In particular, the literature has proposed that somatic symptoms of depression may be more heavily emphasized among non-Western populations resulting in higher rates of somatization compared with Western populations (Kleinman & Good, 1985).

Somatization may be defined in various ways. A widely accepted definition of somatization is the presentation of somatic symptoms in the absence of organic findings or an adequate medical explanation (De Gucht & Fischler, 2002). As an idiom of distress, somatization refers to “complaints about, or the appearance of, physical symptoms such as headaches, stomach pains, inability to concentrate, chronic fatigue, sleep difficulties, loss of sensory functioning, and so on that have a strong psychological basis” (Chun, Enomoto, & Sue, 1996, p. 348). A common pattern proposed in cross-cultural psychopathology is that people of Asian descent somatize psychological distress, and depression, in particular, by reporting high levels of somatic symptoms. Kleinman (1977, 1982) reported that Chinese patients presented with somatic symptoms without reporting depressed mood. However, despite an abundance of theoretically oriented works that propose Asians somatize psychological distress (e.g., Kleinman & Kleinman, 1985; Parker, Gladstone, & Chee, 2001), empirical findings on this topic have been mixed and/or equivocal (Dere et al., 2013; Kalibatseva, Leong, & Ham, 2014; Mak & Zane, 2004; Parker, Cheah, & Roy, 2001; Ryder et al., 2008). Therefore, the first goal of this study is to provide further empirical evaluation for the relationship between depressive and somatic symptoms among Chinese American and European American college students. In particular, based on the theoretical literature, this study hypothesizes that Chinese Americans will somatize by reporting more physical symptoms and more depressive somatic symptoms than European Americans.

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influenced by culture, past family experience, cognitive coping mechanisms, and social environment (e.g., medical care, work/disability, social network, and sociopolitical system).

Informed by Katon et al.'s (1982) model and the integration of cross-cultural research methods in racial/ethnic minority research (Leong, Leung, & Cheung, 2010), this study builds on the existing literature by moving from group comparisons based on race and ethnicity to incorporating relevant psychological factors that may explain proposed racial and ethnic differences in self-reported symptoms of depression (Betancourt & Lopez, 1993; Helms, Jernigan, & Mascher, 2005; Leong, Park, & Kalibatseva, 2013). Thus, this study identifies and examines three culturally relevant psychological factors that may be related to depressive and somatic symptoms: self-construal, loss of face, and emotion regulation.

Self-Construal

The notion of the self has been central in the field of psychology for over a century (Kitayama, Duffy, & Uchida, 2007). Independent self-construal refers to placing the individual over the group, as individuals seek independence, separateness, and uniqueness from others. Interdependent self-construal refers to prioritizing the group over the individual as individuals try to fit in and maintain the group's harmony (Cross, Hardin, & Gercek-Swing, 2011; Markus & Kitayama, 1991). Given the findings of differences in independence and interdependence in East Asian and Western societies, self-construal is a good candidate to provide a bridge between culture and distress (Marsella, 1985).

Previous findings regarding self-construal and ethnic differences in depression have been mixed. For instance, Mak, Law, and Teng (2011) tested a cultural model of vulnerability to distress, which examined the relationship between interdependent/independent self-construal, sociotropy, anxiety, and depression among Asian American and European American college students. Sociotropy refers to a cognitive style associated with high levels of dependence and excessive need to please others (Mak et al., 2011). The authors found that "interdependent self-construal predisposes a person to develop sociotropy and consequent depression via a heightened level of anxiety" (p. 75). The model was a good fit for both Asian American and European American participants. Conversely, Lam (2005) found that interdependent self-construal was positively associated with family cohesion, which increased the adolescents' self-esteem and resulted in lower scores of depression among Vietnamese American adolescents. The first model (Mak et al., 2011) examined sociotropy as an undesired characteristic in a context of independence, whereas the second model (Lam, 2005) presented family cohesion as a desired attribute in a context of interdependence (the Vietnamese American family unit). Thus, in a context where independence is valued, independent self-construal will be negatively related to depression and interdependent self-construal will be positively related to depression.

In support of this statement, previous studies of U.S. college students showed a positive association between interdependence and depression and a negative association between independence and depression (Norasakkunkit & Kalick, 2002; Okazaki, 1997, 2000, 2002). Thus, it is hypothesized that in the United States, where independence is valued, independent self-construal serves as a protective factor against depression. Conversely, it is hypothesized interdependent self-construal serves as a risk factor for depression in an individualistic society, along with other culturally salient constructs, such as loss of face.

