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Cultural Differences in Emotion Expression and Suppression: Implications for Health and Well-
Being

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Psychology

by

William Tsai

2016

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ABSTRACT OF THE DISSERTATION

Cultural Differences in Emotion Expression and Suppression: Implications for Health and Well-Being

by

William Tsai

University of California, Los Angeles, 2016

Professor Anna Shan-Lai Chung, Chair

Although there is much evidence that cultural groups differ in emotion regulation (e.g., emotion suppression) and social information processing (e.g., self-enhancement vs. self-improvement motivations), there is little research that investigates the consequences or implications of these cultural differences. As such, I set out to understand when reliance on psychological processes that may vary in meaning across cultural lines (e.g., emotion suppression and self-enhancement) serves to optimize or compromise psychological and physical well-being across groups. This dissertation is comprised of two parts each containing two studies. The first part focuses on examining cultural variations in the use and utility of emotion suppression versus expression through experimental and longitudinal designs across cultural groups (Study 1 and 2). The second part focuses on examining the extent to which emotion expression and disclosure through writing improves mood across cultural groups (Study 3 and 4). Study 1 investigated the naturalistic use of emotion suppression and personal disclosure as a

function of ethnic match in an interview about stressful personal experiences. Ethnically matched European Americans exhibited greater emotion expression and disclosure than ethnically mismatched European Americans, but there were no effects of ethnic match for Asian Americans. Study 2 examined cultural variation in the longer-term consequences of habitual emotion suppression coping on depressive symptoms among Vietnamese American and European American adolescents. Emotion suppression coping led to later depressive symptoms for European Americans, but this relationship was attenuated for Vietnamese Americans. Whereas family stress events mediated this relationship for Vietnamese Americans, friendship stress events mediated this relationship for European Americans. Study 3 and 4 examined the effects of self-enhancement and self-improvement processes on emotional and physical well-being during an expressive writing trial, and during recovery from a laboratory-based social stressor, respectively. Results suggest that culturally congruent self-reflection processes may lead to improved emotional and physiological recovery across both studies. By bridging cultural psychological theory into clinical science, my dissertation studies allowed for the opportunity to expose meaningful variability in psychological processes that promote health and adjustment across cultural groups.

The dissertation of William Tsai is approved.

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2016

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- Lau, A. S., Tsai, W., Shih, J., Hwang, W.C., Liu, L., & Takeuchi, D. (2013). The Immigrant Paradox among Asian American Women: Is the increased burden of depression and anxiety paradoxical or explicable? *Journal of Consulting and Clinical Psychology*, 81, 901-911.
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- Tsai, W., Chang, E. C., Herringshaw, A. J., Sanna, J. (2011). An Examination of Happiness as a Buffer of the Rumination-Adjustment Link: Ethnic Differences Between European and Asian American Students. *Asian American Journal of Psychology*, 2, 168-180.
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INTRODUCTION

One of the major contributions of cultural-clinical psychology is to help catalog and explain instances of cultural specificity versus universality in the mental health implications of social behavior (Ryder, Ban, & Chentsova-Dutton, 2011). Culture is defined not as a stable set of beliefs or values that reside inside people, but instead, as a self-constituting pattern of ideas, practices, institutions, products, and artifacts that reside in the world. That is, cultural practices embody cultural values, but those values are simultaneously reinforced by individuals' daily practices (Markus & Kitayama, 2010). This definition of culture does not imply that all people from one cultural background are alike. Instead, these individuals are expected to show some similarities in psychological functioning and their sense of the self in relations to others to the extent that they engage in particular cultural contexts and values (Kitayama & Park, 2007). In particular, in this dissertation I focus on cultural variation in regulating emotion and managing stressful personal experiences in ways that may be shaped by interdependent versus independent construals of the self.

Cultural psychology research has largely focused on the distinction between interdependent versus independent self-construals to understand cultural differences in emotion, cognition, and social behavior (Markus & Kitayama, 1991, 2010). Western cultures, such as that of European Americans, are thought to foster a view of the self as an independent, self-contained, autonomous entity that contains a set of stable self-defining attributes, which are used to take action in the expression of personal beliefs and the achievement of personal goals. For independent individuals, relationships are thought to be freely chosen and entail relatively few obligations (Adams & Plaut, 2003). Under the entity view, when confronted with a stressful threat to self, individuals may utilize self-enhancement processes to restore positive self-regard

(Heine & Hamamura, 2007). In contrast, Eastern cultures are thought to foster a view of the self as interdependent with social groups, where the self is flexible, inextricable from others, and defined through relationships and group memberships. Group goals and concerns are thus considered more important than personal beliefs, needs, and goals. Under the incremental view, self-improvement through persistence is achieved by an open consideration of one's weaknesses and shortcomings. Together, independent and interdependent self-construals provide a *cultural framework* through which we can understand a group's modal or prototypical attitudes toward emotion expression versus suppression and modal or prototypical responses to stressful personal experiences in terms of self-enhancement versus self-improvement motives.

