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Longitudinal Relations between Emotion Restraint Values, Life Stress, and Internalizing Symptoms Among Vietnamese American and European American Adolescents

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Abstract

Objective: Recent research has documented cultural differences in the extent and manner in which various forms of emotion regulation are linked with psychological well-being. Most of these studies, however, have been cross-sectional, nor have they directly examined the values underlying the use of emotion regulation. The present study examined emotion restraint values and their interactions with life stress in predicting internalizing symptoms across time among Vietnamese American and European American adolescents. The study focused on adolescence as a critical developmental period during which life stress and internalizing symptoms increase significantly.

Method: Vietnamese American ($n = 372$) and European American ($n = 304$) adolescents' levels of emotion restraint values, internalizing symptoms, and stress were assessed at two timepoints six months apart.

Results: Results indicated differential associations between emotion restraint values, stress, and symptoms over time for the two groups. For Vietnamese American adolescents, emotion restraint values did not predict depressive, anxiety, or somatic symptoms. For European American adolescents, emotion restraint values predicted higher somatic symptoms but buffered against the effects of interpersonal stress on anxiety and depressive symptoms.

Conclusions: These results provide increased understanding of the role of values related to emotion restraint in shaping adolescent internalizing symptoms and responses to stress across cultural groups. Implications of the findings for guiding intervention efforts are discussed.

Keywords

Emotion Restraint Values; Life Stress; Internalizing Symptoms; Culture; Vietnamese American

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Introduction

Beliefs about emotions, such as whether they are controllable and / or desirable, differ across people and across cultures. There is a small but growing literature that suggests that such emotion regulation beliefs are linked to important mental health and interpersonal outcomes. One approach to understanding these effects is the sociocognitive model of implicit theories (Molden & Dweck, 2006). This perspective suggests that people hold either entity theories or incremental theories about emotion regulation. Entity beliefs about emotion regulation reflect the belief that emotions are fixed and difficult to change; thus, persons with these beliefs are less likely to attempt to modulate their emotions. Conversely, incremental beliefs about emotion regulation reflect the belief that ones' emotions are malleable; thus, person with such beliefs are more likely to make efforts to control their emotions. Such beliefs about emotion regulation are an important part of the emotion regulation process as they shape individuals' motivation and tendencies to use various emotion regulation strategies (Mauss, Cook, & Gross, 2007), which in turn influences their psychological well-being (Ford et al., 2018). Tamir and colleagues (2007) found, for instance, that persons who believe that emotions are changeable engage in cognitive reappraisal more frequently than those who do not, which in turn results in fewer depressive symptoms and greater psychological well-being. Given that many mental health problems are linked to problems with emotion regulation (Keltner & Kring, 1998; Kring, 2010), a deeper understanding of the values and beliefs underlying emotion regulation is critical.

Beliefs about emotion regulation can take a number of forms. In addition to beliefs about emotions' controllability, another central domain of beliefs is the extent which different emotions are seen as undesirable or indicative of weakness (e.g., "only weak people are sad"). These beliefs also can in contrast focus on emotion restraint as an indicator of maturity or social competence (e.g., "controlling the amount of anger one shows during a conflict is an indicator of personal maturity"). Such "emotion restraint values" may be of particular importance during adolescence, as this is a developmental period when the complexity of interpersonal relationships, levels of stress, and internalizing symptoms such as anxiety and depression increase dramatically (Brumariu & Kerns, 2010). Although emotion restraint behavior has been investigated in several studies (e.g., Bariola, Gullone, & Hughes, 2011), there are few studies have directly examined the underlying values that govern emotion display, and the associations of these values with mental health and well-being. In addition, among this relatively small number of studies, most have involved adults and are limited by cross-sectional designs. Although research with college students provides evidence for the predictive power of beliefs about emotion regulation (e.g., Su, Wei, & Tsai, 2014; Wei et al., 2013), emotion restraint values has infrequently been studied among adolescents. Finally, to the best of our knowledge no published study has examined how emotion restraint values interact with other risk factors for mental health problems (e.g., stressful life experiences). Understanding these relationships during this critical development period can facilitate the understanding of socio-emotional development, potentially providing a new target for intervention for stress- and mood-related disorders. Thus, the current study examined longitudinal relations between emotion restraint values, life stress, and internalizing symptoms among Vietnamese American and European

American adolescents, two groups from different cultural backgrounds that vary in their valuation of emotion restraint and related processes.

Emotion restraint values as moderator of the stress-internalizing symptoms link

Internalizing symptoms represent a major domain of mental health problems and are characterized by internal (as opposed to overt behavior) symptoms (e.g., sadness, anxiety, and somatic complaints; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000; Brumariu & Kerns, 2010). They are among the most common forms of psychopathology impacting adolescents, and it thus is critical to investigate individual differences that lead to their development. For instance, adolescents with high levels of life stress have been found to be at increased risk for elevated internalizing symptoms in both cross-sectional (Compas, 1987) and longitudinal (Rudolph, Lambert, Clark, & Kurlakowsky, 2011) research.

However, not all adolescents are equally susceptible to the negative effects of life stress. Emotion restraint values and inhibitory control over emotional impulses have been identified as possible moderators of the effects of life stress on internalizing symptoms (Eisenberg et al., 2009; Rothbart & Bates, 2006). Inhibitory control, the capacity to plan and intentionally suppress emotion and behavior, has been found to be protective against development of emotional and behavioral problems (Eisenberg et al., 2009; Tangney, Baumeister, & Boone, 2004). Inhibitory control over emotional impulses is believed to reduce the impact of negative affectivity by shifting the individual's attention away from ruminative, maladaptive thoughts to a focus on neutral or positive thoughts and activities (Derryberry & Reed, 2002; Eisenberg et al., 2009). Relatedly, adolescents may hold emotion restraint values that encourages the down-regulation of negative affect, which may support adaptive inhibitory control in ways that reduce internalizing symptoms in response to stress. Such values may help to reduce emotional reactivity to daily stressors that elevates risk of depressed mood in adolescents (e.g., Schneiders et al., 2006). Emotion restraint values may particularly function to dampen negative affectivity in response to stressors in interpersonal domains, as emotion restraint is often motivated by the goals of avoiding conflict and promoting harmony with others.

