Academic Stress and Positive Affect: Asian Value and Self-Worth Contingency as Moderators Among Chinese International Students

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The theoretical model proposed by Berry and colleagues (Berry, 1997; Berry, Kim, Minde, & Mok, 1987) highlights the importance of identifying moderators in the acculturation process. Accordingly, the current study examined the Asian cultural value of family recognition through achievement (FRTA) and contingency of self-worth on academic competence (CSW-AC) as moderators in the association between academic stress and positive affect among Chinese international students. A total of 370 Chinese international students completed online surveys. Results from a hierarchical regression indicated that while academic stress was negatively associated with positive affect, FRTA was positively associated with positive affect. In other words, those with high academic stress reported a lower level of positive affect. However, individuals who endorsed high levels of FRTA reported a higher level of positive affect. In addition, results also revealed a significant interaction between academic stress and CSW-AC on positive affect. Thus, the study’s finding supported the moderator role of CSW-AC. Simple effect analyses were conducted to examine the significant interaction. The results showed that higher levels of CSW-AC strengthened the negative association between academic stress and positive affect but lower levels of CSW-AC did not. Future research directions and implications are discussed.

Keywords: academic stress, family recognition through achievement, contingency of self-worth, moderator, Chinese international students

As the largest group of international students on most U.S. college campuses (Institute of International Education, 2011), Chinese international students enrich the cultural diversity of these schools with their perspectives and heritage (Heppner, 2006). While they gain the opportunity to expand their knowledge and worldviews in the United States, they also face adjustment difficulties. Research indicates that compared with European international students, Chinese students report more acculturative stress (Parr, Bradley, & Bingi, 1992; Yang & Clum, 1994), which in turn is associated with anxiety, depression, and physical symptoms (Allen & Cole, 1987; Lin & Yi, 1997; Mori, 2000). Acculturative stress refers to stress resulting from life changes in the process of adapting to a new cultural milieu (Ben-Sira, 1997; Berry & Annis, 1974). Acculturative stressors encountered by international students include language, educational stressors (e.g., a new and different education system), sociocultural stressors, discrimination, and practical stressors (e.g., accommodation issues; Smith & Khawaja, 2011). While many studies on international students have focused on acculturative stress in general, only a few studies (e.g., Misra & Castillo, 2004; Misra, Crist, & Burant, 2003) have examined a specific stressor such as academic stress. Even fewer studies (e.g., Yan & Berliner, 2009; Ying, 2005) have investigated Chinese international students’ experiences of academic stress. Given that academics is one of the most stressful aspects of Chinese international students’ lives in the United States, more research in this area is clearly needed.

Academic stress is a salient acculturative stressor for Chinese international students in the United States because of the added stressor of facing a language barrier and adapting to a new educational environment (Smith & Khawaja, 2011; Wan, 2001). Specifically, studying in a second language in the new country can negatively impact their writing of assignments, understanding of lectures, and ability to express their thoughts in the classroom (Chen, 1999; Mori, 2000). Also, because the Chinese education system focuses upon rote learning, these students find the interactive teaching style and critical thinking approach to learning in the United States challenging (Aubrey, 1991; Liberman, 1994). The learning difficulties these students face as a consequence of adjusting to a new language and education system have led researchers to consider academic stress a unique source of acculturative stress for international students (e.g., Smith & Khawaja, 2011).

Moreover, academic excellence is a central value in Chinese culture (Stevenson & Lee, 1996). As a result, Asian family socialization emphasizes the need to succeed educationally (Sue...
& Okazaki, 1990). Growing up in such culture, Chinese international students consider academic excellence as their personal goal and a way to make their family proud (Yan & Berliner, 2009). Although striving for academic excellence may help these students meet cultural expectations, it may also generate tremendous academic pressure. Research shows that for international students, academic-related problems are the most stress-provoking and are more persistent than social or personal problems (Hull, 1978; Klineberg & Hull, 1979). A longitudinal study reveals that Chinese international students rank academics as the greatest challenge (Ying, 2005). These studies suggest that understanding the impact of academic stress in this population is important. In addition, identifying factors (i.e., moderators) that may mitigate the negative impact of academic stress on positive psychological outcome is critical as this may suggest interventions to facilitate these students’ transition to living in the United States.

