

Examining the Relations Between Rumination and Adjustment: Do Ethnic Differences Exist Between Asian and European Americans?

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Past studies have pointed to the dysfunctional nature of rumination in adults. However, past research has not examined ethnic variations. Accordingly, this study examined ethnic differences in rumination in 184 Asian American and 238 European American college students. Consistent with expectations, Asian Americans were found to ruminate more than European Americans. However, rumination was found to have a weaker association with measures of adjustment (*viz.*, affectivity, depressive symptoms, anxious symptoms, and life satisfaction) in Asian Americans compared with European Americans. As a result of conducting regression analyses to determine whether rumination was a unique predictor of functioning beyond affectivity, we found rumination to be a more distinct and useful predictor of functioning for Asian Americans than for European Americans. Overall, compared with findings for European Americans, our findings indicate that important ethnic differences need to be considered in studying rumination in Asian Americans.

Keywords: Ethnicity, rumination, psychological adjustment, affectivity

You should examine yourself daily. If you find faults, you should correct them. When you find none, you should try even harder.—Xi Zhi

Drag your thoughts away from troubles . . . by the ears, by the heels, or any other way you can manage it.—Mark Twain

One personality variable that has garnered increasing attention by researchers over the years, resulting in hundreds of publications and scholarly work, is rumination (see Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008, for a review). According to Nolen-Hoeksema's (1991) response styles theory, *rumination* involves cognitive and behavioral activities that repetitively focus a person's attention on his or her depressive symptoms and the possible causes and consequences of these symptoms

(*e.g.*, thinking about how sad one feels). Specifically, rumination is considered to be maladaptive insofar that it is likely to increase the probability of recalling negative information (Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998), likely to exacerbate existing maladaptive cognitions (Morrow & Nolen-Hoeksema, 1990), and likely to interfere with attention, concentration, and engagement in instrumental behaviors such as problem solving (Lyubomirsky & Nolen-Hoeksema, 1995). Indeed, findings from studies on rumination have shown it to be associated with greater depressive symptoms (Nolen-Hoeksema, 2000), greater anxious symptoms (Abbott & Rapee, 2004), increased suicide ideation (Miranda & Nolen-Hoeksema, 2007), and greater hopelessness (Smith, Alloy, & Abramson, 2006). Alternatively, rumination has been found to be associated with less life satisfaction (Chang, 2004; Ysseldyk, Matheson, & Anisman, 2007), fewer expectations for positive events (Lyubomirsky & Nolen-Hoeksema, 1995), and less happiness (Elliott & Coker, 2008). On a more global level, rumination is believed to maintain depressed mood by generating greater negative affectivity through these aforementioned mechanisms (Nolen-Hoeksema, 1991). However, rumination is distinguishable from other maladaptive processes

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such as self-focused attention. For example, it is not necessary for rumination to involve a focus on discrepant or failure experiences to maintain depressive mood as typically expected from within a self-focus framework of depression (Nolen-Hoeksema, 1991).

Rumination in Asian Americans: Increasing Our Understanding of Personality and Adjustment

A recent review of the literature looking at the study of personality showed that of the 5,698 studies published between 1990 and 1999, only six studies (0.1%) focused on Asian Americans (Chang, Chang, & Chu, 2006). Apparently, it is not what we know about the function of personality in Asian Americans, but rather what we have yet to learn. In that regard, it is perhaps not too surprising that despite robust support for the usefulness of rumination as an explanatory variable in accounting for adjustment in the general adult population, this personality construct in Asian Americans has yet to be examined. However, we believe that cultural differences between European Americans and Asian Americans may point to important differences in rumination. Specifically, we question whether greater rumination entails similar levels of maladjustment across diverse adult groups.

Results from studies on cultural differences have provided a compelling portrait of fundamental group differences between Easterners and Westerners (Markus & Kitayama, 1991). Historically, Eastern cultures are believed to foster a view of interdependence with society, and fitting in is not only valued, but often required and expected. In contrast, Western cultures are believed to foster a view of the individual as an independent, self-contained, autonomous entity that is the result of his or her own actions (Markus & Kitayama, 1991). According to cultural psychologists (Markus & Kitayama, 1991), the difference lies in perceived notions of the self. Those from the West or of European heritage are thought to develop an independent sense of self, whereas those from the East or of Asian heritage are thought to develop an interdependent sense of self (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Markus & Kitayama, 1991). In turn, these notions of the self are believed to

