

The Role of Self-Construals in the Link Between Anger Regulation and Externalizing Problems in Korean American Adolescents: Testing a Moderated Mediation Model

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Objectives: The present study had two primary aims: (a) to test the mediating role of anger regulation in the relation between family processes and externalizing problems; (b) to test the moderating role of culture (specifically, independent and interdependent self-construals) in the relation between anger regulation and symptomatology via a moderated mediation model. **Design:** The sample comprised 166 Korean American adolescents (54.2% male), who were recruited from the Midwestern region of the United States. Adolescents' ages ranged from 11–15 years old ($M = 13.0$ years; $SD = 1.2$). Cross-sectional data were collected via adolescent self-report questionnaires. **Results:** Results indicated that the anger regulation variables (either individually or collectively) mediated the influence of family processes (i.e., family conflict, family cohesion, and father-adolescent communication) on externalizing problems. Moreover, 2 indirect effects on externalizing problems were conditional upon adolescents' independent self-construal. **Conclusions:** These findings suggest that clinical intervention efforts for addressing externalizing problems may benefit from targeting anger regulation strategies. However, such interventions should be tailored to consider cultural context, since mediation effects may be moderated by cultural factors such as self-construal. © 2012 Wiley Periodicals, Inc. *J. Clin. Psychol.* 68:1339–1359, 2012.

Keywords: anger regulation; cultural context; self-construals; family processes; externalizing problems; Korean American adolescents

Anger is a powerful emotion that has been associated with a host of negative psychological outcomes, including externalizing problems such as aggression and delinquency (Kerr & Schneider, 2008). Anger regulation, then, becomes critical in light of the potential for intervention and prevention of such problematic outcomes. Yet despite the explosion of empirical research on emotion regulation more broadly, demonstrating that emotion regulation and dysregulation are central features of various forms of childhood and adolescent psychopathology (Cole, Martin, & Dennis, 2004; Cole, Michel, & Teti, 1994; Keenan, 2000), several gaps still exist in this literature.

First, scholars have called for greater scientific attention to examining the regulation of discrete emotions, such as anger, especially among children and adolescents (e.g., Zeman, Cassano, Perry-Parrish, & Stegall, 2006). Second, although several theoretical models have been proposed recently, focusing on emotion regulation as an important mediating mechanism vis-à-vis child and adolescent outcomes (e.g., Morris, Silk, Steinberg, Myers, & Robinson, 2007; Yap, Allen, & Sheeber, 2007), it is unclear whether and how these models apply to racial/ethnic minority populations.

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Third, there remain a number of unanswered questions with regard to the moderating influences of the broader sociocultural context on emotion regulation and the development of psychopathology among ethnic minority populations (Raver, 2004). Very few studies have empirically tested whether and how culture moderates the link between anger regulation and psychopathology, and even fewer have explicitly measured cultural context beyond ethnic or cross-national labels, which merely assume (but don't assess) underlying cultural value systems.

The present study addressed these gaps in the literature in three ways. First, rather than investigating emotion regulation broadly, we focused on anger regulation, defined as the control, expression, and suppression of anger. Second, anger regulation was tested as a central mediator in the relation between family processes and Korean American adolescents' externalizing problems. Third, culturally based self-construals were examined as a moderator of the hypothesized indirect effect, specifically in the link between anger regulation and externalizing problems.

There are approximately 1.3 million Koreans living in the United States, placing them in one of the top five most populous Asian groups in this country (U.S. Census Bureau, 2007). As a recent immigrant population, approximately 75.8% of Korean Americans were foreign-born as of 2004 (U.S. Census Bureau, 2007). Korean immigrants accounted for 59% of the increase in the Korean American population between 1990 and 2000 (Yu & Choe, 2003-2004). Statistics reveal that 24% of all children either were an immigrant themselves or had at least one parent who was an immigrant in 2007 (Clark, Glick, & Bures, 2009).

Korean American youths represent one portion of this rapidly growing segment of the U.S. population (Nguyen & Huang, 2007). Thus, Korean immigrant youth face unique stressors related to acculturation and adaptation to a new country (e.g., Hwang, 2006; Hwang & Wood, 2009), in addition to the usual developmental mastery tasks, thereby heightening the importance of examining their psychological adjustment within a cultural context. Moreover, there is a dearth of empirical research examining the development of externalizing problems among Asian American adolescents, including Korean American youths (Choi, 2011).

We focused on adolescence as a key developmental period because it is characterized by increased vulnerability to problems involving emotional and behavioral dysregulation (Yap et al., 2007). In particular, the transition into adolescence is a critical developmental period for the maturation of emotional, social, and cognitive skills. Data show that overall morbidity rates increase significantly between mid-childhood and late adolescence (Resnick et al., 1997). This increase appears to be related to problems with emotional regulation and behavioral control; for example, youths may begin to develop externalizing problems such as aggression and rule-breaking behavior.

Theoretical Framework of the Present Study: Mediating Role of Anger Regulation

The study aims were theoretically informed by the tripartite model of the impact of the family on children's emotion regulation and adjustment proposed by Morris and colleagues (2007). In their model, emotion regulation is centrally positioned as a mediator in understanding the link between the family context and the development of psychopathology (including externalizing problems) and social competence among children and adolescents. For the purpose of the present study, anger regulation was the theorized mediator. We focused on anger regulation because it has been empirically associated with the development and maintenance of externalizing behaviors among children and adolescents (see review by Kerr & Schneider, 2008). Anger may be a particularly salient variable in the context of Korean American youths and their mental health (e.g., I. J. K. Park, Kim, Cheung, & Kim, 2010; Y. J. Park et al., 2010).

The significance of cultural norms surrounding anger regulation and psychological adjustment is exemplified in *hwa-byung* (literally meaning "anger syndrome"), which is a Korean culture-bound syndrome characterized by somatic and psychological symptoms that are presumed to arise from an accumulation of pent-up anger (American Psychiatric Association, 2000). Korean cultural norms discourage overt expressions of anger in favor of maintaining harmonious relationships (Ketterer, Han, & Weed, 2010; Min & Suh, 2010), and those who suffer from *hwa-byung* have perhaps taken these cultural priorities to an extreme. Given this cultural backdrop, Korean American youth may be especially cognizant of regulating their anger.

Family processes and externalizing problems. In the present study, three types of family processes were examined as predictors: parent-adolescent conflict intensity, parent-adolescent communication, and family cohesion. These family processes represent both sources of risk (e.g., family conflict) and sources of resilience (e.g., parent-adolescent communication and family cohesion), and the present study offered a balanced perspective on Korean American families by including both. Additionally, by examining three distinct family processes, the present study offers greater precision for potential targets of clinical intervention.

Among Asian American children and adolescents, family conflict has been found to be positively associated with externalizing problems (Choi, He, & Harachi, 2007; Le & Stockdale, 2008; I. J. K. Park et al., 2010), whereas open parent-adolescent communication has been negatively associated with externalizing symptoms (Daley, 2006). One prior study found a significant negative correlation between family cohesion and externalizing symptoms among Korean American youths (I. J. K. Park et al., 2010); this finding is corroborated by evidence from the mainstream psychological literature, which suggests that family cohesion is associated with fewer externalizing problems (e.g., Lucia & Breslau, 2006; Richmond & Stocker, 2006).