On the other hand, it is possible that emotion restraint values can exacerbate internalizing symptoms associated with stress, due to an increased motivation to suppress one's emotions during interpersonal conflicts (Wei et al., 2013; Su et al., 2014). In fact, over-reliance on expressive suppression has been linked to lower life satisfaction and social support, and greater depressive symptoms among both adults (Aldao, Nolen-Hoeksema, & Schweizer, 2010) and adolescents (Southam-Gerow & Kendall, 2002). Although there is evidence that expressive suppression is maladaptive for well-being (John & Gross, 2004), it is unknown whether emotion restraint values function similarly to expressive suppression for psychological well-being. Furthermore, studies have not examined the potential moderating role of emotion restraint values regarding the effects of stressful life experience on psychological well-being.

Culture and Emotion Restraint Values

Many studies have documented differences in family socialization practices and cultural values between Asian and non-Asian groups (Lin & Liu, 1993; Jang, 2002). As such, emotion restraint values and their effects on life stress and internalizing symptoms may be shaped by variations in norms for emotion regulation across East Asian and Western cultures (Markus & Kitayama, 1991; Tsai & Lu, 2018). Independent self-construals reflect a view that the self is unique, autonomous (from other persons), and defined by personal goals and attributes, with open expression of emotions encouraged as a mechanism of self-expression and self-assertion (Markus & Kitayama, 1991; Matsumoto, 2007). Independent self-construals tend to be higher among individuals of European heritage and have been found to be associated with lower levels of emotion restraint values. As such, children within an independent self-construal cultural context are encouraged to share their opinions and express their emotions from a young age (Matsumoto, 1990). In contrast, interdependent self-construals emphasize the importance of interpersonal relationships over personal goals, and places centrality on fitting in and maintaining social harmony. Interdependent self-construals tend to be higher among individuals of Asian heritage. Because of the high value placed on interpersonal relationships, Asian individuals tend to be socialized to hold emotion restraint values that encourage them to suppress their emotions to preserve social harmony. For example, Chinese adolescents have been found to implicitly evaluate the down-regulation of emotions (i.e., controlling and containing emotions) as more positive than the expression of emotion and disclosure of distress (Deng, Sang, & Chen, 2017). Taken together, these and related studies suggest that children of Asian descent are socialized to value emotion restraint, and the internalization of these values is evident in childhood and adolescence.

Thus, whether emotion restraint values amplify or buffer the effects of life stress on internalizing symptoms may be dependent on the extent that the values are culturally congruent with normative approaches to emotion regulation. Research suggests that optimal outcomes probably occur when individuals employ emotion regulation strategies that they believe are beneficial (Tamir, Chiu, & Gross, 2007; Ford et al., 2018). Thus, emotion restraint values may be protective for Vietnamese Americans whose interdependent self-construals prioritize group concerns and social harmony, whereas in contrast, emotion restraint values may be maladaptive for European Americans whose independent self-construals prioritize autonomy and self-assertion including emotion expression.

Using a sample of European American and Vietnamese American adolescents, the purpose of the present study was to examine the extent to which relations between emotion restraint values, life stress, and internalizing symptoms showed cross-cultural differences in patterns as discussed above. We assessed stress in family, peer, and academic domains with three internalizing symptom domains (i.e., depressive, anxious, and somatic symptoms) as the outcomes, given the effects of expressive suppression on psychological (i.e., depressive and anxious symptoms) versus somatic symptoms has sometimes found to differ (e.g., Tsai & Lu, 2018). Interpersonal and academic stress were assessed separately, as relations between internalizing symptoms and different domains of stress have been found to differ (e.g., Adrian & Hammen, 1993). We evaluated two competing hypotheses regarding the

moderating role of emotion restraint values in the stress-internalizing symptoms link. The first hypothesis posited that high levels of emotion restraint values would be protective for both cultural groups, reducing the effects of stress on internalizing symptoms by preventing the escalation of interpersonal conflicts. The second hypothesis, contrastingly, was based on cultural-congruence theory, which posits that emotion restraint values are protective to the extent that they are culturally-congruent with their cultural heritage's approach to emotion regulation. Following this perspective, we predicted that Vietnamese American adolescents would not suffer negative consequences of emotion restraint values but rather buffer against internalizing symptoms associated with stress. In contrast, due to the incongruence between emotion restraint values and an independent self-construal that prioritizes self-assertion and emotional expression, under the second hypothesis it was predicted that European American adolescents would experience negative consequences of emotion restraint values. Specifically, emotion restraint values were hypothesized to independently (of stress) predict higher internalizing symptoms among European American adolescents.

Methods

Participants and Procedure

The sample was drawn from a larger study examining stressful life experiences, coping, and mental health among Vietnamese Americans and European American 10th and 11th grade students. Participants were recruited from 10 ethnically diverse public high schools in California. The schools were from lower-income and middle-income communities, with five of the schools designated as Title 1 eligible; across the ten schools the percent of students who qualified for free or reduced lunches ranged from 12% to 77%. The schools varied in student ethnic composition, with 1.7% to 59.6% of the students identified as European American, 8.1% to 76.0% as Asian American, and 14.5% to 57.1% as Latino (California Department of Education, n.d). European Americans were the largest ethnic group in three schools, Asian Americans were the largest ethnic group in four schools and Latino Americans were the largest ethnic group in three schools. For more detailed description of recruitment procedures, see Tsai et al. (2017). Study procedures were approved by the Institutional Review Boards at the University of California – Los Angeles, and Vanderbilt University. In the larger study that the current sample was drawn from, a total of 730 Vietnamese Americans 494 European (N = 1,224) Americans participated in the baseline (T1) survey. The study sample included the 676 students involved in the prospective, six-month follow-up (T2) from the T1 survey of 1,224 participants. These 676 students were selected by balancing gender and ethnicity, and stratifying the sample across low, medium, and high levels of stressful life events, which was not part of the present study.

Three hundred and seventy-one Vietnamese Americans (48.2% males; 39.9% sophomores; 59.8% juniors) and 304 European Americans (47.2% males; 49.8% sophomores; 50.2% juniors) completed a self-report questionnaire battery, and the adolescent version of the University of California, Los Angeles (UCLA) Life Stress Interview (Adrian & Hammen, 1993) at T1 and at T2. The average age was 15.60 ($SD = 0.66$) for the European Americans and 15.55 ($SD = 0.59$) for the Vietnamese Americans. Among the Vietnamese Americans, 79.3% were born in the United States. Among the foreign-born Vietnamese

Americans, the average number of years in the U.S. was 7.42 ($SD = 0.40$). Vietnamese American adolescents were more likely than European American adolescents to be first or second generation, $\chi^2(2) = 502.52$, $p < .001$. About 32.3% of Vietnamese American fathers, 35.6% of Vietnamese American mothers, 44.4% of European American fathers, and 52.9% of European American mothers had a college degree or higher; European American adolescents were more likely than Vietnamese American adolescents to have a father or mother with a college education, $\chi^2(4) = 17.77$ and 66.873, both ps $< .01$, respectively.