be associated with the development of relatively distinct meta-motivational processes that affect personality and behavior (Chang, 2007). For Westerners, the independent self is believed to be strongly motivated by self-enhancement processes, which typically emphasize positive self-referent cognitions (e.g., self-esteem; Solomon, Greenberg, & Pyszczynski, 1991). For Easterners, the interdependent self is believed to be strongly motivated by self-critical processes, typically involving negative self-referent cognitions (e.g., pessimism; Chang & Asakawa, 2003; Chang, Asakawa, & Sanna, 2001; Chang, Sanna, & Yang, 2003). Yet, it is important to appreciate that for Asians and Asian Americans, self-criticism appears to represent a meta-motive or core value that is more strongly associated with a desire for self-improvement than for self-effacement (Heine et al., 2001). It is noteworthy that although studies involving Westerners have shown that self-enhancement is associated with greater adjustment for this cultural group (Taylor & Brown, 1988; Zimmerman, Bandura, & Martinez-Pons, 1992), self-criticism has been found to reflect a constructive process that is associated with greater adjustment for Easterners (Heine et al., 2001; Kitayama et al., 1997), including for Asian Americans. For example, in a study looking at the role of optimism and pessimism, Asian Americans were found to report greater pessimism than European Americans. It is interesting, however, that greater pessimism for the former group was found to be associated with greater problem-solving activity when facing a stressful situation, whereas greater pessimism was associated with less problem-solving activity for the latter group (Chang, 1996). As noted earlier, however, rumination is distinct from other self-focused constructs. For example, although rumination and pessimism are likely to be related, the former involves cognitive and affective processes (Nolen-Hoeksema, 1991), whereas the latter exclusively involves a cognitive process (Scheier & Carver, 1985).

Given cultural differences and suggestive findings for variables related to rumination, one might expect that the strength or function of rumination may also differ between European Americans and Asian Americans. Specifically, one might expect Asian Americans to report relatively greater rumination given their self-critical tendencies, whereas Euro-

pean Americans might report relatively less rumination given their self-enhancement tendencies. Indeed, in support of this contention, Maxwell, Sukhodolsky, Chow, and Wong (2005) found that Chinese students reported greater anger rumination than British students. However, because their study focused on anger rumination, rather than rumination associated with depressed or negative mood (Nolen-Hoeksema, 2000), their finding does not have direct implications regarding possible variations in rumination across different cultural or ethnic groups. Thus, it remains useful to examine whether there are cultural or ethnic differences in general ruminative experiences between European Americans and Asian Americans. Furthermore, related to our belief that greater rumination may not necessarily entail similar levels of maladjustment across all groups, it would also be important to evaluate whether rumination plays a comparable role in determining psychological adjustment between these European Americans and Asian Americans. Finally, because negative mood, and perhaps also the absence of positive mood (Clark & Watson, 1991), is believed to serve as a key condition for the development of poor adjustment (e.g., depressed symptoms, low life satisfaction), it would also be important to determine the extent to which rumination adds to accounting for adjustment across European Americans and Asian Americans when one includes chronic positive and negative mood (i.e., positive and negative affectivity). In turn, the results of such an examination can help clarify the relative importance of rumination over broader explanatory constructs within each group.

Given potential differences between Westerners and Easterners on rumination, in this study we examined whether ethnic group differences would be found between European Americans and Asian Americans. Accordingly, we conducted our research using a top-down approach (Betancourt & López, 1993), namely, examining the presumed utility of rumination as an important explanatory construct in a general sample of Asian Americans compared with European Americans. Specifically, we had three objectives: (a) to determine whether there are any differences in experiences of rumination between the two groups; (b) to determine

whether the involvement of rumination in adjustment (e.g., depressive symptoms, life satisfaction) is similar between the two groups; and (c) to determine whether rumination adds to accounting for adjustment even after controlling for fundamental dimensions of mood.

Given the role of self-criticism among Easterners and of self-enhancement among Westerners, we expected rumination experiences to be greater among Asian Americans than among European Americans. However, given that self-criticism motives are associated with self-improvement for Easterners, we expected rumination to play either a weaker role in maladjustment (e.g., have weaker links with depressive symptoms) or possibly a constructive role in adjustment (e.g., have negative associations with depressive symptoms). Finally, given that rumination has largely been the research focus of Western populations, we expected rumination to play a greater unique role in accounting for adjustment among European Americans than among Asian Americans.

Method

Participants

Participants were 184 (80 men, 104 women) Asian American and 238 (75 men, 163 women) European American college students attending a large Midwestern university. Given the challenges of collecting ethnic and racial data (Suarez-Balcazar, Balcazar, & Taylor-Ritzler, 2009), participants were solicited in one of two ways. First, students identified from a randomly generated list of undergraduates provided by the registrar's office were contacted by e-mail to participate in an online survey. This resulted in 327 (221 European Americans and 106 Asian Americans) participants. Because of the lower number of Asian Americans obtained through this initial method, our second approach involved distributing paper-and-pencil surveys in public places on campus where we could locate potential participants, especially Asian American participants (e.g., library, study hall, student union). This method resulted in 95 (17 European Americans and 78 Asian Americans) additional participants. No differences were found on the basis of method of solicitation between the two groups on age, sex, and year in college. For the total sample, mean age was 20.43 years

($SD = 2.96$ years). Approximately 25.1% indicated being a freshman; 23%, a sophomore; 22.5%, a junior; and 22.3%, a senior; 7.1% did not indicate class.