Family processes and anger regulation. The link between parent-child relationship qualities (i.e., parent-adolescent conflict and communication, family cohesion) and emotion regulation has been established in prior empirical research. For example, in an extensive literature review, Repetti, Taylor, and Seeman (2002) document how the social environment of vulnerable families involves negative parent-child relationships that are associated with maladaptive emotion regulation. These negative relationships cover a wide range of family dynamics, including lack of family cohesion, high levels of family conflict, and lack of parental warmth, support, or involvement.

The critical role of such family processes in the development of emotion dysregulation has been highlighted in theoretical models vis-à-vis adolescent problem behaviors (Yasui & Dishion, 2007) as well. Empirical work examining the link between family processes and anger regulation among Asian American families is emerging. For example, I. J. K. Park et al. (2010) found a significant positive correlation between family cohesion and anger control as well as between family conflict and outward anger expression among Korean American adolescents.

Anger regulation and externalizing problems. The link between anger regulation and externalizing problems has been well established (Cole, Zahn-Waxler, Fox, Usher, & Welsh, 1996; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002; Rydell, Berlin, & Bohlin, 2003). More specifically, outward anger expression (Cole et al., 1996; J. Kim & Deater-Deckard, 2011; I. J. K. Park et al., 2010; Rydell et al., 2003) has been shown to be positively associated with externalizing problems, whereas anger control (I. J. K. Park et al., 2010; Rydell et al., 2003; Zeman, Shipman, & Suveg, 2002) has been shown to be inversely associated with externalizing problems among children and adolescents (for a review, see Kerr & Schneider, 2008).

Although less empirical work has systematically examined the association between anger suppression and externalizing problems in adolescents per se (for an exception, see I. J. K. Park et al., 2010), suppression has long been considered a maladaptive strategy that is typically associated with distress and problem behaviors (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Thus, given the empirical and theoretical support for direct and indirect (via emotion regulation) associations between family processes and adolescent maladjustment, anger regulation (operationalized as anger control, outward anger expression, and anger suppression) was hypothesized to serve as a mediating mechanism in the relation between family processes and externalizing symptoms (**Hypothesis 1**).

The moderating role of cultural context: Models of self. It is still unclear whether or not the theorized mediation model (family processes → emotion regulation → youth adjustment) generalizes across diverse populations and settings. As scholars have noted, one significant missing piece of the puzzle may be the role of culture in the relation between emotion regulation and psychopathology (e.g., Morris et al., 2007; Raver, 2004; Southam-Gerow & Kendall, 2002). There is evidence that emotional experience and emotion regulation are influenced by cultural

norms (Butler, Lee, & Gross, 2007; Kitayama, Karasawa, & Mesquita, 2004; Matsumoto, Yoo, Nakagawa, & Multinational Study of Cultural Display Rules, 2008; Mesquita & Walker, 2003).

In addition, there is growing empirical evidence demonstrating that cultural contexts *moderate* the relation between emotion regulation and other emotion processes and various physiological (e.g., Butler, Lee, & Gross, 2009), physical health (e.g., Consedine, Magai, & Horton, 2005), and psychological adjustment outcomes (e.g., Cheung & Park, 2010; Supplee, Skuban, Shaw, & Prout, 2009; Zhou, Lengua, & Wang, 2009). Typically though, prior studies have not explicitly assessed cultural context beyond ethnicity or nationality nor have they tested moderation within the context of a mediation model of anger regulation.

A test of moderated mediation would allow the identification of conditions under which mediation holds, leading to a more nuanced understanding of underlying mechanisms. In taking one step towards addressing this gap in the literature, the present study focused on how cultural models of self (i.e., independent and interdependent self-construals) may offer some boundary conditions as to when and how the hypothesized mediation model would apply to Korean American adolescents.

The moderating role of culturally based self-construals. Self-construals (Markus & Kitayama, 1991) play a pivotal role in the experience, expression, and regulation of emotions (Kitayama et al., 2004). On the one hand, an *independent* self-construal assumes that individuals are autonomous and have a unique set of internal attributes that regulate behavior and represent the core self. It has been theorized that a stronger independent self-construal is more likely to be associated with the expression of anger (Markus & Kitayama, 1991).

On the other hand, an *interdependent* self-construal emphasizes connectedness with other people; the self becomes meaningful only in the larger context of social relationships. Individuals with a stronger interdependent self-construal tend to suppress or avoid angry feelings in order to maintain social harmony, as indicated by data from Asian and Asian-heritage samples (Markus & Kitayama, 1991). Given that Korean American adolescents are bicultural and must navigate the Korean and U.S. mainstream cultural spheres, both models of self (i.e., independent and interdependent) were tested as potential moderators of the hypothesized mediation effect.

Drawing from this theoretical work, we reasoned that cultural norms, in the form of self-construals, would influence the degree to which different types of emotion regulation strategies are associated with externalizing problems. Consequently, the degree to which anger regulation mediates the relation between family processes and adolescent maladjustment was hypothesized to be a function of adolescents' independent and interdependent self-construals (**Hypothesis 2**). That is, the strength of the indirect effect of family processes on adolescents' externalizing problems was expected to depend on the level of an adolescent's interdependent and independent self-construals because these cultural models of self have been shown to impact the association between emotion regulation processes and psychopathology.

The question then arises: Exactly how do cultural models of self affect the association between anger regulation and behavior problems? (i.e., what direction?) Prior empirical work (H. S. Kim & Sherman, 2007) guided the generation of our hypotheses. H. S. Kim and Sherman (2007) found that a strong independent self-construal is related to valuing self-expression through behaviors and beliefs. Moreover, H. S. Kim and Sherman (2007) demonstrated that cultural norms can differentially affect the relation between self-expression and behavioral/psychological outcomes. Specifically, for those who adhered to more individualistic cultural norms (i.e., European Americans), self-expression was more strongly associated with psychological consequences (e.g., investment in expressed choice), whereas for those who were less dependent on defining the self through self-expression (i.e., East Asian Americans), the relation between self-expression and psychological processes was much weaker.

Informed by these findings, we hypothesized that a strong *independent* self-construal would *amplify* the relation between anger regulation and externalizing problems. That is, for those adolescents with a strong independent self-construal, the association between outward expression (or control) of anger and behavioral outcomes (i.e., externalizing problems) should be strengthened because expressing (or controlling) anger is a means by which an individual's internal attributes can be manifested. In contrast, a strong *interdependent* self-construal was

not expected to significantly moderate the relation between anger regulation and externalizing symptoms given the notion that the expression (or suppression) of anger might not necessarily lead to behaviors that justify the expression of the self. That is, for those with an interdependent self-construal, there may be less of a need to engage in behaviors (e.g., externalizing problems) that are congruent with self-expression (e.g., anger expression/regulation).