Loss of Face

Following Betancourt and Lopez' (1993) recommendation to deconstruct culture into specific psychological elements that allow the formulation of testable hypotheses, Zane and Yeh (2002) reviewed the construct of face as a candidate to explain ethnic differences in symptom presentation and help-seeking behavior. Face is defined as

(c) provide a bridge between group comparisons based on demographic variables and comparisons based on culturally relevant psychological variables (Helms et al., 2005). Thus, the study poses the following hypotheses:

Hypothesis 1: Chinese American students will somatize by reporting more physical symptoms on the PHQ-15 and the Center for Epidemiologic Studies–Depression (CES-D) somatic subscale than European American students.

Hypothesis 2: Interdependent self-construal, loss of face, and expressive suppression will be positively associated with depressive and somatic symptoms and independent self-construal and cognitive reappraisal will be negatively associated across both groups.

Hypothesis 3: Self-construal, loss of face, and emotion regulation will predict depressive symptoms among Chinese American and European American students above and beyond ethnicity as a predictor.

Method

Participants

The sample consisted of 519 participants predominantly from two large Midwestern universities. There were 204 (39.3%) participants who self-identified as Chinese American. Almost two thirds of the Chinese American sample (64.2%, $n = 131$) were female and 35.8% ($n = 73$) were male. The mean age for the Chinese American sample was 20.65 ($SD = 2.95$). There were 315 participants (60.7%) who self-identified as European American. Sixty-two percent ($n = 196$) identified as female and 38% ($n = 120$) as male. The mean age was 19.87 ($SD = 2.88$).

Procedure

Participants were recruited through the university participant pool, targeted emails from the Registrar's Office, campus organizations of Asian American students, and a posting on the listserv of the Asian American Psychological Association. To facilitate the recruitment of Chinese American students at one of the universities, participants received US\$10 as an incentive for their participation. At the second university, students voluntarily entered a raffle to win one of eight US\$10 gift certificates. Participants read and signed the consent form and took a 30-min online survey in English. The study was approved by the university's institutional review board.

Measures

Demographic questionnaire. Demographic information was collected on age, gender (0 = *male*, 1 = *female*), race (0 = *Chinese American*, 1 = *European American*), class standing, income (rated on a Likert-type scale from 1 to 11, where 1 = US\$0 to US\$14,999 and 11 = US\$105,000 or more), and generational status. The generational status variable had three levels: first generation (being born in another country and having moved to the United States), second generation (one or both of your parents were born in another country), third generation (grandparents born in another country), or later generation (U.S. Census Bureau, 2016).

Center for Epidemiological Studies Depression Scale (CES-D). The CES-D measures the frequency of 20 symptoms of depression over the past week. It uses a 4-point Likert-type scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*) and higher scores indicate higher levels of depression. The CES-D has four subscales: affective, somatic, positive, and interpersonal (Hales et al., 2006). Sample items include "I felt depressed" (affective), "My appetite was poor"

(somatic), “I was happy” (positive), and “I felt that people disliked me” (interpersonal). The CES-D was chosen instead of the PHQ-9 (Kroenke, Spitzer, & Williams, 2001) to reduce item overlap with the PHQ-15 (Items 14 and 15 in PHQ-15 are the same as Items 3 and 4 in the PHQ-9 assessing fatigue and sleep difficulties). In addition, the CES-D has been frequently used with European American and Asian American college students (Okazaki, 2000) and has detected racial differences in depression scores. Moreover, it demonstrated good internal consistency with coefficient alphas of .90 or above for both community and clinical samples (Radloff, 1977) in the original psychometric studies. The CES-D was reliable and valid in measuring depression in a Chinese American college student sample (Ying, Lee, Tsai, Yeh, & Huang, 2000). In the current study, Cronbach’s alpha was .89 for both the Chinese American and European American samples.