Measures

Rumination. The Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991; Treynor, Gonzalez, & Nolen-Hoeksema, 2003) was used to measure rumination. The RRS is a 21-item self-report measure used to assess dispositional tendencies to ruminate. Respondents are asked to rate their responses on a 4-point Likert scale ranging from 1 (*almost always respond in this way*) to 4 (*almost never respond in this way*). The RRS measures responses to sad mood that are focused on the self (e.g., “Think what am I doing to deserve this?”), on symptoms (e.g., “Think about how hard it is to concentrate”), and on behavioral responses to dysphoria (e.g., “Go someplace alone to think about your feelings”). Evidence for the construct validity of the RRS has been reported in past research, indicating rumination as a predictor of changes in depressive symptoms across time (e.g., Butler & Nolen-Hoeksema, 1994). Test–retest reliability (2 months) for the RRS has been reported to be .71 (Sakamoto, Kambara, & Tanno, 2001). Higher scores on the RRS indicate a stronger disposition to ruminate.

Positive and negative affectivity. The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to assess for positive and negative affectivity. The PANAS is a 20-item self-report measure of positive and negative affectivity, with 10 items assessing for positive affectivity (PA; e.g., “interested”) and 10 items assessing for negative affectivity (NA; e.g., “scared”). Respondents are asked to rate the way they feel on average for each item using a 5-point Likert scale ranging from 1 (*very slightly*) to 5 (*extremely*). Evidence for the construct validity of the PANAS has been reported in past research, indicating that PA and NA are distinct and have different relations with measures of adjustment, including depressive and anxious symptoms (e.g., Crawford & Henry, 2004; Watson et al., 1988). Test–retest reliabilities (8 weeks) for the PA and NA scales have been reported to be .68 and .71, respectively (Watson et al., 1988). Higher scores on PA and NA indicate higher

levels of positive affectivity and negative affectivity, respectively.

Positive and negative functioning. Negative functioning was measured by the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). Positive functioning was measured by the Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985).

The BDI is a commonly used 21-item self-report measure of the severity of depressive symptoms. Using a 4-point Likert scale, respondents are asked to rate the extent to which they have experienced “in the past week, including today,” specific depressive symptoms (e.g., 0 = *I have not lost interest in other people* to 3 = *I have lost all of my interests in other people*). Past research has shown evidence for the construct validity of the BDI, including positive correlations with other measures of depression (Beck, Steer, & Garbin, 1988). Test–retest reliability (4 months) for the BDI has been reported to be .62 (see Beck, Steer, & Garbin, 1988). Higher scores on the BDI indicate a higher level of depressive symptoms.

The BAI is a 21-item self-report measure of common symptoms of anxiety (e.g., “fear of the worst happening”). Respondents rate the extent to which they have experienced each symptom over the past week using a 4-point Likert scale ranging from 0 (*not at all*) to 3 (*severely*). Past research has shown evidence for the construct validity of the BAI, including positive correlations with other measures of anxiety (Beck, Epstein, et al., 1988). Test–retest reliability (1 week) for the BAI has been reported to be .75 (Beck, Epstein, et al., 1988). Higher scores on the BAI generally indicate more severe levels of anxious symptoms.

The SWLS is a five-item self-report measure of life satisfaction in general (e.g., “I am satisfied with my life”) rather than of any specific domains. Respondents are asked to rate the extent of their agreement with the items using a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Evidence for the construct validity of the SWLS has been reported in past research, indicating positive correlations with other measures of subjective well-being (Diener et al., 1985). Test–retest reliability (8 weeks) for

the SWLS has been reported to be .82 (Diener et al., 1985). Higher scores on the SWLS reflect greater life satisfaction.

Procedure

Participants completed surveys either online or in paper-and-pencil format. No identifying information was collected from participants. Participants were not made aware of the purpose of the study until after they had completed the survey.