Academic Stress and Positive Affect

This study views academic stress experienced by Chinese international students as consisting of academic demands, difficulty with academic expression, and low level of English proficiency. Regarding academic demands, because of the incongruities between the educational systems in the Asian culture and the United States, Chinese international students may take longer to finish schoolwork and find it challenging to keep up with academic work. Research shows that international students’ academic stress consists of pressure associated with deadlines, work, responsibilities, and overload (Misra et al., 2003). The difficulty with academic expression involves struggles with expressing oneself adequately in writing and in class discussions. As the majority of Chinese international students were not in an English-speaking environment prior to coming to the United States, the language barrier is likely to diminish their ability to write papers and communicate effectively in class (Mori, 2000). A low level of English proficiency is likely to negatively impact Chinese international students’ academic performance and adjustment (Stoynoff, 1997). One study found that perceived English language skills have the greatest impact on international students’ appraisal of the stressfulness of academic situations (Wan, Chapman, & Biggs, 1992). Also, because English writing skills are related to Chinese international students’ academic achievement (Ying, 2003), low English proficiency is likely to be associated with academic difficulties.

In addition to the limited literature on academic stress among Chinese international students, only a few studies have examined positive emotion in this population (e.g., Pan, Wong, Chan, & Joubert, 2008). Most of the research with this student population has focused on acculturative stress and negative mental health outcomes such as depression (e.g., Wei et al., 2007). However, negative outcomes represent only one aspect of mental health. While positive psychological functioning has not been central in research with this population, it represents the other end of the spectrum of mental health. Positive affect (PA) is considered an aspect of subjective well-being (Diener, 1984). When faced with academic stress, Chinese international students are likely to experience low PA. One study revealed that Chinese students who experienced more academic problems upon arrival in the United States reported a higher depressed mood (Ying & Liese, 1991). Thus, the current study expected the association between academic stress and PA to be negative.

Theoretical Framework

Berry and colleagues’ (Berry, 1997; Berry, Kim, Minde, & Mok, 1987) theoretical model on acculturation depicts the process extending from acculturation experiences (e.g., academic changes) to adaptation (e.g., mental health outcomes). It also highlights moderators that influence this process of acculturation. This model is frequently employed as a framework for studying Chinese international students’ acculturation experiences (e.g., Wang & Mallinckrodt, 2006; Wang et al., 2012; Wei, Liao, Hepner, Chao, & Ku, 2012). In this model, the moderators that influence the association between acculturation and adaptation include the nature of the larger society, the acculturation group, the mode of acculturation, and the demographic, social, and psychological (e.g., self-worth) characteristics of individuals. Mode of acculturation refers to individuals’ responses to culture of origin versus new society (e.g., assimilation, separation, marginalization, integration). This model posits that these moderators play an important role in the mental health of acculturating individuals. Empirical support for this idea can be seen in Wei et al.’s (2012) study, which identified one aspect of acculturation mode (i.e., identification with heritage culture) as a moderator in the association between a culturally relevant coping strategy and psychological distress among Chinese international students. The current study investigates adherence to Asian value of family recognition through achievement (a component of acculturation mode) as a moderator.

Both the model of acculturation (Berry, 1997; Berry et al., 1987) and empirical finding (e.g., Wei et al., 2012) suggest that moderators need to be considered in the acculturation process. Indeed, Berry and colleagues (Berry, 1997; Berry et al., 1987) asserted that research ignoring the aforementioned moderators will be incomplete and unable to comprehend acculturating individuals’ experiences. Among the moderators proposed by Berry and colleagues, we examine a component of acculturation mode (i.e., adherence to Asian cultural values) and psychological variables (i.e., contingency of self-worth) as moderators that may alter the association between acculturation experience (i.e., academic stress) and psychological outcome (i.e., PA) among Chinese international students. By examining moderators, we also respond to a call by Zhang and Goodson (2011) who, after conducting a literature review on the adjustment of international students in the United States, indicated that there is a need for research studies to examine moderation processes to improve our understanding of these students’ psychosocial adjustment.

Asian Cultural Value as a Moderator

A core Asian value is family recognition through achievement (FRTA) which refers to the importance of bringing honor to the family by achieving academically and succeeding occupationally (Kim, Li, & Ng, 2005; Kim, Yang, Atkinson, Wolfe, & Hong, 2001). This value aligns with the Asian culture of collectivism in which the pursuit of socially and culturally mandated goals (academic achievement) is more important than personal goals (Yu & Yang, 1994). Lu and Gilmour (2006) also found that the subjective
well-being of Chinese individuals is closely linked to the fulfillment of role obligations (e.g., achieving academically) and the promotion of group (e.g., family) welfare. This suggests that adhering to FRTA to increase recognition and status for their families is likely to be significant for Chinese students.