Study Hypotheses

In sum, the present study tested two sets of hypotheses:

- 1) Anger regulation (operationalized as anger control, outward anger expression, and anger suppression) will mediate the effect of family processes on youths' externalizing symptoms, such that family cohesion and open parent-adolescent communication will be associated with more adaptive anger regulation strategies (e.g., better anger control), which, in turn, will be inversely associated with externalizing problems. Conversely, family conflict will be associated with more maladaptive anger regulation strategies (e.g., greater outward anger expression and anger suppression), which, in turn, will be positively associated with externalizing problems.
- 2) The indirect effects hypothesized above will be contingent upon the level of an adolescent's independent and interdependent self-construals, respectively. Specifically, anger regulation will mediate the indirect effect of family processes on externalizing problems, only for those with a relatively strong independent self-construal. Conversely, a strong interdependent self-construal will weaken the indirect effect.

Method

Participants

Participants were 166 Korean American adolescents, ranging in age from 11 to 15 years old, with a mean age of 13.0 years (standard deviation [*SD*] = 1.2); this age range represents the critical transition into adolescence. These adolescents were part of a larger cross-sectional study that investigated anger regulation among Korean American youths and their primary caregivers; one prior study has examined predictors of youths' depressive symptoms and externalizing problems (Park et al., 2010), and another study has examined the moderating role of father-adolescent communication in the acculturation gap-distress association (M. Kim & Park, 2011). The present study extends this previous research by examining potential mediating (via anger regulation) and moderating (via self-construals) effects in a moderated mediation model predicting adolescents' externalizing symptoms.

The sample comprised slightly more males ($n = 90$; 54.2%) than females ($n = 76$; 45.8%). The majority of the sample was U.S.-born ($n = 119$; 71.7%) with the remainder born in Korea ($n = 47$; 28.3%). The length of U.S. residency ranged from less than 1 year to 15 years ($M = 10.8$; $SD = 3.7$), with participants having spent, on average, 83.6% of their lives in the United States. As an approximate indicator of family socioeconomic status (SES), parents' reports of education and income level were examined. The majority (68.9%) of participants' parents were college graduates. The combined annual household income was approximately \$80,000-89,000, indicating that this sample's income is higher than the national median income level (\$66,103) for Asian Americans (DeNavas-Walt, Proctor, & Smith, 2008). Neither youths' nativity status nor family SES were correlated with youths' self-reported externalizing problems and, thus, not controlled for in the analyses.

Procedure

Korean American youth and their parent(s) were recruited from the Midwest through 15 Korean ethnic churches and four public schools. Inclusion criteria were as follows: (a) Korean American youths 11-15 years old from this Midwestern metropolitan area; (b) residing with one or both parents, also of Korean origin; and (c) youth's birthplace in Korea (first generation) or the

United States (second generation). Youths were required to have parental permission and give informed assent. The target child was asked to independently complete a written questionnaire in their preferred language (English or Korean).

Because a very small subset of youths completed the survey in Korean ($n = 9$), only the youths who completed the survey in English were included in the present sample to eliminate any potential problems with cross-cultural measurement and construct equivalence. Questionnaires were administered to youths at churches or in public schools. Participating families received up to \$30 as compensation for their time (target adolescent received \$10, and the primary caregiver received \$20). The present study was approved by the university's human subjects institutional review board prior to implementation.

Measures

Study variables were assessed through written, self-administered questionnaires. All measures have been successfully administered to Asian American samples in prior research.

Demographic background. Age, gender, ethnicity, length of United States residency, and birthplace were assessed.

Parent-adolescent conflict. The 10-item Asian American Family Conflicts Scale (FCS; Lee, Choe, Kim, & Ngo, 2000) assessed the intensity of conflict between adolescents and their mothers and fathers, respectively. This measure was developed specifically for use with Asian American adolescents with regard to family conflict situations and reflects both intergenerational and acculturation differences between children and their parents. A sample item is as follows: "Your [mother/father] wants you to sacrifice personal interests for the sake of the family, but you feel that this is unfair." Each item was rated on a 5-point Likert-type scale, ranging from 1 (*almost never/not at all*) to 5 (*almost always/extremely*) on two dimensions: likelihood and seriousness of the problem.

An Intensity score was calculated for each parent by averaging the likelihood and seriousness mean item scores (see Su, Lee, & Vang, 2005). A composite Family Conflict Intensity score was then calculated by taking the average of the mother and father intensity scores (highly correlated, $r = .69$; $p < .001$), and this score was used in the main analyses. The FCS has demonstrated adequate reliability and validity among Asian American families, with an alpha coefficient of .94 for Intensity (Lee et al., 2000; Su et al., 2005). In the present study, the internal consistencies were adequate for adolescent-mother ($\alpha = .92$), adolescent-father ($\alpha = .94$), and total family conflict intensity ($\alpha = .96$).

Parent-adolescent communication. Youths' perceptions of the overall quality of their communication with their mothers and fathers, respectively, were assessed using the 20-item Parent-Adolescent Communication measure (PAC; Olson et al., 1982). A sample item is: "It is very easy for me to express all my true feelings to my [mother/father]." Adolescents responded to each item using a 5-point Likert type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The PAC total score (for mother-adolescent and father-adolescent communication, respectively) was calculated by summing all items (items from the Problems in Family Communication subscale were reverse-scored). The PAC has demonstrated good internal consistency ($\alpha = .88$ for total scale) and construct validity in prior research (Olson et al., 1982). In the present sample, the PAC measures demonstrated adequate internal consistency for both mother-adolescent communication ($\alpha = .88$) and father-adolescent communication ($\alpha = .85$).

Family cohesion. The 16-item Cohesion subscale from the 30-item Family Adaptation and Cohesion Evaluation Scales II-Family version (FACES-II; Olson, et al., 1982) assessed family cohesion. A sample item is: "Family members are supportive of each other during difficult times." Adolescents responded to each item using a 5-point Likert type scale, ranging from 1 (*almost never*) to 5 (*almost always*). The total Cohesion score was calculated using the formula prescribed by Olsen et al. (1982) and involves a weight summation procedure that accounts for

positive and negative items. The FACES-II Cohesion subscale has demonstrated good internal consistency ($\alpha = .87$), test-retest reliability (.83), and validity in prior research (Olson et al., 1982). In the present sample, the Cohesion subscale demonstrated adequate internal consistency ($\alpha = .79$).

Anger regulation. A modified 42-item version (shortened from the original 57-item version to reduce participant fatigue; the State Anger subscale was excluded) of the State-Trait Anger Expression Inventory (STAXI-2; Spielberger, 1999) was used to assess anger regulation, operationalized as outward anger expression, anger suppression, and anger control. The *Anger Expression-Out* scale (8 items) assessed the frequency of exhibiting anger outwardly through verbally or physically aggressive behaviors. The *Anger Expression-In* scale (8 items) assessed the frequency with which an individual generally suppresses angry feelings; that is, the frequency with which angry feelings are experienced but not expressed. Note: The term “anger suppression” will be used to refer to “anger expression-in.” The *Anger Control-Out* scale (8 items) assessed the frequency with which an individual generally controls outward anger expression, and the *Anger Control-In* scale (8 items) assessed the frequency with which an individual reduces their suppressed anger through coping strategies such as cooling off or calming down. These subscales have been shown to represent independent factors in prior research (Spielberger, 1999). Each item was rated using a 4-point Likert-type scale, ranging from 1 (*almost never*) to 4 (*almost always*). Scores for each subscale were calculated using the mean of the items. Due to a strong correlation between *Anger Control-In* and *Anger Control-Out* ($r = .64; p < .001$), a composite *Anger Control* score was calculated by summing the *Anger Control-In* and *Anger Control-Out* mean item scores. The internal consistency of the factor-derived STAXI-2 subscales has been reported to be adequate with reliability alphas of .80 and higher (Spielberger, Reheiser, & Sydeman, 1995). In the present study, Cronbach’s alphas were as follows: *Anger Suppression* = .73; *Anger Expression-Out* = .67; combined *Anger Control* = .87.