Results

To determine whether there were significant ethnic differences in experiences of rumination, as well as in the other variables examined in this study, we conducted a series of independent *t* tests. The results of these tests are presented in Table 1. As expected, although the effect size was small ($d = 0.23$), rumination was found to be significantly greater among Asian Americans compared with European Americans ($M_s = 46.23$ and 42.94 , respectively), $t(420) = 2.63$, $p = .01$. Yet, despite the greater rumination found among Asian Americans compared with European Americans, no significant ethnic differences were found in positive affectivity, negative affectivity, anxious symptoms, and life satisfaction. The only exception to this pattern was the finding of greater reported depressive symptoms among Asian Americans than European Americans ($M_s = 10.14$ and 7.30 , respectively), $t(420) = 3.16$, $p < .01$. The effect size was small ($d = 0.31$). Thus, although Asian Americans may ruminate more than European Americans, this difference failed to distinguish

the groups on four of five other key measures of personality and adjustment. For example, Asian Americans and European Americans were not significantly different on levels of life satisfaction, suggesting that the higher level of rumination found in Asian Americans, compared with European Americans, might best be viewed as reflecting normative rather than clinically meaningful differences.

To take a closer look at potential differences in the role of rumination between Asian Americans and European Americans, we next computed zero-order correlations. The results of our computations are presented in Table 2. As this table shows, the expected pattern of associations involving rumination emerged for both groups. Specifically, rumination was negatively associated with both positive affectivity and life satisfaction but positively associated with negative affectivity, depressive symptoms, and anxious symptoms. However, it is worth noting that the magnitude of these associations was significantly weaker in four of five cases. For Asian Americans compared with European Americans, significantly weaker associations were found involving rumination and positive affectivity ($r_s = -.25$ vs. $-.48$, $z = 2.71$, $p < .01$), negative affectivity ($r_s = .42$ vs. $.65$, $z = 3.31$, $p < .01$), depressive symptoms ($r_s = -.45$ vs. $-.61$, $z = 2.27$, $p < .01$), and anxious symptoms ($r_s = .40$ vs. $.59$, $z = 2.57$, $p < .01$). Approaching significance, rumination also appeared to play a weaker role in life satisfaction for Asian Americans than for European Americans ($r_s = -.38$ vs. $-.48$, $z = 1.24$, $p = .22$). Thus, although greater rumination was significantly associated with greater maladaptiveness (and less adaptiveness) for both ethnic groups, rumination appeared to be more centrally involved in the adjustment of European Americans than in that of Asian Americans.

Finally, to determine whether rumination adds to accounting for functioning beyond what may be accounted for by positive and negative affectivity, we conducted a series of hierarchical regression analyses in predicting scores on each of the three indices of functioning examined in this study. For each regression model, PA and NA scores were entered as a set in Step 1, followed by RRS scores in Step 2. Results of these regression analyses are presented in Table 3. To determine whether affectivity and rumination scores accounted for a

Table 1
Mean Difference of Variables for Asian Americans ($n = 184$) and European Americans ($n = 238$)

Variable	Asian Americans		European Americans		<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Rumination	46.26	12.08	42.94	13.20	<.01
Positive affectivity	29.28	8.28	30.88	8.77	<i>ns</i>
Negative affectivity	18.46	6.90	19.08	6.66	<i>ns</i>
Depressive symptoms	10.14	8.97	7.57	7.71	<.01
Anxious symptoms	8.12	7.66	8.36	8.42	<i>ns</i>
Life satisfaction	23.98	6.40	23.92	6.93	<i>ns</i>

Table 2
Zero-Order Correlations Between Rumination and All Adjustment Variables for Asian Americans
($n = 184$) and European Americans ($n = 238$)

Variable	1	2	3	4	5	6
1. Rumination	—					
2. Positive affectivity	-.48** (-.25)**	—				
3. Negative affectivity	.65** (.42)**	-.38** (-.19)**	—			
4. Depressive symptoms	.61** (.45)**	-.61** (-.32)**	.71** (.47)**	—		
5. Anxious symptoms	.59** (.40)**	-.39** (-.28)**	.75** (.58)**	.70** (.54)**	—	
6. Life satisfaction	-.48** (-.38)**	.65** (.51)**	-.48** (-.40)**	-.66** (-.39)**	-.48** (-.26)**	—
α	.94 (.89)	.89 (.92)	.88 (.87)	.90 (.91)	.92 (.80)	.91 (.86)

Note. Correlations and alphas within parentheses are for Asian Americans. Boldface correlations are significantly different at $p < .05$. ** $p < .01$.

small, medium, or large amount of the variance in functioning, we used Cohen's (1977) convention for small ($f^2 = .02$), medium ($f^2 = .15$), and large ($f^2 = .35$) effects.