Measures

Emotion restraint values.—Adolescents' emotion restraint values were assessed using a measure designed for this study, containing 10 items, with emotion restraint values items derived from the Asian Values Survey (Kim, Atkinson & Yang, 1999). Five reverse-coded items focused on valuation of emotion expression (e.g., "It's healthy to express feelings like anger and pride, even if it bothers someone.") and five items focused on valuation of emotion restraint (e.g., "Mature people keep their emotions to themselves"). Participants responded to each item on a 6-point Likert scale (1 = "Strongly Disagree" to 6 = "Strongly Agree"). We conducted a multigroup confirmatory factor analysis to examine metric invariance following steps outlined in Brown (2006). In the first unconstrained model, the factor loadings and item intercepts were allowed to differ across groups. In the metric invariance model, factor loadings were constrained to be equal and compared to the unconstrained model. We found that there was a significant difference in model fit, which suggests that the factor loadings were variant across groups. To achieve a scale of emotion restraint values with metric equivalence across the two groups, we removed the 5 reverse-coded items that focused on valuation of emotion expression and retained only the 5 items focused on valuation of emotion restraint. With the 5 emotion restraint values items, there was not a significant difference in model fit, which suggested that the 5-item emotion restraint scale demonstrated metric invariance in factor loadings across cultural groups ($\chi^2(4) = 1.69$, $p = .79$). Although we established metric invariance, we then tested for scalar invariance in which both factor loadings and intercepts were constrained to be equal across groups. We found that we cannot assume strong invariance because the fit of the strong invariance model was significantly poorer than the fit of the metric invariance model ($\chi^2(4) = 22.33$, $p < .01$), suggesting that group mean differences on the scale should not be interpreted.

At T2, we added the 10-item Emotion Regulation Questionnaire (ERQ; Gross and John, 2003) to the study questionnaire battery, for a random subsample of the participants (177 European Americans and 74 Vietnamese Americans) to validate the emotion restraint values items, by correlating them with the expressive suppression subscale. Evidence of construct validity was shown with a significant correlation between T1 emotion restraint values and T2 expressive suppression for both European American ($r = .40$, $p < .001$) and Vietnamese American adolescents ($r = .42$, $p < .001$). Internal consistency of the Emotion Restraint Values scale was adequate (Cronbach's $\alpha = 0.64$ for Vietnamese Americans and 0.80 for European Americans). Higher scores on the scale indicate higher levels of emotion restraint values.

Life stress.—Chronic life stress was assessed with the adolescent version of the UCLA Life Stress Interview (LSI; Adrian & Hammen, 1993). The LSI was conducted in a private room by a trained interviewer. Interviewers used standard probes to rate the adolescent's stress over the past six-months on a five-point behaviorally anchored scales across three domains: family, peer, and academic. For example, for peer stress, the presence of many good friends and social activities outside school without any peer conflict is represented with a score of "1", having average popularity with peers and some conflicts or difficulty making and keeping friends is represented with a score of "3", and severe social problems with no friends and frequent peer conflicts is represented with a score of "5." A score was assigned for each domain with higher scores indicating higher levels of stress. The LSI is documented to be reliably scored and has demonstrated strong concurrent and predictive validity (e.g., Hammen & Brennan, 2001). Inter-rater reliability was assessed by assigning random pairs of interviewers to independently code 116 randomly selected life stress interviews. The pairs of interviewers showed adequate inter-rater reliability (Intraclass correlation coefficients = .79, .73, and .79 for family, peer, and academic stress, respectively, for European American adolescents and .66, .65, and .69 for family, peer, and academic stress, respectively, for Vietnamese American adolescents).

Internalizing symptoms.—The narrowband scales (i.e., Anxious/Depressed, Withdrawn/ Depressed, and Somatic Complaints) of the Youth Self Report (YSR; Achenbach & Rescorla, 2001) were used to assess adolescents' internalizing symptoms. The YSR is a 112-item scale that assesses emotional and behavioral disturbance experienced by adolescents over the last six months. The items were rated on a 3-point Likert scale (0 = "Not True" to 2 = "Very True or Often True"). The Withdrawn/Depressed narrowband scale includes 8 items (e.g., "I refuse to talk"; "I am unhappy, sad or depressed"), the Anxious/Depressed narrowband scale contains 12 items (e.g., "I am nervous or tense"; "I feel worthless or inferior"), and the Somatic Complaints narrowband scale contains 10 items (e.g., "I feel dizzy or lightheaded" and "Headaches"). The YSR has been used with numerous cultural groups with strong evidence of reliability and validity, and its factor structure has been validated across numerous Asian countries, including Japan, Korea, and Hong Kong (de Groot, Koot, & Verhulst, 1996; Ivanova et al., 2007). In the present sample, the internal consistency was adequate, with the Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints narrowband scales Cronbach's α for the Vietnamese = 85, .74, .78, respectively, and at T2 = .85, .77, .80, respectively. T1 Internal consistency for the European Americans was .87, .79, .76, respectively and at T2, .85, .78, .79, respectively. Due to the predominance of anxiety and depressive items in the Anxious/Depressed and Withdrawn/Depressed narrowband scales, respectively, the present study referred to the Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints narrowband scales as anxious, depressive, and somatic symptoms.