Self-construal. The 24-item Self-Construal Scale (SCS; Singelis, 1994) comprises two 12-item subscales assessing interdependent and independent self-construals. This measure was used to assess one dimension of cultural context, as reflected in an individual’s self-orientation. A sample item assessing interdependent self-construal is as follows: “It is important for me to maintain harmony within my group.” A sample item assessing independent self-construal is: “I enjoy being unique and different from others in many respects.” Each item was rated using a 7-point Likert-type response format, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Levels of interdependence and independence were represented by the mean of the 12 items from the corresponding subscale. The SCS has demonstrated adequate internal consistency in prior research, with a Cronbach’s alpha of .70 for the independent subscale (Singelis, 1994). The SCS displayed adequate internal consistency in the present study, with a Cronbach’s alpha of .70 for independent self-construal and .70 for interdependent self-construal.

Externalizing problems. The 112-item Youth Symptom Report (YSR; Achenbach & Rescorla, 2001) was used to assess youths’ report of externalizing problems. The YSR is a widely used measure with well-established reliability and validity that inquires about problem behaviors in the past 6 months including the present. Externalizing problems comprises two subscales: Rule-breaking Behavior (14 items) and Aggressive Behavior (17 items). Each item was rated using a 3-point scale (0 = *not true*; 1 = *some what or sometimes true* 2 = *very true or often true*). As in prior research using the YSR (e.g., Rescorla et al., 2007), untransformed raw scores were used. The Externalizing problems score was calculated by summing the scores of these two subscales. Internal consistency was adequate in the present study with Cronbach’s alpha = .86.

Results

Descriptive statistics (M , SD , alphas) and bivariate correlations are presented in Table 1. As hypothesized by the mediation model, there was some evidence indicating that family process

Table 1
Zero-Order Correlation Coefficients and Descriptive Statistics for the Study Variables (N = 166)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Age	—										
(2) Independent self-construal	.13	—									
(3) Interdependent self-construal	-.03	.29**	—								
(4) Family cohesion	-.21**	-.09	.21**	—							
(5) Family conflict intensity	.13	.14	.05	-.39***	—						
(6) Father-adolescent communication	-.21**	.01	.12	.53***	-.47***	—					
(7) Mother-adolescent communication	-.12	.02	.14	.56***	-.44***	.44***	—				
(8) Anger control	-.11	.19*	.30**	.16*	-.08	.15	.03	—			
(9) Anger expression-in	.18*	.11	.11	-.11	.13	-.23**	-.11	.14	—		
(10) Anger expression-out	.18*	.19*	-.04	-.13	.29***	-.16 ⁺	-.11	-.18*	.30***	—	
(11) Externalizing problems	.27***	.15 ⁺	-.24**	-.36***	.44***	-.31***	-.28***	-.27***	.25**	.60***	—
M	12.97	4.77	4.83	56.11	2.41	64.90	68.97	45.60	17.36	16.11	12.20
SD	1.22	.80	.76	9.41	.82	12.95	13.42	8.19	4.21	3.63	6.97
Alpha	NA	.70	.70	.79	.96	.85	.88	.87	.73	.67	.86

M = mean; SD = standard deviation.
+ $p = .05$. * $p < .05$. ** $p < .01$. *** $p < .001$.

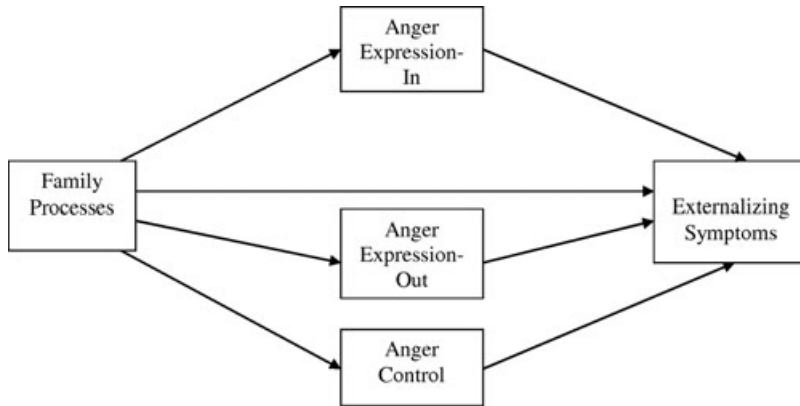


Figure 1. Multiple mediation model depicting the total and specific indirect effects of family processes on externalizing symptoms through emotion regulation.

variables were significantly correlated with anger regulation variables, which, in turn, were significantly associated with adjustment problems. For example, family conflict intensity was significantly associated with outward anger expression ($r = .29, p < .001$), which, in turn, was significantly associated with externalizing problems ($r = .60, p < .001$). Mother-adolescent communication was the exception to this pattern, as it was not significantly correlated with any of the three anger regulation variables.

Tests of Multiple Mediation Models

To test the study's first hypothesis (see Figure 1), multiple mediation analyses were conducted using a bootstrapping procedure to obtain confidence intervals (CIs) based on 5,000 resamples with the aid of an SPSS macro (Preacher & Hayes, 2008). Specifically, we examined the total and specific indirect effects of family conflict intensity, family cohesion, and father- and mother-adolescent communication, respectively, on externalizing problems through three anger regulation variables. Youths' age and gender were controlled for in all analyses given the empirical and theoretical literature suggesting their influence on externalizing problems (e.g., Moffitt, Caspi, Rutter, & Silva, 2001; Rescorla et al., 2007) and on emotional expressivity and regulation (e.g., Gross & John, 2003). Table 2 displays the significant bootstrapped results.

The total indirect effect of *family conflict* on externalizing problems through the anger regulation mediators was statistically significant (bias corrected and accelerated [BCa] 95% confidence interval [CI], 0.522 to 1.945); anger expression-out as an individual mediator was also statistically significant (BCa 95% CI, 0.361 to 1.675). The total indirect effect of *father-adolescent communication* was significant (BCa 95% CI, -0.109 to -0.002); the individual mediators were not statistically significant. The total indirect effect of *family cohesion* on externalizing problems was not significant; however, anger control as an individual mediator was statistically significant (BCa 95% CI, -0.066 to -0.004). The multiple mediation model for mother-adolescent communication was nonsignificant. Thus, results partially supported the study's first hypothesis that anger regulation variables would mediate the association between family processes and youths' externalizing problems.