For Asian Americans, PA and NA scores were found to account for a large ($f^2 = .38$) percentage (28%) of the variance in BDI scores. When RRS scores were entered in the second step, they were found to account for a small ($f^2 = .06$) percentage (6%) of additional variance in BDI scores, $F(1, 180) = 16.06$, $p < .001$. Within this regression model, rumination ($\beta = 0.27$) was found to be a significant and unique predictor of depressive symptoms. Similarly, PA and NA scores were found to account for a large ($f^2 = .56$) percentage (36%) of the variance in BAI scores in this group. When RRS scores were entered in the second step, they were found to account for a small ($f^2 = .02$) percentage (2%) of additional variance in BAI scores, $F(1, 180) = 5.55$, $p < .05$. Within this regression model, rumination ($\beta = 0.16$) was found to be a significant and unique predictor of anxious symptoms. Last, PA and NA scores were found to account for a large ($f^2 = .54$) percentage (35%) of variance in SWLS scores in Asian Americans. When RRS scores were entered in the second step, they were found to account for a small ($f^2 = .02$) percentage (2%) of additional variance in SWLS scores, $F(1, 180) = 6.78$, $p < .001$. Within this regression model, rumination ($\beta = -0.17$) was found to be a significant and unique predictor of life satisfaction.

For European Americans, PA and NA scores were found to account for a large ($f^2 = 1.78$) percentage (64%) of the variance in BDI scores. When RRS scores were entered in the second

step, they were found to account for a small ($f^2 = .01$) percentage (1%) of additional variance in BDI scores, $F(1, 234) = 3.75$, $p < .01$. It is interesting that within this regression model, rumination was not found to be a significant and unique predictor of depressive symptoms. Furthermore, PA and NA scores were found to account for a large ($f^2 = 1.44$) percentage (59%) of the variance in BAI scores in this group. When RRS scores were entered in the second step, they were found to account for a small ($f^2 = .01$) percentage (1%) of additional variance in BAI scores, $F(1, 234) = 6.08$, $p < .05$. Within this regression model, rumination ($\beta = 0.14$) was found to be a significant and unique predictor of anxious symptoms. Last, PA and NA scores were found to account for a large ($f^2 = .96$) percentage (49%) of variance in SWLS scores in European Americans. The addition of RRS scores in the second step did not significantly augment the prediction of SWLS scores, $F(1, 234) = 1.39$, *ns*. Not surprisingly, within this regression model, we did not find rumination to be a significant and unique predictor of life satisfaction. Taken together, these regression findings generally indicate a pattern in which rumination plays a more distinct role, beyond the role of affectivity, in predicting functioning in Asian Americans than in European Americans.

Discussion

We conducted this study to determine whether ethnic variations existed in rumination between Asian Americans and European Americans. In brief, three interesting patterns emerged from the present set of findings. First,

Table 3

Hierarchical Regression Analyses of Asian Americans (n = 184) and European Americans (n = 238) Showing Amount of Variance Accounted for by Rumination Over Positive and Negative Affectivity

Outcome	β	R^2	ΔR^2	<i>df</i>	<i>F</i>
Asian American					
Depressive symptoms					
Step 1		.28	—	2, 181	34.34***
Positive affectivity	-.24**				
Negative affectivity	.42**				
Step 2		.32	.06	1, 180	16.06***
Rumination	.27***				
Anxious symptoms					
Step 1		.36	—	2, 181	51.73***
Positive affectivity	-.17***				
Negative affectivity	.55***				
Step 2		.38	.02	1, 180	5.55*
Rumination	.16*				
Life satisfaction					
Step 1		.35	—	2, 181	48.90***
Positive affectivity	.45***				
Negative affectivity	-.31***				
Step 2		.37	.02	1, 180	6.78***
Rumination	-.17**				
European American					
Depressive symptoms					
Step 1		.64	—	2, 235	210.12***
Positive affectivity	-.40***				
Negative affectivity	.56***				
Step 2		.64	.01	1, 234	3.75**
Rumination	.10				
Anxious symptoms					
Step 1		.59	—	2, 235	162.51***
Positive affectivity	-.12***				
Negative affectivity	.71***				
Step 2		.59	.01	1, 234	6.08*
Rumination	.14*				
Life satisfaction					
Step 1		.49	—	2, 235	112.39***
Positive affectivity	.54***				
Negative affectivity	-.28***				
Step 2		.49	.00	1, 234	1.39
Rumination	-.08				

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

consistent with cultural models mapping self-criticism more strongly to individuals of Eastern heritage than to those of Western heritage (Markus & Kitayama, 1999), we found that Asian Americans reported greater rumination than European Americans. Thus, this finding is not only consistent with previous findings obtained between Easterners and Westerners on anger rumination (Maxwell et al., 2005) but also consistent with previous findings indicating a more self-critical or pessimistic orientation among Asian Americans than among European Americans (Chang, 1996).