There are different ways in which FRTA might alter the association between academic stress and PA. For some Chinese international students, adherence to FRTA may lessen the negative association between academic stress and PA. In particular, FRTA may function as a source of motivation and resiliency for students to continue to persist in their academic endeavor in spite of their academic difficulties (Phinney, 1990). That is, students with high levels of FRTA could focus on learning and self-improvement. The motivation associated with FRTA could help these students regulate and endure low PA because of academic stress. Students who adhere to FRTA also may feel purposeful as they work toward a goal (academic achievement) that is shared with their family (Lu & Gilmour, 2006). Thus, for some Chinese international students, FRTA may protect them from low PA when facing academic stress.

Alternatively, for other Chinese international students, FRTA may be a source of pressure that enhances the negative association between academic stress and PA. Specifically, those who adhere to FRTA may view academics as their obligation and social responsibility (Tao & Hong, 2000) and thus experience the pressure to excel academically. Also, when these students encounter academic stress, they may experience decreased PA as they perceive that they cannot fulfill their family’s expectations and in turn lose prestige/face for themselves and their family. The pressure associated with high FRTA may thereby strengthen the negative association between academic stress and PA. This study hypothesized FRTA as a moderator in the association between academic stress and PA. It is reasoned that external CSWs (e.g., FRTA) are difficult to satisfy, are dependent on others’ approval, and are often outside one’s control (Crocker & Wolfe, 2001). Indeed, students with high CSW-AC (external contingency) may function as a source of motivation and resiliency for students and maintain their self-worth. In addition, they may construe academic stress as a common experience for international students and maintain their self-worth. In addition, they may attribute academic stress to lack of skills rather than to a character flaw or inadequacy (Bartmess, 2002). Also, those with low CSW-AC may be less fearful of mistakes and more open to learning (Bartmess, 2002), which may help improve their academic performance and lower their academic frustration. Accordingly, low CSW-AC may ameliorate the negative association between academic stress and PA among Chinese international students.

In sum, the current study has three hypotheses. First, there would be a main effect of academic stress on PA. Specifically, academic stress would be negatively associated with PA. Second, FRTA would moderate the association between academic stress and PA. As discussed above, we did not advance a hypothesis for the direction of moderation. Third, high (but not low) levels of CSW-AC would strengthen the negative association between academic stress and PA.

Contingency of Self-Worth on Academic Competence as a Moderator

The theory of contingency of self-worth (CSW) states that individuals stake their self-worth in different areas (e.g., others’ approval, appearance, academic competence, etc.) and determine their worth by their successes and failures in these domains (Crocker & Wolfe, 2001). The theory indicates that one’s particular domain of CSW is often shaped by socialization. The main goals of Chinese socialization are to instill the importance of educational achievement (Ho, 1991), which, over time, may cultivate CSW based on academic competence in Chinese international students. One’s CSW is also likely to be tied to his or her self-standards and goals (Crocker & Wolfe, 2001). Chinese individuals’ self-goals are often linked to their familial/socially goals of academic achievement (Yang & Yu, 1989). Altogether, the importance of academics as part of their self-concept suggests that Chinese international students are likely to base their CSW on academic competence (CSW-AC).

Chinese international students with high levels of CSW-AC may be vulnerable to low PA when facing academic stress. These students may experience a sense of inadequacy, dwell on their setbacks, and make internal attributions (Crocker, 2002), all of which may be associated with low PA. This is consistent with the CSW theory which indicates that as domains of CSW are important to one’s identity, failures occurring in these areas can result in negative emotions (Crocker & Wolfe, 2001). Empirically, studies have shown that students with high CSW-AC reacted more negatively (e.g., decreased PA) to poor academic performances than those with low CSW-AC (Burhans & Dweck, 1995; Crocker, Sommers, & Luthanen, 2002).