Tests of Moderated Mediation

To test the study's second hypothesis (see Figure 2), moderated mediation analyses were conducted using an SPSS macro developed for this purpose (Preacher, Rucker, & Hayes, 2007). Based on the results from the multiple mediation analyses, only the models in which statistically significant individual mediators were found were tested for moderated mediation. Those models were as follows: *Family conflict* → *Anger expression-out* → *Externalizing problems* and *Family*

Table 2

Total and Specific Indirect Effects of Family Processes on Youths' Externalizing Symptoms Through Anger Regulation (5,000 Bootstrap Samples)

Mediator	Bootstrap estimate	SE	BCa 95% CI	
			Lower	Upper
Family conflict intensity → Externalizing symptoms				
Total indirect effect ^a	1.16	0.37	0.522	1.945
Anger expression-in	0.11	0.11	−0.027	0.441
Anger expression-out ^a	0.86	0.32	0.361	1.675
Anger control	0.19	0.15	−0.057	0.541
Family cohesion → Externalizing symptoms				
Total indirect effect	−0.05	0.03	−0.123	0.006
Anger expression-in	−0.01	0.01	−0.033	0.005
Anger expression-out	−0.02	0.03	−0.079	0.027
Anger control ^a	−0.03	0.02	−0.066	−0.004
Father-adolescent communication → Externalizing symptoms				
Total indirect effect ^a	−0.05	0.03	−0.109	−0.002
Anger expression-in	−0.01	0.01	−0.034	0.003
Anger expression-out	−0.03	0.02	−0.085	0.010
Anger control	−0.02	0.01	−0.048	0.001

Note SE = standard error; BCa = bias corrected and accelerated; CI = confidence interval. Unstandardized regression coefficients are reported.

^aSignificant indirect effects, based on confidence intervals.

cohesion → *Anger control* → *Externalizing problems*. For each model, we tested the moderating effect of independent and interdependent self-construals, respectively, on the path between the mediator (i.e., anger regulation) and the dependent variable (i.e., externalizing problems). Again, youths' age and gender were controlled.

First, we tested for a conditional indirect effect in the model, *Family conflict* → *Anger expression-out* → *Externalizing problems* with independent self-construal as the moderator. The interaction term, independent self-construal x anger expression-out, was statistically significant ($B = 0.32$, $t = 2.15$, $p < .05$). Next, we probed the conditional indirect effect of family conflict on externalizing symptoms through anger expression-out at three levels of independent self-construal. Normal-theory tests showed that all three conditional indirect effects were positive and significantly different from zero (see Table 3).

We also obtained bootstrapped CIs (as recommended by Preacher et al., 2007) based on 5,000 resamples at each value of the moderator (mean, +1 *SD*, and −1 *SD*). None of the CIs contained a zero, 95% BCa CIs of [0.407, 1.720], [0.581, 2.254], and [0.208, 1.456], respectively, corroborating results of the normal-theory tests. Bootstrapped BCa confidence intervals were used to locate the region of significance at various values of independent self-construal, and the conditional indirect effect was found to be significant at any value of independent self-construal that was equal to or greater than 3.49 (see Figure 3). Adolescents whose independent self-construals were ≥ 3.49 constituted about 96% of the present sample; thus, the indirect effect of family conflict on externalizing problems through outward anger expression was significant among most of the adolescents in the sample, as the majority had relatively high levels of independent self-construal. However, for those few adolescents ($n = 6$; 3.6%) whose independent self-construal < 3.49 , the indirect effect was not significant. This provided support for Hypothesis #2 in that the indirect effect was significant only for adolescents with a strong (vs. weak) independent self-construal.

Next, we tested this model with interdependent self-construal as the moderator. The interaction term, interdependent self-construal x anger expression-out, was not statistically significant ($B = -0.10$, $t = -0.80$, $p = .43$). Thus, results suggest that the strength of the indirect effect

Table 3
Regression Results for Conditional Indirect Effect: Family Conflict→ Anger Out→ Externalizing Symptoms

Predictor	B	SE	t	p
<i>Mediator variable model (DV = anger expression-out)</i>				
Constant	7.27	2.94	2.47	.015
Age	0.51	0.22	2.25	.026*
Gender	−0.89	0.56	−1.58	.116
Family conflict	1.08	0.34	3.17	.002**
<i>Dependent variable model (DV = externalizing symptoms)</i>				
Constant	5.77	12.21	0.47	.637
Age	0.90	0.34	2.64	.009**
Gender	−2.03	0.85	−2.39	.018*
Family conflict	2.10	0.53	4.00	.000***
Anger out	−0.63	0.73	−0.85	.396
Independent SC	−5.03	2.40	−2.10	.037*
Independent SC x anger out	0.32	0.15	2.15	.033*
<i>Conditional effects at independent SC = M and ±1 SD</i>				
Independent SC	Boot indirect effect	Boot SE	Boot z	Boot p
−1 SD	0.71	0.31	2.26	.024*
Mean	0.98	0.33	2.97	.003**
+1 SD	1.24	0.41	3.04	.002**

Note SE = standard error; SC = self-construal; anger out = anger expression-out; boot = bootstrap; SD = standard deviation.

Unstandardized regression coefficients are reported. Bootstrap N = 5,000.

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

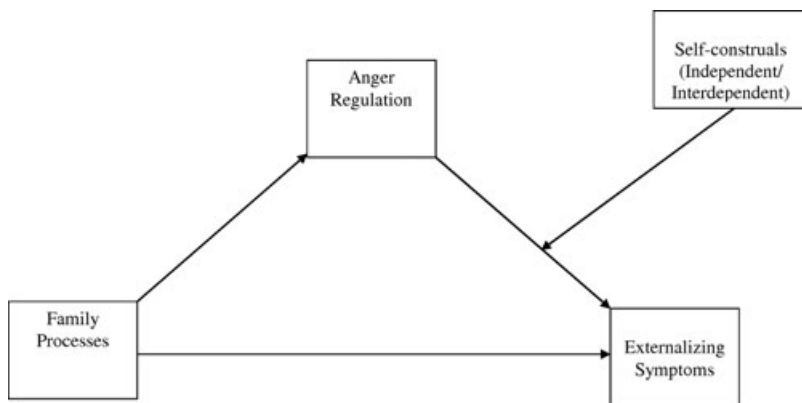


Figure 2. Moderated mediation model depicting the conditional indirect effect of family processes on externalizing symptoms through emotion regulation at various values of independent/interdependent self-construal.

from family conflict to externalizing problems via anger expression-out was not contingent on the level of adolescents' interdependent self-construal.