Patient Health Questionnaire-15 (PHQ-15). The PHQ-15 is a self-report questionnaire that measures the severity of 15 somatic symptoms over the past 4 weeks (Kroenke, Spitzer, & Williams, 2002). It is a widely used screening instrument for somatization syndromes. The prompt asks, “During the past 4 weeks, how much have you been bothered by any of the following problems” and lists different types of pain (e.g., stomach, back, chest, headache) along with dizziness, shortness of breath, and nausea among others. Each item is scored on a 3-point Likert-type scale from 0 (

subscales that measure CR and ES with both positive and negative tone items. Some sample items include “When I want to feel more positive emotion (such as joy or amusement), I change what I’m thinking about” (CR), “When I want to feel more negative emotion (such as sadness or anger), I change what I am thinking about” (CR), and “I keep my emotions to myself” (ES). Respondents score items on a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The scale was valid in measuring emotion regulation and Cronbach’s alpha coefficients ranged from .68 to .76 in the original study (Gross & John, 2003). The four samples in the original validation studies were racially and ethnically diverse ranging from 28% to 56% European American, 24% to 41% Asian American, 9% to 16% Latino, and 2% to 5% African American (Gross & John, 2003). The scale was also validated with East Asian American samples (Eng, 2012). Alpha coefficients in the current study for CR and ES were .86 and .76 for Chinese Americans and .86 and .79 for European Americans, respectively.

Results

Demographics, descriptives, and group comparisons for the Chinese American and European American samples are presented in Table 1. The mean CES-D scores seem consistent with other college student samples (e.g., Herman et al., 2011) but lower than community-dwelling Chinese American samples (Li & Hicks, 2010; Ying, 1988). Using Radloff’s (1991) proposed CES-D cutoffs of 16 or higher, 29.3% of European Americans and 31.2% of Chinese Americans reported mild to moderate depressive symptoms.

Based on independent *t* tests and chi-square tests, the two samples differed in generation status, age, class standing, and income (see Table 1). Whereas the two samples were comparable in terms of gender distribution, there were gender differences in one of the outcome variables. In particular, women ($M = 6.19$, $SD = 4.08$) had higher levels of somatic symptoms on the PHQ-15 than men, $M = 4.03$; $SD = 3.92$; $t(516) = -5.93$, $p < .001$, consistent with previous research (Kroenke & Spitzer, 1998). There was no ethnic difference in depressive symptoms on the CES-D alone. To disentangle the role of gender and ethnicity on the outcome variables further, a 2×2 MANOVA examined the effects of gender and ethnicity on somatic symptoms (PHQ-15) and depressive symptoms (CES-D) together (Table 2). Results revealed significant main effects for gender and ethnicity and a significant interaction (Gender \times Ethnicity) for somatic symptoms (PHQ-15) and depressive symptoms (CES-D). In particular, post hoc Tukey tests showed that European American females reported higher somatic symptom (PHQ-15) scores than any of the other three groups ($p < .01$). Chinese American males reported the highest CES-D scores compared with the other three groups. However, post hoc Tukey tests revealed that this difference did not reach statistical significance ($p = .057$). Generational status was not controlled because the study proposed to test the incremental value of ethnicity as a demographic predictor along with culturally relevant predictors in Hypothesis 3.¹

Hypothesis 1 was tested with multiple regressions controlling for gender, age, class, and income. The results revealed that European Americans reported higher somatic symptom (PHQ-15) scores than Chinese Americans (Table 3) and there was no difference in total CES-D scores or the somatic depressive CES-D subscales (Tables 4 and 5). The subscale CES-D analyses were performed because of possible response style bias on the CES-D positive subscale (e.g., Li & Hicks, 2010). Indeed, there was a significant difference in the CES-D positive subscale with Chinese Americans reporting higher scores than European Americans after the items were reverse-coded.

For Hypothesis 2, Pearson’s correlations for each sample and comparisons using Fisher *r*-to-*z* transformation and two-tailed significance tests (Meng, Rosenthal, & Rubin, 1992) showed that four correlations significantly differed between the two samples (see Table 6). In particular, the relationship between (a) depressive and somatic symptoms, (b) independent and interdependent

Table 1. Descriptive Statistics and Correlations of Study Variables

Variable	M (SD)	1	2	3	4	5
1. Loss of face	2.15 (.85)	1				
2. Embarrassment	2.35 (.95)	.45**	1			
3. Self-esteem	3.55 (.75)	-.25**	-.35**	1		
4. CR	2.85 (.65)	.15	.25**	-.15	1	
5. Independent self-construal	2.45 (.75)	.10	.15	-.25**	.35**	1

self-construal, and (c) CR and independent self-construal were stronger among European Americans and the relationships between loss of face and ES was stronger among Chinese Americans.