Moreover, CSW-AC is an external source of contingency which is associated with greater negative psychological outcomes than contingencies based on internal resources (e.g., virtue or God’s love; Crocker & Wolfe, 2001). It is reasoned that external CSWs (e.g., CSW-AC) are difficult to satisfy, are dependent on others’ approval, and are often outside one’s control (Crocker & Wolfe, 2001). Indeed, students with high CSW-AC (external contingency) study more and engage in an endless pursuit of accomplishment, yet do not actually get higher grades compared with students who are less contingent in this domain (Crocker & Luthanen, 2003). The former are also more likely than the latter to experience academic problems and pressure (Covington, 2000; Deci & Ryan, 1995; Dweck, 2000; Steele, 1997).

Conversely, Chinese international students with low CSW-AC may be less vulnerable to low PA when facing academic stress. They may construe academic stress as a common experience for international students and maintain their self-worth. In addition, they may attribute academic stress to lack of skills rather than to a character flaw or inadequacy (Bartmess, 2002). Also, those with low CSW-AC may be less fearful of mistakes and more open to learning (Bartmess, 2002), which may help improve their academic performance and lower their academic frustration. Accordingly, low CSW-AC may ameliorate the negative association between academic stress and PA among Chinese international students.

Method

Participants

A total of 370 Chinese international students participated in the study. Their countries of origin were China (n = 365), Taiwan (n = 3), and Hong Kong (n = 1; one person indicated “other”). In this sample, 189 (51%) students were male and 181 (49%) students were female. The mean age of the participants was 23.7 (SD = 4.1; range = 18–41 years old). Participants reported an average length of time of 2.1 year of living in the United States (SD = 1.7). Half of the students were graduate students (n = 188; 51%) and the rest were undergraduate students (n = 168; 45%) (14 students answered “other”). Regarding their relationships status, 179 (48%) were single, 125 (34%) were in a dating relationship, 60 (16%) were married, 2 (1%) were divorced, and 4 (1%) indicated “other.”
The average GPA was 3.6 ($SD = 0.3$; range = 2.0–4.0). Participants’ academic majors were 32% ($n = 119$) engineering, 24% ($n = 88$) liberal arts and sciences, 22% ($n = 81$) business, 11% ($n = 40$) agriculture and life sciences, 5% ($n = 20$) design, and 3% ($n = 10$) human sciences (two people did not state their major and 10 participants answered “other”). Among Chinese American students (American-born and immigrants), the coefficient alphas were .75 and .79 (Ying et al., 2004).\(^1\) The validity of the overall ICCEMS was supported by a positive association with depression and a negative association with GPA among Chinese American students (Ying et al., 2004). The 5-item EPS assesses English proficiency in writing, reading, listening, speaking, and the overall levels. The EPS has a 5-point Likert-type scale ranging from 1 (very poor) to 5 (very good). Coefficient alpha of EPS was .86 in the current study and .89 in Wei et al.’s (2012) study. Scores on the EPS correlated positively with length of time in the United States and negatively with acculturative stress in a sample of Chinese international students (Wei et al., 2012). Academic stress is a composite score of summing the standardized scores of the two subscales from ICCEMS and the EPS. The total scale reliability for academic stress was .85.

### Procedure

Participants were recruited from two Midwest institutions, one West Coast, and one East Coast institution. At one of the Midwest institutions, 655 students from a list of international students from China, Hong Kong, and Taiwan were asked if they would like to participate in an online study related to international students’ learning experiences in the United States. A total of 635 agreed to participate while 20 declined. At the other three institutions, leaders of the Chinese Student and Taiwanese Student Associations assisted in sending the study’s invitation email to their organizations’ listservs.

An invitation email was sent to those who agreed to participate ($n = 635$). An informed consent statement was provided at the beginning of the survey. Participants were informed that the survey would take about 15 min to complete. Participants were asked to provide their contact information if they would like to enter a drawing for 1 of 10 $20 gift cards.

A total of 422 actually completed the survey from the original 635 people who agreed to participate. However, 37 people had incomplete data. A total of 58 people answered incorrectly on the validity item (i.e., “Please answer 2 for this item.”) and were removed from the analysis. This resulted in a total of 327 participants who had complete data, which is 50% of the initial pool of 655 participants (i.e., from the phone list). A total of 27 participants from the second Midwest institution, 5 from the West Coast, and 11 from the East Coast participated in the study. The total sample was thus 370. To increase the generalizability of the results, data from these students were collapsed together (Note: The significant pattern of results that are presented below was the same with or without the inclusion of students from these three other institutions). A total of 321 (87%) participants filled out the Simplified Mandarin Chinese version of the survey, 44 (12%) people completed the English version, and 5 (1%) people filled out the Traditional Mandarin Chinese version.