Second, we tested for a conditional indirect effect in the model, *Family cohesion* → *Anger control* → *Externalizing problems* with both types of self-construal. With independent self-construal as the moderator, results indicated that the interaction term, independent self-construal x anger control, was statistically significant ($B = -0.15$, $t = -2.06$, $p < .05$). Upon probing, the conditional indirect effect was found to be negative and significantly different from zero

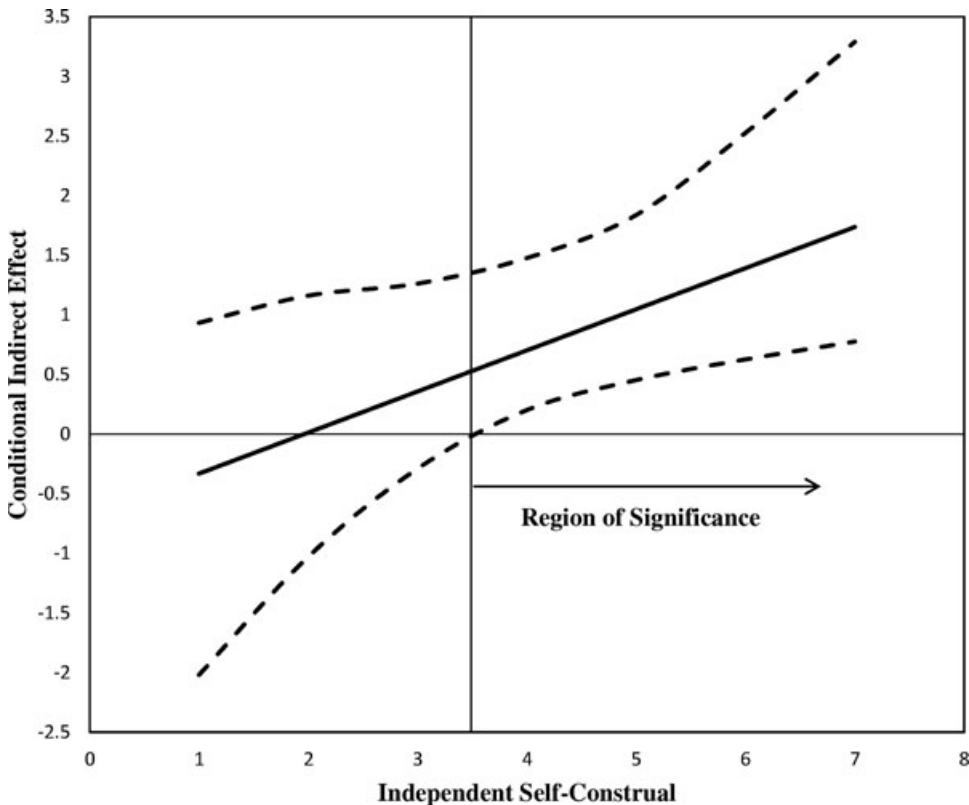


Figure 3. Plot of independent self-construal as a moderator conditioning the indirect effect of family conflict on externalizing symptoms via anger out. The y axis is the effect of family conflict on externalizing symptoms through outward anger expression. The x axis is independent self-construal. Dashed lines are biased corrected and accelerated confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (Preacher, Rucker, & Hayes, 2007). Horizontal line denotes an indirect of zero. Vertical line indicates the boundary of the region of significance, such that the indirect effect is significant for independent self-construal value of 3.49 or above.

at one value of the moderator (at $+1$ *SD*) using normal-theory tests (see Table 4). However, bootstrapped CIs showed that the conditional indirect effect was significant at both the mean and $+1$ *SD*, BCa CIs of $[-0.092, -0.005]$ and $[-0.132, -0.009]$ at the mean and $+1$ *SD*, respectively, as these CIs did not contain zero (in such cases, results using the bootstrapped CIs, the more powerful test, are more reliable).

Using bootstrapped BCa confidence intervals, the conditional indirect effect was found to be significant for any value of independent self-construal equal to or greater than 4.14 (see Figure 4). Thus, the indirect effect of family cohesion on externalizing problems through anger control was significant for those adolescents with a relatively strong independent self-construal (approximately 76.5% of the present sample). However, for those youths whose independent self-construal was less than 4.14 (approximately 23.5% of the present sample), the indirect effect was not significant. Again, this provided support for Hypothesis 2 in that the indirect effect was significant only for adolescents with a strong (vs. weak) independent self-construal.

Next, we tested this model with interdependent self-construal as the moderator. The interaction term, interdependent self-construal \times anger control, was not statistically significant ($B = -0.02$, $t = -0.27$, $p = .79$). Thus, results suggest that the strength of the indirect effect from family cohesion to externalizing problems via anger control was not contingent on level of interdependent self-construal.

Table 4

Regression Results for Conditional Indirect Effect: Family Cohesion → Anger Control → Externalizing Symptoms

Predictor	B	SE	t	p
<i>Mediator variable model (DV = anger control)</i>				
Constant	43.90	8.69	5.05	.000
Age	− 0.49	0.54	− 0.91	.365
Gender	− 3.01	1.31	− 2.30	.023*
Family cohesion	0.17	0.07	2.36	.020*
<i>Dependent variable model (DV = externalizing symptoms)</i>				
Constant	− 19.62	17.76	− 1.10	.271
Age	0.97	0.41	2.38	.018
Gender	− 3.51	1.01	− 3.48	.001*
Family cohesion	− 0.14	0.06	− 2.55	.012*
Anger control	0.48	0.35	1.35	.178
Independent SC	8.42	3.51	2.40	.018*
Independent SC x anger control	− 0.15	0.07	− 2.06	.041*
<i>Conditional effects at independent SC = M and ±1 SD</i>				
Independent SC	Boot indirect effect	Boot SE	Boot z	Boot p
−1 SD	− 0.02	0.02	− 1.33	.219
Mean	− 0.04	0.02	− 1.94	.052
+1 SD	− 0.06	0.03	− 1.98	.048*

Note SE = standard error; SC = self-construal; SD = standard deviation.

Unstandardized regression coefficients are reported. Bootstrap N = 5,000.

* $p < .05$.

Discussion

The purpose of the present study was twofold: (a) to test a theoretical model of the mediating role of anger regulation on the relation between family processes and externalizing problems among Korean American adolescents and (b) to examine the potential moderating influence of cultural context on the relation between anger regulation and youths' externalizing symptomatology. The study was unique in that it addressed a major gap in the current literature that has often neglected to examine the role of cultural context in developmental psychopathology models of emotion regulation.

Multiple Mediation Findings

With regard to the first study aim, several key findings emerged that indicated partial support for the hypothesized mediation model. Results showed that three mediation models were found to be significant in this sample of Korean American adolescents, depending on the particular family process and anger regulation strategy being tested. Specifically, outward anger expression mediated the influence of family conflict, anger control mediated the influence of family cohesion, and the collective set of anger regulation variables mediated the influence of father-adolescent communication on externalizing problems. Interestingly, the indirect effect of mother-adolescent communication on externalizing problems was not significant through any of the anger regulation variables.