Data analytic plan.—Path models using MPlus 8.0 (Muthen & Muthen, 2016) were used for the primary analyses, which assessed longitudinal relations among the variables. In the models, T1 variables included Emotion Restraint Values, Chronic Life Stress, and the Emotion Restraint Values X Chronic Life Stress interaction. T2 variables included the three T2 YSR narrowband internalizing subscales. In addition to controlling for age,

gender[1], and parent education, each T2 internalizing symptom type controlled for their respective T1 internalizing symptom type (e.g., T2 depressive symptoms controlled for T1 depressive symptoms, but not for T1 anxious or somatic symptoms). The interaction terms for T1 Emotion Restraint Values X Chronic Life Stress were generated by centering the two variables and then taking their product. The three internalizing symptom domains (i.e., anxious symptoms, depressive symptoms, somatic symptoms) were included together in the same path model in order to examine whether emotion restraint values, life stress, and their interaction predicts the different types of internalizing symptoms. However, given the effects of life stress has differed across domains in previous research (e.g., Adrian & Hammen, 1993), each of the three life stress domains was tested separately, resulting in a total of three path models. T1 variables were allowed to be correlated cross-sectionally (i.e., within T1).

In order to identify which paths were significantly different between Vietnamese American and European American adolescents, we tested each prospective path in the multi-group path models using the Wald test (e.g., from T1 emotion restraint values to T2 depressive symptoms). The Wald test assesses the extent to which model fit changes when parameter estimates are constrained versus unconstrained across groups (in the present case, the Vietnamese American and European American adolescents). When the Wald test indicated that a parameter estimate for the emotion restraint value × life stress interaction was significant different between the two cultural groups, we used model parameter estimates to calculate the simple effects of the moderator (i.e., emotion restraint values predicting the YSR symptoms) at +/ - 1 standard deviation from the mean of the moderator. Only significant interactions were broken down (i.e., if an emotion restraint value X life stress interaction was significant for one group but not for the other. We did not breakdown an interaction if the Wald test was not significant. We used the Johnson-Neyman technique to identify the regions of significance (Johnson & Fay, 1950). Full information maximum likelihood (FIML) estimation was used, which allows for all observations to be included in the analyses. Model fit indices for the unconstrained models were evaluated using standard cutoffs to indicate acceptable fit (i.e., CFI > .95, SRMR < .08, RMSEA < .06) as recommended by Hu and Bentler (1999).

Results

Preliminary Analyses

Table 1 lists the descriptive statistics for the primary study variables and Table 2 reports the Pearson correlations among the primary study variables.

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[1]We investigated the effects of gender in the multi-group path models by testing the 3-way gender × emotion restraint values × life stress interactions. 16 of 18 possible 3-way interactions (i.e., 2 ethnic groups × 3 life stress domains × 3 internalizing symptom types) were nonsignificant. However, there were gender × emotion restraint values × peer stress interactions in predicting depressive and somatic symptoms for European American adolescents. These 3-way interactions were not significant for Vietnamese American adolescents, and the Wald tests confirmed that the magnitude of the paths from the 3-way interaction to depressive symptoms and somatic symptoms were significantly larger for European American adolescents ($\chi^2(1)$ = 8.23 and 4.33, p < .05). Post-hoc analyses probing this 3-way interaction showed that the significant emotion restraint values × peer stress interaction in predicting depressive and somatic symptoms were largely driven by European American females. There were no additional gender effects in the path models. Although the path model tests a 3-way interaction, the multi-group path model compares the path coefficients across Vietnamese American and European American adolescents, which corresponds to a 4-way interaction (i.e., cultural group × gender × emotion restraint values × life stress). Thus, these findings should be considered in light of the limited power to detect true effects from the 4-way interactions.

Path Models

Family stress.—The first model examined longitudinal relations between emotion restraint values, family stress, and their interaction, predicting the three YSR narrowband internalizing subscales (see Figure 1 for standardized parameter estimates [β] and Table 3 for unstandardized parameter estimates [B]). The model fit the data adequately, $\chi^2(28)$ = 63.74, $p < .001$, CFI = .97, RMSEA = .06, SRMR = .05. Depressive, anxious, and somatic symptoms were stable over time for Vietnamese American adolescents (stability β = .61, .58, and .54, all $p < .001$, respectively) and European American adolescents (β = .56, .58, and .35, all $p < .001$, respectively). T1 emotion restraint values and T1 family stress predicted higher T2 somatic symptoms for European American adolescents (β = .17 and .19, both $p < .01$, respectively), but not for Vietnamese American adolescents. A model with the path from T1 family stress to T2 somatic symptom constrained across groups had significantly poorer fit than the model with the unconstrained path ($\chi^2(1) = 3.99$, $p < .05$), indicating that this path was significantly larger for the European American adolescents. Similarly, a model with the path from T1 emotion restraint values to T2 somatic symptom constrained across groups had significantly poorer fit than the model with the unconstrained path ($\chi^2(1) = 5.52$, $p < .05$), indicating that this path was significantly larger for the European American adolescents. T1 emotion restraint values and T1 family stress were not associated with T2 depressive and anxious symptoms for both European American and Vietnamese American adolescents.

There were two significant paths from the T1 emotion restraint values × family stress interaction to T2 depressive symptoms and T2 anxious symptoms (β = −.16 and −.10, respectively, both $p < .05$) for European American adolescents, but not for Vietnamese American adolescents. A model with the path from T1 emotion restraint values × family stress interaction to T2 depressive symptom constrained across groups had significantly poorer fit than the model with the unconstrained path ($\chi^2(1) = 4.74$, $p < .05$), indicating that this path was significantly larger for the European American adolescents. Simple slope analyses (see Figure 2) indicated that for European American adolescents with high levels of emotion restraint values (+1 SD above the mean for emotion restraint values), T1 family stress was not associated with T2 depressive symptoms (B = −1.77, SE = .96, $p = .07$). For European American adolescents with low levels of emotion restraint values (−1 SD below the mean for emotion restraint values), however, the relation between T1 family stress and T2 depressive symptoms was significant (B = 2.39, SE = 1.03, $p = .02$). Thus, it appears that high levels of emotion restraint values buffered the effects of family stress on depressive symptoms for European American adolescents. The Wald test for the path from T1 emotion restraint values × family stress interaction to T2 anxious symptoms was not significant, indicating that the path was not significantly different across groups. No moderating effects of emotion restraint values were found for Vietnamese American adolescents.