### Instruments

All measures were translated from English to Traditional Mandarin Chinese and Simplified Mandarin Chinese based on the three-step translation process described by Brislin (1970, 1980).

**Academic stress.** Academic stress was measured by the Inventory of College Challenges for Ethnic Minority Students (ICCEMS; Ying, Lee, & Tsai, 2004) and the English Proficiency Scale (EPS; Wei et al., 2012). The ICCEMS has a Likert-type scale ranging from 0 (a little) to 4 (all the time). The 3-item Academic Demands subscale assesses distress because of struggles with academic challenges. The 2-item Difficulty with Academic Expression subscale assesses the current level of stress associated with difficulties in expressing oneself in academic settings. In the current study, the coefficient alphas for academic demands and difficulty with academic expression were .70 and .73, respectively.

The reliability of the 2-item Difficulty with Academic Expression subscale was calculated based on the formula of $2r/1 + r$, where $r$ is the correlation coefficient between the two items.

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\(^1\)The reliability of the 2-item Difficulty with Academic Expression subscale was calculated based on the formula of $2r/(1 + r)$, where $r$ is the correlation coefficient between the two items.
we first conducted analyses of variance (ANOVAs) to examine whether PA varied as a function of the demographic variables including sex, years in school, relationship status, socioeconomic status, and academic major. The results indicated no significant effects. Second, a correlation analysis was conducted for the continuous variables including age, length of time in the United States, and GPA. No significant correlations with PA were found. There was a minimal amount of missing data in participants’ responses, ranging from 0.003% for the measure of academic stress to 0.005% for FRTA.

Moderator Analysis

Standardized academic stress, FRTA, and CSW-AC were used in a hierarchical multiple regression analysis (Aiken & West, 1991; Frazier, Tix, & Barron, 2004). Academic stress, FRTA and CSW-AC in Step 1 accounted for 9% of the variance in PA (Table 2). Academic stress \( (b = -1.13, \beta = -0.27, p < .001) \) and FRTA \( (b = 1.17, \beta = 0.16, p < .01) \) significantly predicted PA. Thus, there were main effects of academic stress and FRTA on PA. In Step 2, the two interaction terms of Academic stress \( \times \) FRTA and Academic Stress \( \times \) CSW-AC accounted for 3% of the variance in PA (Table 2). Only Academic Stress \( \times \) CSW-AC was significant in predicting unique variance in PA \( (b = -0.55, \beta = -0.14, p < 0.05) \). This finding provided support for CSW-AC as a moderator. We conducted a simple effects analysis to explore the nature of this two-way interaction. One standard deviation above and below the mean of CSW-AC was calculated (Cohen, Cohen, West, & Aiken, 2003) to plot the two-way interaction. As seen in Figure 1, the simple slope for the higher levels of CSW-AC was significant \( (b = -1.63, \beta = -0.4, p < .001) \), but the simple slope for the lower CSW-AC was not. Thus, higher CSW-AC strengthened the negative association between academic stress and PA. In contrast, at lower levels of CSW-AC, the negative association between academic stress and PA was not significant.

Discussion

The results supported the study’s first hypothesis of the main effect of academic stress on PA. Previous study has shown that difficulties with academics are associated with negative mental health outcomes such as depression among Chinese international students (Ying & Liese, 1991). The current study’s results are consistent with existing findings. More importantly, this study extends the literature on Chinese international students’ adjustment by elucidating the negative impact of academic stress on their positive psychological functioning. With the cultural emphasis on academic excellence and the perceived obligation to achieve academically, (Tao & Hong, 2000), academic stress is likely to be associated with vulnerability to low PA among Chinese international students. Given the paucity of research centered on academic stress in Chinese international students, this study’s results point to the significance of examining this specific stressor in this population.

Based on Berry and colleagues’ (Berry, 1997; Berry et al., 1987) acculturation framework, this study investigated two potential moderators. The results did not support the second hypothesis of FRTA as a moderator. However, the study’s finding showed that CSW-AC was a moderator in the association between academic stress and PA, thus providing support for the study’s third hypothesis. At higher levels of CSW-AC, academic stress was negatively associated with PA. Perhaps, when facing academic stress, Chinese international students with higher levels of CSW-AC experience low PA as they engage in self-blame, view academic stress as a reflection of their flawed character, and dismiss other positive aspects of their lives. This sense of inadequacy combined with academic stress might be associated with lower levels of PA. Conversely, lower levels of CSW-AC lessened the negative association between academic stress and PA. Students with lower levels of CSW-AC may be less likely to doubt their self-worth and may still view themselves positively when they encounter academic stress (Crocker & Wolfe, 2001). Instead of focusing on setbacks and hopelessness when facing academic stress, these students may motivate themselves and concentrate on tasks that will improve their learning and performance. Accordingly, lower levels of CSW-AC may protect these students from low levels of PA associated with the constant worry about one’s academic performance.