The significant mediation models demonstrate how family processes and externalizing problems are related, by highlighting anger regulation as an explanatory variable. To our knowledge, this is the first study of its kind, testing a theory-driven mediation model linking family processes and externalizing problems through the specific anger regulation variables of anger expression, anger control, and anger suppression in *adolescence* (vs. childhood), in this case, among Korean American adolescents in particular. Although some prior studies have found mediating influences of similar emotion processing-related variables, such as effortful control, on the

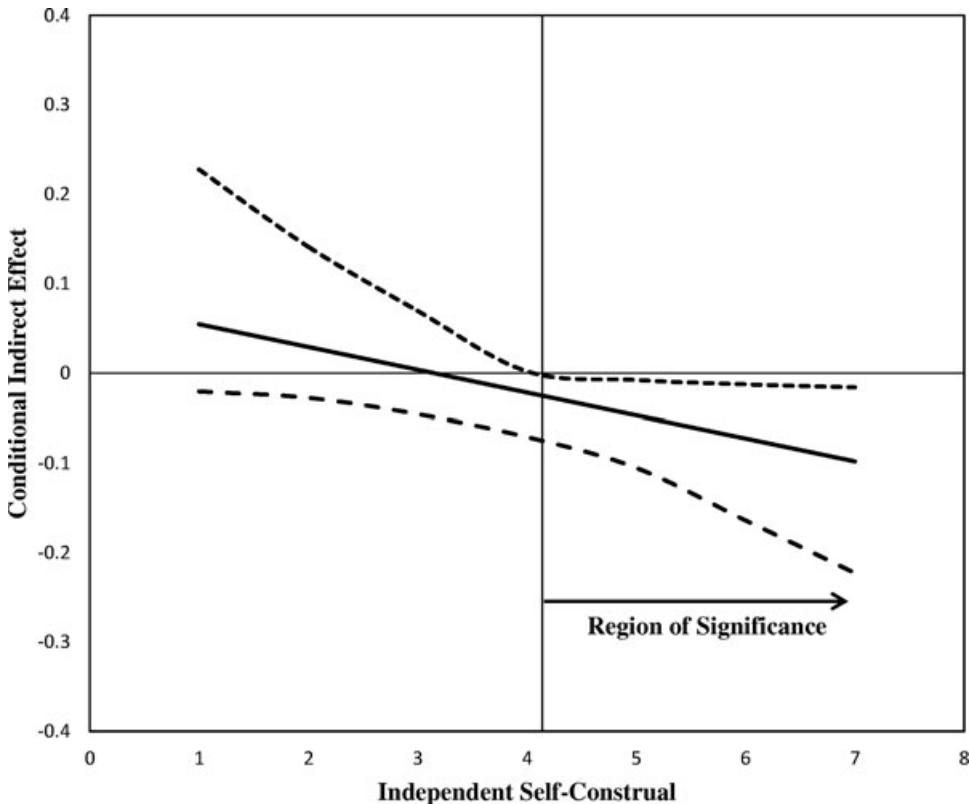


Figure 4. Plot of independent self-construal as a moderator conditioning the indirect effect of family cohesion on externalizing symptoms via anger control. The *y* axis is the effect of family cohesion on externalizing symptoms through anger control. The *x* axis is independent self-construal. Dashed lines are biased corrected and accelerated confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (Preacher, Rucker, & Hayes, 2007). Horizontal line denotes an indirect of zero. Vertical line indicate the boundary of the region of significance, such that the indirect effect is significant for independent self-construal value of 4.14 or above.

relation between family relations and adjustment outcomes among *children* (e.g., Zhou, Eisenberg, Wang, & Reiser, 2004), the present study focused on the transition into adolescence because it is a critical transition period during which family dynamics and emotion regulation skills may play a role in the emergence of youths' adjustment problems (Yap et al., 2007).

In addition, our findings are generally consistent with those of a recent study in which adolescents' emotion dysregulation mediated the influence of family process variables (i.e., maternal invalidation of positive affect) and depressive symptomatology (Yap, Allen, & Ladouceur, 2008); however, the specific variables examined in the Yap et al. (2008) study were quite different (e.g., maternal socialization of adolescents' *positive* affect vs. family conflict and anger in the present study). No prior studies have examined the mediating effects of anger regulation in the relation between family processes and adolescents' externalizing problems among Asian Americans or Korean Americans in particular. More research should be conducted on specific Asian American populations to replicate these results, especially given the dearth of research on Asian American adolescent externalizing problems (e.g., Choi, 2011).

It is interesting to note that father-adolescent communication appeared to be more consequential (vs. mother-adolescent communication) for the adolescents in the present sample, at least in terms of their anger regulation strategies collectively. Although adolescents' perceptions of the communication quality with both their fathers and their mothers were associated inversely with externalizing problems, only father-adolescent communication was associated with adolescents'

anger regulation. We may cautiously infer that adolescents' perceived communication quality with fathers (vs. mothers) is more critical to their anger regulation strategies, or that those who use more adaptive anger regulation strategies also perceive higher quality communication with their fathers (vs. mothers).

This finding is consistent with prior research, which has also found that adolescents' perceptions of paternal parenting have an effect on youths' adjustment. For example, in a study that tested parenting as a mediator between the gap and distress in a sample of Chinese American children, the mediation effect of parenting was only significant between fathers and adolescents and not for mother-adolescent relations (S. Y. Kim et al., 2009). In our own research, we have also found the significant moderating effect of father-adolescent (but not mother-adolescent) communication on the acculturation gap—distress link (M. Kim & Park, 2011). It appears that father-adolescent relations may be one fruitful avenue that warrants further investigation in Asian American families, especially as a source of risk and resilience for adolescent adjustment.

Moderated Mediation Findings

With regard to the second study aim, two significant conditional indirect effects were found. Both significant effects supported our hypothesis. First, results showed that the indirect effect of family conflict on externalizing problems through outward anger expression was dependent on the adolescent's level of independent self-construal. Specifically, the positive indirect effect of family conflict on externalizing problems through higher levels of outward anger expression was observed only when youth's independent self-construal was relatively strong (greater than the midpoint on a 7-point scale), but not when youths' independent self-construal was relatively weak.

Results showed that a strong independent self-construal strengthened the association between anger expression and externalizing problems. For Korean American youths, a strong independent self-construal may be indicative of a strong sense of agency, which amplifies the association between the anger regulation strategy (in this case, outward anger expression) and problem behaviors. Some prior research is consistent with this finding; for instance, a stronger individualistic orientation has been associated with more externalizing problems, such as risk-taking and antisocial activities, in the interest of identity assertion or self-expression (Le & Stockdale, 2005). It may be the case that for Korean American adolescents, a strong (vs. weak) independent self-construal exacerbates externalizing problems, especially when they are prone to outward anger expression in the context of family conflict.

Next, the indirect effect of family cohesion on externalizing problems through anger control was also dependent on the adolescent's level of independent self-construal. Specifically, the negative indirect effect of family cohesion on externalizing problems through higher levels of anger control was observed only when youth's independent self-construal was relatively strong, but not when youths' independent self-construal was relatively weak. This finding was also consistent with our hypothesis. The inverse relation between anger control and externalizing problems was amplified for those youths with a strong independent self-construal, resulting in a significant indirect effect. Youths who are more independent may be both aware of their internal "temperature" and more able to be proactive in regulating their anger in the context of cohesive family dynamics.