Second, despite the greater tendency for Asian Americans, compared with European Americans, to ruminate, the former group was not found to be necessarily more maladjusted than the latter group. For example, Asian Americans were found to be just as satisfied with their lives as European Americans. Similarly, Asian Americans were found to be no more anxious than European Americans. Alternatively, findings from examining the associations of rumination with adjustment across both groups also pointed to rumination being less involved in the adjustment of Asian Americans than in that of

European Americans. For example, the magnitude of the associations involving rumination in adjustment (e.g., affectivity, depressive symptoms, anxious symptoms) was found to be consistently stronger for European Americans than for Asian Americans. For example, rumination was found to share 42.3% of the variance with negative affectivity in European Americans. In contrast, rumination was found to share only 17.6% of the variance with negative affectivity in Asian Americans. Likewise, rumination was found to share 37.2% of the variance with depressive symptoms in European Americans. In contrast, rumination was found to share only 20.3% of the variance with depressive symptoms in Asian Americans. Similarly, rumination was found to share 34.8% of the variance with anxious symptoms in European Americans. In contrast, rumination was found to share only 16.0% of the variance with anxious symptoms in Asian Americans. Given these specific findings for negative affectivity, depressive symptoms, and anxious symptoms, it appears that the centrality of rumination varies between Asian and European Americans (cf. Nolen-Hoeksema, 2000). That is to say, for Asian Americans, reflecting on past failures or negative experiences may not invoke as much psychological harm or danger as has typically been found for European Americans. Accordingly, our findings may be taken to suggest that it would be useful for clinicians to first gain greater awareness of the functional role of rumination when working with Asian Americans before considering efforts to reduce or even eliminate what some researchers and mental health workers believe to represent a psychologically damaging process. Indeed, consistent with our recommendation, it is worth noting some emerging discussions among researchers about the possibility that rumination may engender multiple functions, rather than a singular function (Sanna, Stocker, & Clarke, 2003), and some of these functions may ultimately result in positive outcomes. For example, Joorman, Dkane, and Gotlib (2006) have suggested that engaging in rumination may not necessarily be as psychologically harmful as previously believed. Moreover, some researchers have even begun to consider ruminative processes as a more complex construct composed of both adaptive and maladaptive attributes (e.g., Vassilopoulos & Watkins, 2009; Watkins, 2008).

Thus, it may be that for Asian Americans, rumination represents a multifunctional and multidimensional construct. Clearly, given these new findings and emerging ideas, it would be important to expand on the present findings in future research to examine for possible ethnic variations on more adaptive facets of rumination between Asian and European Americans.

Last, when we examined a model of functioning involving affectivity and rumination, we found rumination to be a distinct and unique predictor for Asian Americans, but not for European Americans. This pattern has at least two important implications. First, our regression findings indicate that beyond affectivity, rumination does account for a small but significant amount of the additional variance in functioning among Asian Americans. Thus, in addition to past studies looking at functioning in this ethnic group (e.g., Chang, 2002), it would be important to examine a model that is not only predicated on affectivity, but also one that includes the role of rumination. Second, because rumination failed to account for significant additional variance in functioning beyond affectivity for European Americans, our regression findings raise some interesting questions regarding the central role of rumination in accounting for functioning. Specifically, our findings indicate that a tendency to experience chronically high negative mood and chronically low positive mood may be a sufficient predictor of functioning in this ethnic group, with the inclusion of rumination not adding any significant incremental validity in accounting for functioning. It is interesting that Chang (2002) also found that for European Americans, key cognitive processes, namely, optimism and pessimism, were not directly associated with depressive symptoms and anxious symptoms once affectivity was included in the regression model. Thus, in future studies examining cognitive factors associated with functioning in European Americans, it may be particularly important to determine whether such factors can add to what is accounted for by affectivity. For example, past findings demonstrating a reliable link between rumination and functioning may need to be reexamined when considering the concomitant role of affectivity in accounting for functioning in European Americans.

Although our study is the first to look at rumination in Asian Americans, our findings

may have important clinical implications. For example, on the basis of our regression analyses, our findings indicate that although rumination may not be as strongly associated with maladjustment in Asian Americans compared with European Americans, it is a significant predictor of adjustment for the former group even after one takes into account the role of broad dimensions of positive and negative affectivity. Thus, whereas it may be more important to work with distressed European Americans to primarily improve their mood (i.e., decrease negative mood, increase positive mood), our findings suggest that it would be important to work with distressed Asian Americans to both help improve their mood and to reduce dysfunctional rumination. Thus, it would be important to determine whether these different approaches to intervention would result in comparable outcomes for each group. However, given that the amount of variance in outcomes accounted for in European Americans compared with Asian Americans was typically much greater (e.g., .64% vs. .32% for BDI scores), additional research is clearly needed to identify other clinically useful variables that may help account for adjustment in Asian Americans.