The above finding provides support for the theoretical proposition that CSW based on a particular domain in conjunction with negative life events occurring in that domain constitutes a risk factor for mental health outcomes (Crocker & Wolfe, 2001). The study’s finding also supports the notion that external contingencies are likely to be associated with poor mental health (Crocker & Wolfe, 2001). Our results indicate that instead of focusing on learning per se, Chinese students with high CSW-AC may focus externally and be preoccupied with their academic performance, which may be associated with greater stress (Crocker & Luhtanen, 2003).

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Academic stress</td>
<td>—</td>
<td>—</td>
<td>.09</td>
<td>.10</td>
<td>−.26**</td>
</tr>
<tr>
<td>2. FRTA</td>
<td>60.64</td>
<td>13.98</td>
<td>.48**</td>
<td>.11</td>
<td>−.00</td>
</tr>
<tr>
<td>3. CSW-AC</td>
<td>25.03</td>
<td>4.14</td>
<td>−.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Positive affect</td>
<td>24.47</td>
<td>7.23</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Note. \( N = 370 \). FRTA = Family Recognition through Achievement; CSW-AC = Contingency of Self-Worth on Academic Competence. Academic stress is a composite scale and its scores have been standardized.

\( p < .05 \). \( ** p < .01 \).

Footnote

We also conducted a separate regression analysis with just having CSW-AC as a moderator. The results indicated that the interaction term of Academic Stress \( \times \) CSW-AC predicted significant increment of variance in PA \( (\Delta R^2 = .04, p < .001) \).

\( 3 \) We explored whether the study’s results would be different for different grade levels and age levels. First, we conducted a three-way interaction of Grade Level (two levels: undergraduate and graduate students) \( \times \) Academic Stress (includes English proficiency) \( \times \) CSW-AC on PA. The three-way interaction was not significant, suggesting that the significant two-way interaction of Academic Stress \( \times \) CSW-AC on PA is not a function of participants’ grade level. Second, we conducted a three-way interaction of Age \( \times \) Academic Stress \( \times \) CSW-AC to explore whether the two-way interaction of Academic Stress \( \times \) CSW-AC on PA varied as a function of participants’ age. This three-way interaction was not significant. These results suggest that the significant two-way interactions found in the study do not vary with grade level or age level.
Table 2
Hierarchical Multiple Regression Analysis Examining Family Recognition Through Achievement (FRTA) and Contingency of Self-Worth on Academic Competence (CSW-AC) as Moderators in the Association Between Academic Stress and Positive Affect

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>se²</th>
<th>ΔR²</th>
<th>ΔF(df)</th>
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<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
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<tr>
<td>Academic stress</td>
<td>−1.13 [−1.56, −0.71]</td>
<td>.21</td>
<td>−.27***</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRTA</td>
<td>1.17 [0.37, 1.98]</td>
<td>.41</td>
<td>.16**</td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSW-AC</td>
<td>−0.39 [−1.20, 0.42]</td>
<td>.41</td>
<td>−.05</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.03</td>
<td>6.79***</td>
</tr>
<tr>
<td>Academic stress × FRTA</td>
<td>−0.28 [−0.72, 0.16]</td>
<td>.22</td>
<td>−.07</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic stress × CSW-AC</td>
<td>−0.55 [−0.98, −0.12]</td>
<td>.22</td>
<td>−.14*</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 370. FRTA = Family Recognition through Achievement; CSW-AC = Contingency of Self-Worth on Academic Competence.

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

More important, our finding extends the CSW theory to Chinese international students. Although Crocker and Park (2004) argued that the pursuit of self-worth is a phenomenon observed in an individualistic culture, this study suggests that CSW can incur psychological costs (low PA) in individuals who come from the Chinese collectivistic culture. This contrasts with the general belief that the self is only a concern in individualistic Western societies. The CSW domain examined in this study appears congruent with the Chinese culture’s emphasis on education and can perhaps be viewed as a culturally relevant moderator that influences Chinese students’ adaptation.