In contrast, when these adolescents have a weak independent self, they may not be as aware of their internal attributes, including angry emotions, and, thus, family cohesion may operate through some other mechanism vis-à-vis externalizing problems. In general, this set of findings supports our hypothesis that a strong independent self-construal represents a strong sense of self and agency (as theorized by Markus & Kitayama, 1991), which amplifies the association between a given anger regulation strategy (in this case, anger control) and externalizing problems. In other words, a strong independent self-construal appears to "rev up" the adolescent's given anger regulation strategy (whether it be anger expression or anger control), both for better *and* for worse, vis-à-vis their externalizing problems. In this sample, the anger regulation strategies through which the significant indirect effects were obtained can be seen as those that can promote

the goals of the independent self—in achieving social disengagement (Kitayama et al., 2004) through either “hot” (anger expression) or “cool” (anger control) distancing.

In contrast, an interdependent self-construal did not appear to set any boundary conditions on the indirect effects observed. The indirect effect of anger regulation appeared to be unchanged by the effect of the level of interdependent self-construal on the link between anger regulation and symptomatology. However, this null finding should be interpreted cautiously and requires replication, particularly because this is not consistent with some prior research that has shown that an interdependent self-construal attenuates the link between anger suppression, for example, and depressive symptoms in Asian American college students (e.g., Cheung & Park, 2010). Further research should clarify how an interdependent self-construal may interact with various types of emotion regulation strategies to affect psychopathology.

In sum, the moderated mediation findings highlight the importance of considering cultural context (in this case, via an independent self-construal) in determining whether or not mediating models involving family processes, anger regulation, and externalizing symptoms hold. To date, very little research has been conducted examining the moderating role of (explicitly measured) cultural values in the American context on the relation between emotion dysregulation and adolescents’ psychological maladjustment.

However, these findings are consistent with some of the few studies that have attempted to examine the role of ethnic culture or cross-national differences in the relation between emotion regulation and externalizing problems among children (Supplee et al., 2009; Zhou et al., 2009). For instance, Supplee et al. (2009) found that ethnic culture does indeed moderate the relation between specific emotion regulation strategies and later externalizing problems when comparing African American and European American male toddlers (aged 17-28 months). Zhou et al. (2009) found some cross-cultural differences when comparing children (aged 7-12 years) from China versus the United States; for example, the relation between anger-irritability and externalizing problems was stronger for the Chinese sample.

Both studies, though, lacked an explicit measure of “culture” and instead relied on ethnicity or nationality as proxies for assessing underlying cultural value systems. In addition, these two prior studies did not test conditional indirect effects within a mediation context. This prior research along with the present findings suggest that significant moderating effects of culture are more evident with regard to externalizing (vs. internalizing) problems. More empirical work is necessary to conclusively address this question. What’s clear, however, is that the examination of potential cultural or cross-cultural differences is worth pursuing in the link between emotion regulation and psychological adjustment outcomes.

Implications for Theory, Research, and Clinical Practice

One major implication of the present study’s results is that culture should be considered when applying theories of emotion regulation to ethnic minority populations. The present findings indicate that although a given theoretical model may “work,” it may apply only under certain conditions—in the present study, given certain cultural models of self. Thus, a one-size-fits-all approach cannot be indiscriminately employed, particularly in predicting the association between emotion regulation strategies and adolescent symptomatology. Instead, mainstream models of emotion regulation should be empirically tested before generalizability can be presumed. Most importantly, future theoretical and empirical work should explicitly incorporate cultural context into mainstream models of emotion regulation and its effect on the development of psychopathology and psychological well-being.

The mediation and moderated mediation results also suggest some promising ways to begin to address adjustment problems among Korean American youths in clinical practice. One possibility is to specifically target anger regulation, given that it was identified as a significant explanatory variable between family processes and externalizing problems. In particular, anger regulation is a malleable coping strategy that is amenable to change through prevention or intervention programs for youth who are at risk for developing or currently experiencing psychopathology, such as externalizing behavior problems (e.g., Greenberg, Kusche, Cook, & Quamma, 1995). Focusing on anger regulation *in conjunction with* family processes (as opposed to family processes

solely) also makes sense as the present findings showed that it is more proximal to adjustment outcomes.

A second possibility for clinical intervention may be to target those families with high levels of parent-adolescent conflict. This highlights another strength of the present study as well, in distinguishing between three different types of family processes so that translation of the present findings can be made more readily in clinical settings in terms of potential targets for intervention and prevention. In family contexts with more conflict, it appeared that most of the Korean American adolescents in the present sample were prone to outward anger expression, which, in turn, was linked with externalizing problems, as a function of medium to high levels of independent self-construal.

Thus, Korean American adolescents may benefit from learning strategies for the healthy expression and control of anger in situations involving family conflict. In addition, it is interesting to consider that a weak independent self-construal may afford some protection in family conflict situations, and a strong independent self-construal may worsen the negative impact of family conflict—at least for these Korean American adolescents who must navigate the bicultural spheres of both their heritage culture and the mainstream U.S. society. The idea that greater cultural orientation towards U.S. mainstream society may hold costs to immigrants' psychological adjustment has been found in prior research as well (i.e., the immigrant paradox; e.g., Alegria et al., 2007, 2008).

Limitations and Future Directions

Results from the present study should be considered in light of its limitations. First, the correlational and cross-sectional nature of the study's design prohibits conclusive inferences of causality or direction of effects. However, to address this issue to some degree, we tested one set of possible alternative mediation models (in which externalizing problems was the independent variable, family processes were the dependent variables, and anger regulation was the mediator) and found that they were not as powerful (i.e., smaller effect sizes) in explaining the outcomes of interest as the hypothesized models. More research is required to replicate these findings using a prospective design.

Second, although the present study is among the first to test the moderating role of culture on the link between anger regulation and adolescents' maladjustment, the assessment of culture can be further refined. We operationalized culture as cultural models of self (specifically, independent self-construal). Future studies could assess other aspects of culture (e.g., acculturation, ethnic identity, face concerns, etc.) using multiple methods at multiple levels. Third, the present study specifically honed in on the emotion of anger; future research can examine other discrete emotions (e.g., sadness or guilt) to see how the link between emotion regulation and adjustment may be affected.

Fourth, although the present study focused on testing the moderating influence of culture on the relation between anger regulation and adjustment outcomes (the "b" path in the mediation model), cultural context may very well influence the relation between family processes and anger regulation (the "a" path in the mediation model), but this was outside the scope of the present investigation; we intend to pursue this line of inquiry in the future and recommend this as a future direction of research for other investigators as well.

Other important moderators, such as gender or socioeconomic status, could also be explored in future research; for instance, gender has been found to influence emotion regulation strategies such as expressive suppression (e.g., Gross & John, 2003). Finally, the study relied on adolescents' self-reports to measure the study constructs, and, as such, a common method variance interpretation of the results cannot be ruled out. For example, youth may not be the most accurate reporters of externalizing problems in comparison to their perceptions of internalizing symptoms; future research could incorporate multiple informants and multiple methods to assess these variables.

In conclusion, the present findings provide some initial evidence that Korean American adolescents' cultural context, in the form of an independent self-construal, should be considered when applying current theoretical models of emotion regulation. This study has important

implications for prevention efforts designed to reduce the risk for externalizing problems in diverse populations.

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