Peer stress.—The second model examined longitudinal relations among the same variables focusing on peer stress (see Figure 3). Model fit was adequate, $\chi^2(28) = 58.52$, $p < .001$, CFI = .98, RMSEA = .06, SRMR = .06. Depressive, anxious, and somatic symptoms were stable over time for Vietnamese American adolescents (stability βs = .60, .58, and .54, all $p < .001$, respectively) and European American adolescents (βs = .55, .59, and .38, all

$p < .001$, respectively). T1 emotion restraint values predicted greater T2 somatic symptoms for European American adolescents ($\beta = .21$, $p < .001$), but not for Vietnamese American adolescents. A model with this path constrained across groups had significantly poorer fit than the initial model with the unconstrained path ($\chi^2(1) = 6.13$, $p < .05$), indicating that this path from T1 emotion restraint values to T2 somatic symptoms was significantly larger for the European American adolescents than for the Vietnamese American adolescents. T1 emotion restraint values and T1 peer stress were not associated with T2 depressive and anxious symptoms for both European American and Vietnamese American adolescents.

There were three significant paths from the T1 emotion restraint values × peer stress interactions to T2 depressive, anxious, and somatic symptoms ($\beta = -.14$, $-.10$, and $-.11$, respectively, all $p < .05$) for European American adolescents, but not for Vietnamese American adolescents. A model with the path from T1 emotion restraint values × peer stress interaction to T2 depressive symptom constrained across groups had significantly poorer fit than the model with the unconstrained path ($\chi^2(1) = 4.74$, $p < .05$), indicating that this path was significantly larger for the European American adolescents. Similarly, the path from T1 emotion restraint values × peer stress interaction to T2 anxious symptoms constrained across groups had significantly poorer fit than the model with the unconstrained path ($\chi^2(1) = 4.18$, $p < .05$), indicating that this path was significantly larger for the European American adolescents. Simple slope analyses (see Figure 4) showed that for European American adolescents with low levels of emotion restraint values, T1 peer stress was associated with T2 depressive symptoms (B = 2.43, SE = 1.12, $p < .05$). However, for European American adolescents with high levels of emotion restraint values, the relation between T1 peer stress and T2 depressive symptoms was not significant (B = −1.59, SE = 1.12, $p = .13$). A similar pattern of findings was observed for the emotion restraint value × peer stress interaction predicting T2 anxious symptoms. However, the Wald test for the path from T1 emotion restraint values × peer stress interaction to T2 somatic symptoms was not significant, indicating that the path was not significantly different across groups.

Academic stress.—The final set of analyses examined these same relations, focusing on academic stress (see Figure 5). There was satisfactory model fit, $\chi^2(28) = 58.52$, $p < .001$, CFI = .98, RMSEA = .06, SRMR = .06. Depressive, anxious, and somatic symptoms were stable over time for Vietnamese American adolescents (stability βs = .60, .57, and .54, all $p < .001$, respectively) and European American adolescents (βs = .54, .59, and .36, all $p < .001$, respectively). T1 emotion restraint values were not associated with T1 academic stress for either group. T1 emotion restraint values and academic stress predicted greater T2 somatic symptoms for European American adolescents ($\beta = .20$ and .15, both ps < .05 respectively), but these paths were not significant for Vietnamese American adolescents. The path from T1 emotion restraint values and academic stress to T2 somatic symptoms were significantly larger for European American adolescents than for Vietnamese American adolescents, χ^2s(1) = 7.81 and 3.95, ps < .05, respectively. T1 emotion restraint values and T1 academic stress were not associated with T2 depressive and anxious symptoms for both European American and Vietnamese American adolescents.

There was a significant path from emotion restraint values × T1 academic stress interaction to T2 depressive symptoms ($\beta = -.11$, $p < .05$) for European American adolescents, but

not for Vietnamese American adolescents ($\beta = -.03$, $p > .05$). However, the magnitude in the coefficient estimate for the path from T1 emotion restraint values $\times$ academic stress interaction to T2 depressive symptoms was not significant, indicating that the path was not significantly different across groups.

Discussion

The purpose of the present study was to investigate effects across time of emotion restraint values and their interactions with life stress on internalizing symptoms among Vietnamese American and European American adolescents. In regard to our contrasting hypotheses about the role of emotion restraint values in moderating effects of stress across cultural groups on internalizing symptoms, our results did not support either hypotheses. We did not find evidence for our first hypothesis that emotion restraint values would buffer the negative effects of life stress on internalizing symptoms for *both* cultural groups. Nor did we find strong evidence for the second hypothesis (i.e., cultural-congruence), that the moderating effects of emotion restraint values would vary across cultural groups as a function of whether emotion restraint values are normative with their respective culture. Instead, the results revealed distinct adaptive and maladaptive effects of emotion restraint values on specific types of internalizing symptoms among European American and Vietnamese American adolescents.

Overall, we found evidence that emotion restraint values reduced detrimental effects of interpersonal stress for the European American adolescents, but not the Vietnamese American adolescents. Among European American adolescents with low levels of emotion restraint values, higher levels of family and peer stress predicted greater T2 depressive and anxious symptoms. In contrast, among European American adolescents who held high levels of emotion restraint values, family and peer stressors were not associated with higher depressive and anxious symptoms. It is important to note, however, that there was also a main effect for emotion restraint values that predicted higher somatic symptoms at T2 among European American adolescents. Within the broader cultural expectations to be independent and emotionally expressive, European American adolescents who hold emotion restraint values may experience some physiological costs associated with down-regulating expression. Laboratory-based research has documented that European Americans experience more physiological reactivity when suppressing their emotions compared to Asian Americans (Mauss & Butler, 2010; Soto, Lee, & Roberts, 2016; Murata, Moser, & Kitayama, 2012). Greater physiological arousal required by emotion restraint may specifically contribute to experiencing greater somatic symptoms over time. Taken together, these results suggest that emotion restraint values may be maladaptive in regard to somatic complaints, but adaptive in regard to buffering against the detrimental effects of family and peers stress on depressive symptoms for European American adolescents. By valuing control over their emotional impulses, European American adolescents may act in ways to successfully deescalate or avoid conflicts. In doing so, they may experience lower emotional reactivity to interpersonal stressors that elevates depressive and anxious symptoms. Yet, the cost of valuing emotion restraint may be the higher somatic symptoms. Among European American adolescents with lower levels of emotion restraint values, family stress was positively associated with depressive symptoms. To the extent that emotion restraint

values underlie the use of expressive suppression, European American adolescents with low emotion restraint values may engage in greater levels of emotion expression. Consequently, the open display of emotions may be associated with psychological well-being in the context of low family and peer stress (Burgin et al., 2012). Conversely, the open display of emotions may be associated with psychological maladjustment in the context of high family and peer stress (i.e., high levels of stress may engender negative emotions). Future research should examine whether the link between emotion restraint values and psychological well-being is mediated by frequency of expressive suppression, and whether this mediation model might be further moderated by life stress.