Although the results did not support FRTA as a moderator, there was a main effect of FRTA on PA. Specifically, the results revealed a positive association between FRTA and PA (b = 1.17, β = .16, p < .01). This suggests that endorsing FRTA is associated with positive psychological outcome. This finding is not surprising given that achievement is regarded as the most important objective in Chinese family socialization (Yang, 1986) and that family is perceived as more important than the individual self within the Chinese culture (Yang, 1997). It may be the case that when Chinese students attain educational achievement, they feel positive as it fulfills their familial expectations. The positive impact of FRTA on PA is also consistent with previous research that demonstrated subjective well-being in Asian culture is associated with the fulfillment of one’s social role obligations (e.g., filial piety, achieving academically; Lu & Gilmour, 2006). More broadly, our finding also indicates there is inherent psychological benefit in maintaining cultural values in Chinese students. Conversely, the abandonment of traditional values has been found to relate to increased depressive symptoms among Korean immigrants (Oh, Koeske, & Sales, 2002).

In sum, the study’s findings of CSW-AC as a moderator confirmed Berry and colleagues’ theoretical proposition regarding the importance of examining moderators in the acculturation process. Our results indicate that psychological variables (e.g., CSW-AC) are critical moderators in Chinese international students’ adjustment process. This study further demonstrates that CSW-AC contributes significantly to the impact of academic stress on these students’ positive psychological functioning. Equally important, within the international student literature, our results also confirm Zhang and Goodson’s (2011) call for more research to investigate moderators that have important roles in the international students’ psychosocial adjustment to the life in the United States.

Limitations, Future Research Directions, and Implications

In this study, there were very few students from the East and West Coast institutions. Although the significant pattern of the results is the same with or without students from East and West Coast institutions, more students from these institutions will be needed in future studies. Moreover, online survey data collection was employed at these schools. This method might have prevented random sampling. The majority of participants came from China; therefore, the study’s results are not generalizable to other Asian subgroups of international students. As with any cross-sectional studies, our results do not infer causality among the variables. However, as mentioned previously, there is limited research on academic stress and Chinese international students. Accordingly, this cross-sectional study provides valuable information for future investigations. The concept of CSW was originally conceived in Western culture and thus it may have different meanings and serves different functions in Chinese culture. For example, the pursuit of self-worth may be a Western rather than an Eastern phenomenon because the West is concerned with self-enhancement whereas the East emphasizes self-criticism (e.g., Kitayama, Markus, Matsumoto, & Norsakunkit, 1997).

The study’s finding indicated significant interaction between academic stress and CSW-AC. Future studies may examine pro-

Figure 1. The interaction effect of academic stress and CSW-AC on positive affect. CSW-AC = Contingency of Self-Worth on Academic Competence. *** p < .001.
tective factors in the context of Chinese culture that may attenuate the negative impact of high levels of CSW-AC on academic stress. Moreover, because of the interdependent nature of the Chinese collectivistic culture, it may be culturally relevant to examine how self-worth contingencies of family support and approval from others may also affect Chinese students’ mental health. Chinese international students tend to somatize the effects of emotional distress into physical illnesses (Essandoh, 1995). Future studies may examine the effects of academic stress on these students’ physical health.

Chinese international students’ need for mental health services may be overlooked because of the model minority myth regarding their academic achievement. This study suggests that counselors may need to be aware of the association between academic stress and low PA when working with this population. In addition, counselors need to know that endorsing higher level of CSW-AC can also be an additional source of pressure for Chinese international students when they encounter academic stress. Counselors can assess these students’ CSWs, especially CSW-AC, and educate them on the psychological cost associated with pursing self-worth in academics. It has been found that the more CSW a person has, the more psychological resources the person has at his or her disposal for self-affirmation when facing negative events (Spencer, Josephs, & Steele, 1993). Accordingly, Chinese students can be encouraged to expand the areas on which they base their self-worth, especially in areas that are less dependent on external sources. Lastly, the study’s results revealed that FRTA is positively correlated with PA among Chinese international students. Counselors can help students become aware of the inherent value of FRTA and feel proud of this particular Asian value. Future studies may continue to examine additional positive influences it may have on Chinese students’ mental health and whether there are situations in which this Asian value becomes a source of stress for them.

References


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