To test Hypothesis 3, a hierarchical linear regression was used with demographics (gender, age, class, and income) and ethnicity entered in Step 1, somatic symptoms in Step 2, and self-construal,

Table 3. K. β (SE) | $F(1, 100)$ | p | Chinese American = β | European American = β | Δ = β - β

Predictor	B	SE	t	p
Loss of face	.15	.02	4.5	<.001
Emotion regulation	.12	.03	4.0	<.001
Independent self-construal	-.08	.03	-2.5	.01
Cognitive reappraisal	-.05	.02	-2.2	.03

Note. $R^2 = .15$, $F(4, 100) = 2.5$, $p < .05$. Chinese American = β , European American = β , Δ = β - β .

Table 4. K. β (SE) | $F(1, 100)$ | p | Chinese American = β | European American = β | Δ = β - β

Predictor	B	SE	t	p
Loss of face	.10	.03	3.0	.002
Emotion regulation	.08	.03	2.5	.01
Independent self-construal	-.05	.02	-2.2	.03
Cognitive reappraisal	-.03	.02	-1.5	.13

Note. $R^2 = .10$, $F(4, 100) = 1.5$, $p = .20$. Chinese American = β , European American = β , Δ = β - β .

Table 5. K. β (SE) | $F(1, 100)$ | p | Chinese American = β | European American = β | Δ = β - β

Predictor	B	SE	t	p
Loss of face	.12	.02	5.0	<.001
Emotion regulation	.10	.03	3.0	.002
Independent self-construal	-.05	.02	-2.2	.03
Cognitive reappraisal	-.03	.02	-1.5	.13

Note. $R^2 = .12$, $F(4, 100) = 2.5$, $p = .05$. Chinese American = β , European American = β , Δ = β - β .

loss of face, and emotion regulation in Step 3. Table 7 shows the results, indicating that the predictors explained 31.8% of the variance in depressive symptoms. Somatic symptoms, loss of face, and ES were positively associated with depressive symptoms, whereas independent self-construal and cognitive reappraisal were negatively associated with depression. Ethnicity and gender predicted depressive symptoms in Step 2 but this was no longer the case when the psychological constructs (i.e., self-construal, loss of face, and emotion regulation) were added in Step 3.²

Discussion

This study examined the association of self-construal, loss of face, and emotion regulation with depressive and somatic symptoms among Chinese American and European American college students. The study's first goal was to investigate further whether Chinese Americans were likely to somatize distress by reporting more somatic symptoms in general and more somatic

Table 6. χ^2 (df, N) = 12.34 (1, 100)

depressive symptoms in particular compared with European Americans. There was no evidence that somatization defined in this way was more prominent among Chinese American college students. These findings go against the proposition that Chinese Americans may somatize distress more than European Americans by reporting somatic symptoms in place of affective depressive symptoms. The present results are consistent with the relatively scarce literature that Chinese Americans are not more likely to report higher levels of somatic complaints than European Americans (Mak & Zane, 2004; Ryder et al., 2008). In fact, in the current study, identifying as European American and female was associated with more somatic complaints. It is important to

note that Chinese Americans reported lower levels of positive affect than European Americans, which has previously been discussed as a potential explanation for elevated CES-D scores for this group (Li & Hicks, 2010; Ying, 1988). Yet, in this study, there was no difference in overall depressive symptom scores.

The second goal of the study was to examine three psychological constructs—self-construal, loss of face, and emotion regulation—and their relationship with depressive and somatic symptoms among Chinese American and European American college students. Only loss of face was endorsed more strongly by Chinese American college students compared with European American college students and this difference had a small effect size ($d = .17$). Although ES had a similar effect size ($d = .16$) and the Chinese American sample endorsed it at a higher level than the European American sample, this difference did not reach statistical significance ($p = .07$).

regulate negative emotions (Matsumoto et al., 2008). Moreover, another study showed that Asian Americans were “culturally trained” to suppress emotions by revealing a decrease in parietal late positive potential in comparison with European Americans (Murata, Moser, & Kitayama, 2013).

The third goal of the study was to explore possible ethnic differences in depressive and somatic

2. The hierarchical regression was also performed with CES-D without including the positive affect subscale as it has been problematic with Chinese and Chinese American participants. The results were similar to those reported in Table 7: Step 1: $R^2 = .004$, $F(5, 466) = .38$ (*ns*); Step 2: $R^2 = .19$, $F(6, 465) =$

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