The dissertation consists of two parts that each contain two studies. In Part 1, I examine cultural variation in the utilization and functions of emotion suppression versus expression in the face of stressful personal experiences. In this introduction, I review research related to emotion suppression and expression as emotion regulation strategies and their impact on health, well-being and relationships, with specific attention to literature and theory indicating differences between interdependent cultural groups (often exemplified by East Asian origin groups) and independent cultural groups (often exemplified by European Americans). In Part 2 of the dissertation, I explore whether reliance on culturally influenced social cognitive processes in reflecting on stressful personal experiences (i.e., self-enhancement vs. self-improvement) may have distinctive effects on psychological and physical well-being across interdependent and independent cultural groups. Throughout these studies, I rely on contrasts between Asian American and European American groups as a step toward illustrating the role of culture in shaping the psychological processes and their implications for well-being.

Part One: Cultural variability in emotion regulation processes and impact

Over the last two decades, emotion regulation has garnered increasing attention by researchers, resulting in a large corpus of scholarly work (Gross, 2013). Emotion regulation requires the activation of a goal to up- or down-regulate either the magnitude or duration of an emotional response (Gross, Sheppes, & Urry, 2011). Among the myriad ways individuals can regulate their emotions, emotion suppression in particular has gained attention as a maladaptive emotion regulation strategy that is linked to greater anxiety, depression, eating disorders, self-injurious behaviors, cardiovascular risk, and poorer interpersonal functioning (Aldao & Nolen-Hoeksema, 2010; Gross & John, 2003). In contrast, emotion expression allows individuals to convey their inner feelings in order to assert their selfhood and individuality (Kim & Sherman, 2004). In doing so, they may mobilize and experience greater support from close others, which may confer protection from both psychological distress and physical illnesses (Fleming, Baum, Gisriel, & Gatchel, 1982; Holahan, Moos, Holahan, & Brennan, 1997).

However, recent research suggests that the negative consequences of emotion suppression may be culture-bound, problematic only in cultural contexts such as the United States that encourage and emphasize emotion expressivity (e.g., Butler, Lee, & Gross, 2007; Soto, Perez, Kim, Lee, & Minnick, 2011). As such, the functions served by emotion suppression must be understood in the cultural context in order to better understand implications for health and well-being. That is, the processes through which emotion suppression is linked with health and well-being may be shaped by cultural processes and norms, such as values surrounding emotional restraint. Alternatively, the functions of emotions may be universal such that emotion suppression is affected by universal biopsychosocial processes across cultural groups (e.g., emotion reactivity to provocative stimuli).

Emotion Suppression versus Expression

Emotion regulation is the set of automatic and controlled processes involved in the initiation, maintenance, and modification of the occurrence, intensity, and duration of feeling states (Gross & Thompson, 2007). Although there are different frameworks for conceptualizing the diverse ways people can regulate their emotions (see, e.g., Parkinson & Totterdell, 1999), the process model of emotion regulation is the most widely cited model to date (Gross, 1998a, 1998b). Gross's model of emotion regulation distinguishes five emotion regulation processes on a temporal dimension that indicates when each one is deployed (for a review, see Gross & Thompson, 2007). A broad distinction in the process model is between antecedent-focused and response-focused emotion regulation. Antecedent-focused regulation, such as cognitive reappraisal, refers to strategies we use, either automatically or consciously, before emotional responses are fully activated (i.e., early on the temporal dimension). On the other hand, emotion suppression falls at the end of the process model, as it is a response-focused process that is only used after emotional responses are generated (i.e., later on the temporal dimension). The dissertation (i.e., Study 1 and 2, in particular) examines expressive suppression, where it is defined as a form of response modulation that involves inhibiting ongoing emotion-expressive behavior (Gross, 1998). It is not merely a lack of expression, but an active effort to inhibit the expressive component of an emotional response. For example, it refers to the processes by which people keep calm when provoked, stifle laughter when amused, and so on. Importantly, *expressive* suppression is distinct from *experiential* suppression, where experiential suppression is defined as an attempt to control the subjective experience of emotion (Quartana & Burns, 2007). That is, trying not to feel what you are feeling. From this point on, the term emotion suppression is used to describe expressive suppression. According to Gross's process model, emotion suppression should effectively decrease expressive behavior, but have no direct

influence on the subjective experience of the emotion, because it occurs at the end of the emotion generative process and is focused on the behavioral inhibition of emotion.