Consistent with the cultural-congruence hypothesis, we predicted that Vietnamese American adolescents would not suffer negative consequences of emotion restraint values but rather buffer against internalizing symptoms associated with stress. We found partial support for this hypothesis, such that emotion restraint values were not associated with peer stress for the Vietnamese American adolescents, but they were associated with greater peer stress for the European American adolescents. However, why emotion restraint values failed to buffer against the effects of interpersonal stress for Vietnamese American adolescents is unclear. Perhaps in an interdependent cultural context, emotion restraint values subserve the family or larger social network. That is, emotion restraint values may mitigate the effects of interpersonal stress for the well-being of others but not directly for the adolescents themselves. Future research is needed to test this possibility.

It is interesting to consider that the extent to which emotion restraint values reflect *actual* expressive suppression differs across cultural groups. For instance, Indian children's beliefs regarding how acceptable their emotional displays were to others has been found to link relatively closely with their actual expressive suppression behavior (Raval et al., 2007). In comparison, European American children's emotion restraint values has been found to link less closely to their reported behaviors (Zeman & Garber, 1996). The prospective association between emotion restraint values and emotion restraint behavior may be investigated in a future study using a cross-lagged design. It is also possible that emotion restraint values may differ across various emotions and valences differentially across cultural groups. For example, cultural meanings and accompanying display rules may be different for socially-disengaging emotions such as pride and anger versus socially-engaging emotions such as sympathy and guilt (Kitayama, Mesquita, & Karasawa, 2006). One area for future research suggested by this possibility is to include assessment of emotion restraint values as a function of type of emotion.

The overall pattern of findings suggests that the three domains of internalizing symptoms were influenced by emotion restraint values across cultural groups in different ways. Emotion restraint values were associated with greater somatic symptoms only for European American adolescents, whereas emotion restraint values were not associated with any internalizing symptom type for Vietnamese American adolescents. The nonsignificant association between emotion restraint values and depressive/anxious symptoms suggests that the timeframe for the causal process through which emotion restraint values impact on depressive/anxious symptoms may be different than for somatic symptoms. As the

first study to examine the effects of emotion restraint values on the different internalizing symptom types, more research is needed to clarify these relationships.

The present study's findings have implications for interventions. Although emotion restraint values are associated with higher levels of somatic symptoms, they also served as a buffer against the effects of interpersonal stress for the European American adolescents. Thus, emphasis in psychotherapy for emotion expression may need to be reconsidered for the European American adolescents. It may be useful for clinicians to first assess the extent to which the adolescents believe emotion restraint is an adaptive coping strategy towards a goal of maintaining interpersonal harmony and the emotional impacts of such belief, before encouraging them to more fully express their emotions. Relatedly, interventions and techniques such as mindfulness that focus on drawing attention to emotional experience (as opposed to emotion expression) may be especially effective for those valuing emotion restraint. For example, Asian and Latino adolescents improved their ability to regulate their emotions, which led to decreases in internalizing symptoms and perceived stress after completing a 12-week school-based mindfulness intervention (Fung et al., 2018).

Several study limitations are important to note. First, our measurement of emotion restraint values did not distinguish between different types (e.g., anger vs. sadness) or valence (i.e., positive vs. negative) of emotion. It has been argued, however, among more interdependent groups that restraint of all emotion types may be unambiguously valued (Mesquita & Frijda, 1992). Nonetheless, it will be useful for future research to examine different types and valence of emotion in regard to the effects of emotion restraint values on health. A second limitation is the relatively short duration of our follow-up assessment. Given the stability of internalizing symptoms within six months during adolescence, future studies that implement longer follow-up periods (e.g., one year) could advance our understanding of the influence of emotion restraint values on internalizing symptoms. Some studies have utilized longer follow-up durations to assess internalizing symptoms among adolescents (e.g., a one-year timeframe in Larsen et al., 2013). Finally, our sample of Vietnamese American adolescents were recruited from some neighborhoods and schools that contained a high percentage of Vietnamese American students. The generalizability of our findings to other Vietnamese Americans who are minorities in their communities, as well as the pan-Asian community at large, requires further study. Relatedly, future studies should examine the influence of ethnic identity on emotion restraint values, as it has also been found to buffer the negative effects of stress on well-being (Yoo & Lee, 2008).

Despite these limitations, the present study contains several strengths including the objective measurement of life stress and the assessment of different internalizing symptoms. The objective measurement of life stress overcomes limitations from self-reported stress (Derogatis & Coons, 1993) and their overlapping variance with self-reported internalizing symptoms (Felton et al., 2017). Although the magnitude of the effects from our path models were relatively small, these effects emerged in the context of stable internalizing symptoms assessed within a six-month period. As the first prospective study to examine cultural differences in the relations between emotion restraint values, stress, and internalizing symptoms, the conceptual significance of these effects in predicting internalizing symptoms is compelling.

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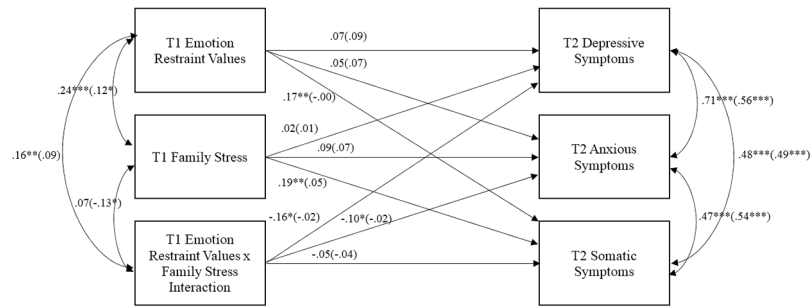
Figure 1.
Path model of emotion restraint values × family stress interaction. Standardized coefficients inside parentheses are for Vietnamese Americans and outside for European Americans. Stability paths for internalizing symptoms and covariates (gender, age, parent education) are modeled in the analyses but not shown visually in this figure.