Some Limitations

In addition to the preceding discussion, it is important to address some potential limitations to this study. First, this study looked at Asian American and European American college students, and therefore our findings may not be generalized to noncollege students. Indeed, it would be useful to expand on the present ethnic findings and examine the role of rumination in clinical samples. Second, and relatedly, although we were primarily interested in looking at general ethnic differences between Asian Americans and European Americans using a top-down approach, it is important to appreciate that there are many different intraethnic groups (e.g., Chinese Americans, Korean Americans). Accordingly, it would be useful in future studies to determine whether the present findings for Asian Americans, for example, vary across different intraethnic groups. Third, and relatedly, it may be useful in future studies to examine for sources of rumination based on a

bottom-up approach (Betancourt & López, 1993), focusing on culture-specific variables. For example, it would be interesting to determine whether there are specific cultural values (e.g., emotional self-control, humility; Park & Kim, 2008) that are associated with rumination in Asian Americans compared with European Americans that make rumination less harmful to the former than the latter group. Fourth, because other related variables have also been found to account for functioning in Asian and European Americans (e.g., optimism, pessimism; Chang, 2002), it would be important in future studies to identify variables that are most uniquely associated with functioning for each group. In turn, results from such studies may help inform the development of more culturally relevant and empirically grounded cognitive models of functioning. Last, given the cross-sectional nature of this study, it is impossible to determine the directionality of the link between rumination and adjustment. Thus, it would be important in future studies to expand on the present findings and examine whether ethnic variations also exist between Asian Americans and European Americans in the role of rumination across time.

Concluding Thoughts

In this study, we investigated whether ethnic differences existed in rumination between Asian and European Americans. Results from this study indicated that there were important differences. Specifically, we found that Asian Americans ruminate more than European Americans. However, this tendency to ruminate more among Asian Americans than among European Americans was not found to be associated with greater vulnerability to maladjustment. It is important to know that although rumination may reflect a maladaptive cognitive process, it appeared to be less harmful for Asian Americans than for European Americans. Thus, it may be that for Asian Americans, ruminating represents a more complex process that involves both adaptive and maladaptive attributes. Clearly, more research is now needed to build on the present findings so that both researchers and clinicians working with Asian Americans may have a better understanding of how rumination works in this ethnic group.

References

- Abbott, M. J., & Rapee, R. M. (2004). Post-event rumination and negative self-appraisal in social phobia before and after treatment. *Journal of Abnormal Psychology, 113*, 136–144.
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893–897.
- Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77–100.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561–571.
- Betancourt, H., & López, S. R. (1993). The study of culture, ethnicity, and race in American psychology. *American Psychologist, 48*, 629–637.
- Butler, L. D., & Nolen-Hoeksema, S. (1994). Gender differences in responses to depressed mood in a college sample. *Sex Roles, 30*, 331–346.
- Chang, E. C. (1996). Cultural differences in optimism, pessimism, and coping: Predictors of subsequent adjustment in Asian American and Caucasian American college students. *Journal of Counseling Psychology, 43*, 113–123.
- Chang, E. C. (2002). Cultural differences in psychological distress in Asian and Caucasian American college students: Examining the role of cognitive and affective concomitants. *Journal of Counseling Psychology, 49*, 47–59.
- Chang, E. C. (2004). Distinguishing between ruminative and distractive responses in dysphoric college students: Does indication of past depression make a difference? *Personality and Individual Differences, 36*, 845–855.
- Chang, E. C. (2007). Introduction to self-criticism and self-enhancement: Views from ancient Greece to the modern world. In E. C. Chang (Ed.), *Self-criticism and self-enhancement: Theory, research, and clinical implications* (pp. 3–15). Washington, DC: American Psychological Association.
- Chang, E. C., & Asakawa, K. (2003). Cultural variations on optimistic and pessimistic bias for self versus a sibling: Is there evidence for self-enhancement in the West and for self-criticism in the East when the referent group is specified? *Journal of Personality and Social Psychology, 84*, 569–581.
- Chang, E. C., Asakawa, K., & Sanna, L. J. (2001). Cultural variations in optimistic and pessimistic bias: Do Easterners really expect the worst and Westerners really expect the best when predicting future life events? *Journal of Personality and Social Psychology, 81*, 476–491.
- Chang, E. C., Chang, R., & Chu, J. P. (2006). In search of personality in Asian Americans: What we know or what we don't know? In F. T. L. Leong, A. Inman, A. Ebreo, L. Yang, L. Kinoshita, & M. Fu (Eds.), *Handbook of Asian-American psychology* (2nd ed., pp. 265–301). New York, NY: Sage.
- Chang, E. C., Sanna, L. J., & Yang, K. (2003). Optimism, pessimism, affectivity, and psychological adjustment in US and Korea: A test of a mediation model. *Personality and Individual Differences, 34*, 1195–1208.
- Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology, 100*, 316–336.
- Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (Rev. ed.). New York, NY: Academic Press.
- Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 43*, 245–265.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment, 49*, 71–75.
- Elliott, I., & Coker, S. (2008). Independent self-construal, self-reflection, and self-rumination: A path model for predicting happiness. *Australian Journal of Psychology, 60*, 127–134.
- Heine, S. J., Kitayama, S., Lehman, D. R., Takata, T., Ide, E., Leung, C., & Matsumoto, H. (2001). Divergent consequences of success and failure in Japan and North America: An investigation of self-improving motivations and malleable selves. *Journal of Personality and Social Psychology, 81*, 599–615.
- Joormann, J., Dkane, M., & Gotlib, I. H. (2006). Adaptive and maladaptive components of rumination: Diagnostic specificity and relation to depressive biases. *Behavior Therapy, 37*, 269–280.
- Kitayama, S., Markus, H. R., Matsumoto, H., & Norasakkunkit, V. (1997). Individual and collective processes in the construction of the self: Self-enhancement in the United States and self-criticism in Japan. *Journal of Personality and Social Psychology, 72*, 1245–1267.
- Lyubomirsky, S., Caldwell, N. D., & Nolen-Hoeksema, S. (1998). Effects of ruminative and distracting responses to depressed mood on retrieval of autobiographical memories. *Journal of Personality and Social Psychology, 75*, 166–177.
- Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination on negative thinking and interpersonal problem solving. *Journal of Personality and Social Psychology, 69*, 176–190.

- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*, 224–253.
- Markus, H. R., & Kitayama, S. (1999). Culture and the self: Implications for cognition, emotion, and motivation. In R. F. Baumeister (Eds.), *The self in social psychology* (pp. 339–371). New York, NY: Psychology Press.
- Maxwell, J. P., Sukhodolsky, D. G., Chow, C. C. F., & Wong, C. F. C. (2005). Anger rumination in Hong Kong and Great Britain: Validation of the scale and a cross-cultural comparison. *Personality and Individual Differences*, *39*, 1147–1157.
- Miranda, R., & Nolen-Hoeksema, S. (2007). Brooding and reflection: Rumination predicts suicidality at one-year follow up in a community sample. *Behavior Research and Therapy*, *45*, 3088–3095.
- Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology*, *58*, 519–527.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, *100*, 569–582.
- Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, *109*, 504–511.
- Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology*, *61*, 115–121.
- Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, *3*, 400–424.
- Park, Y. S., & Kim, B. S. K. (2008). Asian and European American cultural values and communication styles among Asian American and European American college students. *Cultural Diversity & Ethnic Minority Psychology*, *14*, 47–56.
- Sakamoto, S., Kambara, M., & Tanno, Y. (2001). Response styles and cognitive and affective symptoms of depression. *Personality and Individual Differences*, *31*, 1053–1065.
- Sanna, L. J., Stocker, S. L., & Clarke, J. A. (2003). Rumination, imagination, and personality: Specters of the past and future in the present. In E. C. Chang & L. J. Sanna (Eds.), *Virtue, vice and personality: The complexity of behavior* (pp. 105–124). Washington, DC: American Psychological Association.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, *4*, 219–247.
- Smith, J. M., Alloy, L. B., & Abramson, L. Y. (2006). Cognitive vulnerability to depression, rumination, hopelessness, and suicidal ideation: Multiple pathways to self-injurious thinking. *Suicide and Life-Threatening Behavior*, *36*, 443–454.
- Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: The psychological foundation of self-esteem and cultural worldviews. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 93–159). San Diego, CA: Academic Press.
- Suarez-Balcazar, Y., Balcazar, F. E., & Taylor-Ritzler, T. (2009). Using the Internet to conduct research with culturally diverse populations: Challenges and opportunities. *Cultural Diversity & Ethnic Minority Psychology*, *15*, 96–104.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, *103*, 193–210.
- Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research*, *27*, 247–259.
- Vassilopoulos, S. P., & Watkins, E. R. (2009). Adaptive and maladaptive self-focus: A pilot extension study with individuals high and low in fear of negative evaluation. *Behavior Therapy*, *40*, 181–189.
- Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin*, *134*, 163–206.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063–1070.
- Ysseldyk, R., Matheson, K., & Anisman, H. (2007). Rumination: Bridging a gap between forgiveness, vengefulness, and psychological health. *Personality and Individual Differences*, *42*, 1573.
- Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, *29*, 663–676.

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