Emotion Suppression and Well-being

A large number of studies have demonstrated that using emotion suppression, either habitually or experimentally induced, is associated with poor psychological well-being. While emotion suppression reliably leads to decreased experience of positive emotions, it serves to increase experience of negative emotions (Gross & John, 2003; John & Gross, 2004). A classic experiment conducted by Gross (1998a) found that participants randomly assigned to suppress their emotions while watching film clips felt as much negative emotion as participants who simply watched the film clips despite showing much less expressive behavior. However, suppressing positive emotions decreased the intensity of positive affect, leading Gross to posit that emotion suppression has a depressive effect on life satisfaction by intensifying negative emotionality and reducing positive emotionality. Moreover, suppression may create in the individual a sense of inauthenticity, defined as a discrepancy between inner emotional experience and outer expressive behavior. This sense of being inauthentic may lead to negative feelings about the self and prevent the development of close relationships, which further contributes to psychological maladjustment. English and John (2013) demonstrated across three studies that inauthenticity mediated the link between habitual use of suppression and poor social functioning across younger and older Asian and European Americans.

Indeed, emotion suppression leads not only to acute incongruence between felt emotion and expressed emotion but also to prolonged rumination and re-experiencing of suppressed negative affect (Gold & Wegner, 1995; Wegner, Schneider, Carter & White, 1987). As negative emotion lingers, physiological stress responses accumulate (i.e., increase activation of the

sympathetic system), which can in turn disrupt mood and cognition (Roberts, Levenson & Gross, 2008). Not surprisingly then, habitual emotion suppressors report feeling more negative emotions, having less social support, lower levels of satisfaction and well-being, less optimistic attitude about the future, and greater depressive symptoms.

Since emotion suppression does not seem dampen the experience of negative emotions (Gross, 1998a), there are important questions about the physiological (e.g., cardiovascular, autonomic) effects of consciously suppressing the expression of an emotional response in progress. Cardiovascular disease represents a significant source of disability and mortality worldwide (Murray & Lopez, 1997), and emotion dysregulation has been implicated in the slow-developing disease process (Sapolsky, 1998). Gross and Levenson (1993) provided insight into the relationship between emotion suppression and cardiovascular reactivity. They randomly assigned participants to suppress their emotions while watching a disgust-eliciting film, and found that emotion suppression led to increased skin conductance, greater decreases in finger pulse amplitude, more pronounced shortening of pulse transmission times to the finger, and greater decreases in heart rate. As an indicator of a stress response, the increase in sympathetic activation of the cardiovascular system when individuals suppress their emotions has since been replicated across age, gender, and type of emotion elicited (Gross & Levenson, 1997; Robinson & Demaree, 2007).

Emotion Suppression and Interpersonal Functioning

Given the reliable relationship between emotion suppression, cardiovascular reactivity, and psychological maladjustment, it is not surprising that emotion suppression is also linked with poorer social functioning. Studying the social consequences of emotion suppression is particularly important because emotions provide an important source of information and form of

communication (Oatley & Jenkins, 1992; Mesquita & Leu, 2007). For example, emotions can signal the occurrence of pressing social problems or opportunities and provide heuristics for navigating successful relationships (Oatley & Jenkins, 1996). The suppression of emotions may prevent important emotional information from being expressed and communicated in interpersonal contexts. Thus, the consequences of emotion suppression may extend beyond internal experience of an individual and into the social context. Indeed, emotional expressiveness has been found to relate to improved intimacy and relationship quality (e.g., Gottman & Levenson, 1992; Geist & Gilbert, 1996). Emotion suppression may preclude self-disclosure and sharing that strengthen relationship quality (Sprecher & Hendrick, 2004).