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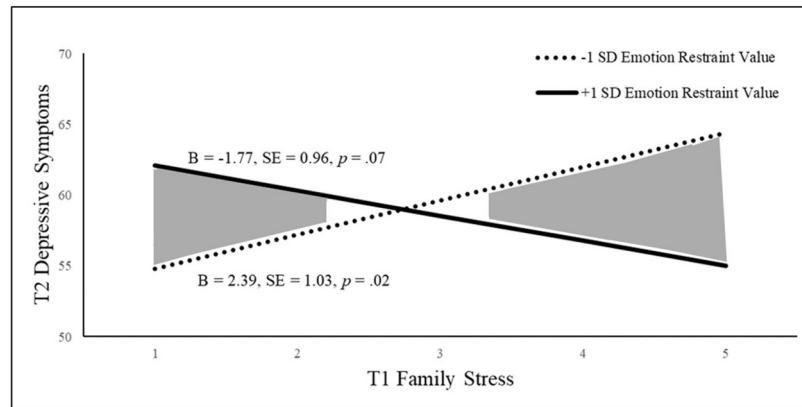Author Manuscript

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Figure 2.
Emotion restraint values × family stress interactions in predicting depressive symptoms for European American adolescents. Parameter estimates are unstandardized. Shaded regions represent the area to which the simple slopes of each group become significantly different from each other.

Figure 3.
Path model of emotion restraint values × peer stress interaction. Standardized coefficients inside parentheses are for Vietnamese Americans and outside for European Americans. Stability paths for internalizing symptoms and covariates (gender, age, parent education) are modeled in the analyses but not shown visually in this figure.
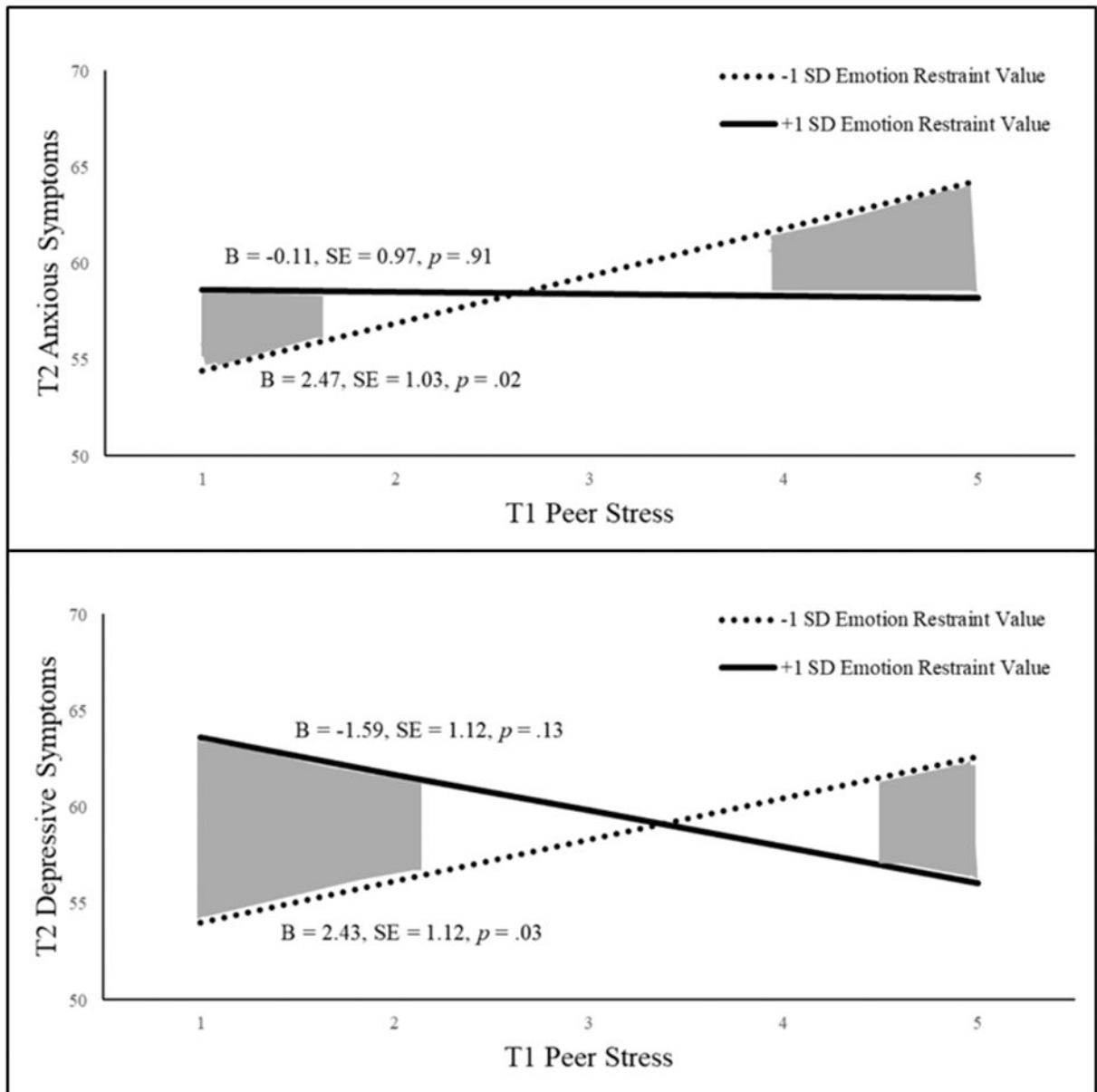
Figure 4.
Emotion restraint values × peer stress interactions in predicting depressive symptoms for European American adolescents. Parameter estimates are unstandardized. Shaded regions represent the area to which the simple slopes of each group become significantly different from each other.
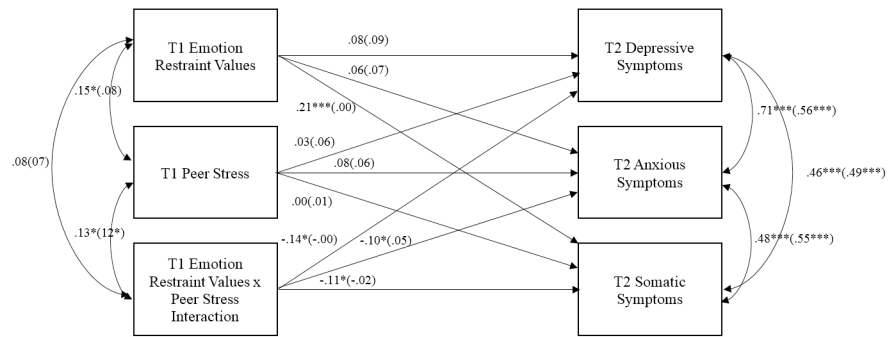
Figure 5.
Path model of emotion restraint values × academic stress interaction. Standardized coefficients inside parentheses are for Vietnamese Americans and outside for European Americans. Stability paths for internalizing symptoms and covariates (gender, age, parent education) are modeled in the analyses but not shown visually in this figure.
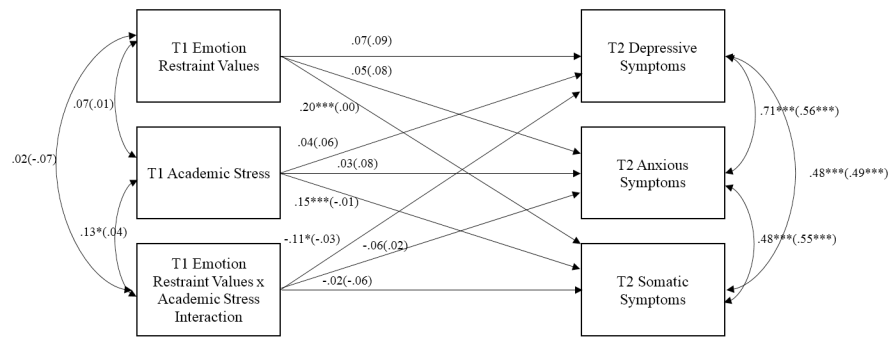
Table 1.