Relatedly, efforts to avoid displays of emotion likely result in failure to elicit social support in times of distress (Gross & John, 2003; John & Gross, 2004), and the ensuing isolation and withdrawal may be detrimental to maintaining social bonds. Unsurprisingly then, a number of research studies suggest that using suppression to regulate one's emotions has both immediate and long-term social costs (Butler, Egloff, Wilhelm, Smith, Erickson, & Gross, 2003; Gross & John, 2003). Butler et al. (2003) provided the first experimental evidence for the detrimental effects of emotion suppression. She asked unacquainted pairs of participants to watch a stressful documentary about the Hiroshima and Nagasaki bombing together, and randomly assigned one participant from each pair to suppress their emotions while they discussed their reactions. Partners of individuals instructed to suppress their emotions (unbeknownst to the other) during the discussion rated the interaction as less satisfying, and reported being less willing to form a friendship with them than were partners of those who were not asked to suppress. These findings extend to correlational studies of trait emotion suppression. For example, individuals who reported habitually suppressing emotion also had poorer self-reported and peer-reported

relationship closeness, and suppressors seem reluctant to share with others not only their negative but also their positive emotions (Gross & John, 2003). Additionally, in a 5-month longitudinal study of the transition from high school to college, emotion suppression (self- and peer-rated) consistently predicted lower social support, less closeness to others, and lower social satisfaction. In this prospective study, emotion suppression was an antecedent of poor social functioning in these social domains (Srivastava et al., 2009).

Emotion Suppression and Culture

Although these results collectively demonstrate the maladaptive nature of emotion suppression, these findings have emerged in largely European American samples. More recently, researchers have focused on the role that cultural values and ethnicity may play in shaping the utility and function of emotion suppression (Butler, Lee, & Gross, 2007, 2009; Roberts, Levenson, & Gross, 2008; Mauss, Butler, Roberts, & Chu, 2010; Soto et al., 2011).

Cumulative research suggests a marked contrast between East Asian/Asian American and European American cultures with regards to emotion expressivity (Ekman, 1972; Klineberg, 1938). Interdependent and independent self-construals pattern differences in display rules across cultures. Display rules are culture-specific prescriptions about who can show which emotions, to whom, and when (Ekman, 1993). Because group concerns (e.g., group harmony) are weighed relatively more strongly than individual concerns in interdependent societies, the ability to restraint or control emotions to maintain social harmony becomes important. In this context, one has to be relatively more cautious about revealing personal distress to the attention of others. Indeed, Asian Americans' value of emotion control and the suppression of emotions are seen as signs of maturity and social awareness (Matsumoto, 1993; Kim & Markus, 2002). In times of distress, Asians and Asian Americans may be more reluctant than European Americans to

express distressing emotions and explicitly ask for support because they are more concerned about potentially negative relational consequences of such behavior (Kim, Sherman, & Taylor, 2008). Indeed, Asian Americans who were primed to think about close others were less likely to seek social support and also expected social support seeking to be less effective than did European Americans (Kim, Sherman, Ko, & Taylor, 2006).

In contrast, by a young age, Western children are encouraged to speak up and *express* themselves both with in-group and out-group members, and high levels of expressiveness are praised and seen as their assertion of independence (Matsumoto, 1990). Consequently, emotion suppression may be used primarily as a self-protective act of withdrawal in the face of social threats for European Americans (Oyserman, Coon, Kemmelmeier, 2002; Tsai & Levenson, 1997), whereas emotion suppression may often be used to maintain social harmony and preserve relationships when there is a concern about disrupting relationships for Asian Americans (Wierzbicka, 1994). Complementing these theories, affect valuation theory suggest that European Americans value high-arousal positive affective states, such as exuberance and joy, whereas Asian Americans and Chinese Hong Kong individuals value low-arousal positive affective states such as calmness and tranquility (Tsai, Knutson, & Fung, 2006). These differences in the values placed on how people *want* to feel may influence the use and function of suppression of intense affect across cultures.

Thus, in the context of independent versus interdependent self-construal, the utilization and function of emotion expression and suppression may have distinct implications for both social adaptation and well-being. Butler and her colleagues (2007) provided the first empirical support for cultural variation in the interpersonal effects of emotion suppression. They found that among bicultural Asian Americans, the harmful effects of emotion suppression on interpersonal

functioning were significantly attenuated with women who held predominantly Asian values as compared to the women who held predominantly European American values. In this study, participants were paired with strangers and randomly assigned to either suppress their emotions or behave as they normally would, and then asked to watch and discuss an upsetting documentary war film. Overall, those instructed to suppress their emotions were rated as more hostile and withdrawn, and also evoked more hostile behavior from their partners. However, these effects were moderated by cultural values, with negative effects being greatest for women with European values, and least for women with bicultural Asian-European values. Notably, regardless of cultural values, suppressing emotion while discussing a shared negative experience uniformly reduced willingness to establish a friendship with the stranger. The authors concluded that the function of emotion suppression is not universally harmful and undesirable, and inferred that interdependent emphasis on accommodating to social demands and adjusting to others enables bicultural women to avoid using suppression in situations where it would have a negative social impact.