Mean levels of study variables by ethnic group

Study Variable	Vietnamese Americans ($n = 371$) *M(SD)*	European Americans ($n = 304$) *M(SD)*
T1 Emotion Restraint Value	16.58(4.59)	16.12(5.16)
T1 Family Stress	2.76(0.68)	2.45(0.63)
T1 Peer Stress	2.28(0.54)	2.30(0.53)
T1 Academic Stress	2.52(0.61)	2.51(0.66)
T1 Depressive Symptoms	63.25(9.29)	60.29(9.90)
T1 Anxious Symptoms	62.71(9.59)	60.43(9.35)
T1 Somatic Symptoms	58.99(8.67)	58.63(8.16)
T2 Depressive Symptoms	61.54(10.11)	58.15(8.67)
T2 Anxious Symptoms	59.97(9.20)	57.33(8.17)
T2 Somatic Symptoms	56.94(7.99)	56.31(7.37)

Table 2.

Correlations between study variables, by ethnic group.

	1	2	3	4	5	6	7	8	9	10
1. T1 Emotion Restraint Value	--									
2. T1 Family Stress	.24*** (.12*)	--								
3. T1 Peer Stress	.15** (.08)	.32*** (.16**)	--							
4. T1 Academic Stress	.08 (.01)	.36*** (.18**)	.11* (.17**)	--						
5. T1 Depressive Symptoms	.48*** (.39***)	.37*** (.19***)	.27*** (.21**)	.19** (.14**)	--					
6. T1 Anxious Symptoms	.34*** (.21***)	.33*** (.14**)	.17** (.18***)	.11 (.12*)	.70*** (.60***)	--				
7. T1 Somatic Symptoms	.22*** (.15**)	.28*** (.20***)	.12* (−.03)	.13* (.09)	.50*** (.39***)	.51*** (.49***)	--			
8. T2 Depressive Symptoms	.35*** (.31***)	.24*** (.14*)	.18** (.19***)	.11 (.14*)	.64*** (.67***)	.53*** (.47***)	.33*** (.30***)	--		
9. T2 Anxious Symptoms	.26*** (.20***)	.25*** (.17*)	.18** (.16**)	.05 (.16**)	.50*** (.46***)	.67*** (.64***)	.34*** (.38***)	.77*** (.66***)	--	
10. T2 Somatic Symptoms	.30*** (.10)	.32*** (.16**)	.07 (−.02)	.16* (.03)	.42*** (.24***)	.40*** (.31***)	.47*** (.57***)	.58*** (.47***)	.57*** (.57***)	--

Note.

*
$p < .05$.

**
$p < .01$.

***
$p < .001$. Correlations inside parentheses are for Vietnamese Americans.

Table 3.

Unstandardized coefficients for longitudinal paths

	European American Adolescents		
	T2 Depressive Sxs	T2 Anxious Sxs	T2 Somatic Sxs
	B(SE)	B(SE)	B(SE)
Family Stress Model			
T1 ERV	.12(.09)	.07(.08)	.24**(.08)
T1 Family Stress	.31(.75)	1.13(.70)	2.17**(.70)
T1 ERV × T1 Family Stress	−.40**(.13)	−.23*(.12)	−.10(.12)
Peer Stress Model			
T1 ERV	.13(.09)	.09(.08)	.30***(.08)
T1 Peer Stress	.42(.84)	1.18(.77)	.01(.77)
T1 ERV × T1 Peer Stress	.39**(.14)	−.25*(.13)	−.27*(.13)
Academic Stress Model			
T1 ERV	.12(.09)	.08(.08)	.28***(.08)
T1 Academic Stress	.44(.69)	.31(.64)	1.60*(.64)
T1 ERV × T1 Academic Stress	−.27*(.13)	−.14(.12)	−.05(.12)

	Vietnamese American Adolescents		
	T2 Depressive Sxs	T2 Anxious Sxs	T2 Somatic Sxs
	B(SE)	B(SE)	B(SE)
Family Stress Model			
T1 ERV	.19(.10)	.14(.09)	−.00(.08)
T1 Family Stress	.16(.63)	.96(.59)	.52(.56)
T1 ERV × T1 Family Stress	−.06(.13)	−.07(.13)	−.09(.12)
Peer Stress Model			
T1 ERV	.19(.10)	.14(.09)	.00(.08)
T1 Peer Stress	1.01(.77)	.90(.73)	.16(.67)
T1 ERV × T1 Peer Stress	−.01(.17)	.19(.16)	−.05(.15)
Academic Stress Model			
T1 ERV	.19(.10)	.16(.09)	−.01(.08)
T1 Academic Stress	.95(.70)	1.15(.66)	−.11(.61)
T1 ERV × T1 Academic Stress	−.09(.16)	.06(.15)	−.18(.14)

Note.

*
$p < .05$,

**
$p < .01$,

***
$p < .001$. Sxs = Symptoms. ERV = Emotion restraint values. Numbers outside parentheses are unstandardized coefficients and numbers inside parentheses are the standard errors.