While Butler and her colleagues (2007) demonstrated the protective effect of Eastern values on the emotion suppression and social functioning link in the laboratory, a recent correlational study suggests that the habitual use of suppression comes with costs to social functioning for both young and older Westerners and Easterners (English & John, 2013). Across three surveys, Asian Americans and Chinese nationals endorsed greater trait emotion suppression than European Americans. However, there was not a protective effect of culture on the function of emotion suppression for these individuals. Instead, there was a significant negative association between emotion suppression and social functioning for European Americans, Asian Americans, and Chinese nationals, in both early and later adulthood, and across a 10-year period controlling

for overall adjustment. However, emotion suppression was not related to life satisfaction for the Chinese nationals, suggesting that although the habitual use of emotion suppression may be detrimental to social functioning across cultures, the effects on broader psychological well-being may be more culturally specific.

Indeed, Soto and his colleagues (2011) found that Hong Kong Chinese reported more frequent use of emotion suppression, but this did not translate into greater psychological maladjustment compared to European Americans. They found a significant culture x emotion suppression interaction such that among Hong Kong Chinese emotion suppression was not associated with adverse psychological functioning, as it was among European Americans. Neither was emotion suppression associated with positive psychological functioning for Hong Kong Chinese, which indicated that although emotion suppression was culturally normative it did not necessarily represent a protective coping behavior. Similarly, Cheung and Park (2010) found that the association between anger suppression and depression was attenuated among Asian Americans and among individuals endorsing interdependent self-construal in a sample of American college students. However, the anger suppression and depression link remained significant, suggesting that emotion suppression remained a risk factor for maladjustment. That said, strong inferences are precluded by study design elements. First, these studies were cross-sectional and neither causality nor directionality of effects can be inferred. Moreover, these studies relied solely on self-report, and thus are subject to self-presentation and other response biases. Prospective and experimental research using multi-method assessment (i.e., behavioral and physiological indicators of emotion suppression) will improve our confidence in findings related to cultural variation in the range of outcomes associated with emotion suppression.

Indeed, researchers have examined the role of culture and ethnicity in the link between emotion suppression and acute physiological arousal, and inconsistent findings have emerged (Roberts, Levenson, Gross, 2008; Butler, Lee, Gross, 2009; Mauss & Butler, 2010). Roberts, Levenson, and Gross (2008) investigated ethnic differences in the behavioral, physiological, and subjective consequences of emotion suppression. They found that the suppression of “disgust” emotion was associated with increases in systolic and diastolic blood pressure, and an increase in sympathetic activation of the cardiovascular system. Importantly, none of these effects were moderated by ethnicity. They postulated that the lack of cultural findings may be attributed to the exclusive focus on the emotion of disgust. They suggest that emotions that have more theoretically different functions and the suppression of certain culturally salient emotions (e.g., anger) may result in culturally different physiological responses. Moreover, their “Americanized” laboratory environment may trigger appraisals and behaviors associated with the Western culture (Mesquita & Albert, 2007). Nonetheless, these studies may suggest that individuals who report more frequent emotion suppression as consistent with cultural values about relatedness (e.g., Asian Americans) may not necessarily be spared from its cardiovascular “cost.”

There have, however, been other findings suggesting cultural variability in physiological responses to emotion suppression in the laboratory. Butler, Lee, and Gross (2009) examined the relationship between emotion suppression and blood pressure while Asian and European American women engaged in face-to-face conversations after watching a disturbing film. They found that among Asian American participants, emotion suppression was associated with decreases in blood pressure, but for European Americans, emotion suppression resulted in increased blood pressure. They posit that for Asian American women, suppression may be relatively normative and well-practiced, resulting in less physiological effort. However, in this

study the relationship between habitual use of emotion suppression and blood pressure was untested. Mauss and Butler (2010) investigated processes upstream from emotion suppression, and examined cultural values about emotion control as a potential predictor of differences in physiological arousal. For Asian Americans, greater endorsement of values about emotion control was associated with reduced anger experience and display, and an adaptive pattern of cardiovascular responding. On the other hand, for European Americans, greater endorsement of values about emotion control was associated with a maladaptive pattern of cardiovascular responding. These findings suggest that although there are no main effects of culture on physiological arousal (e.g., Roberts, Levenson, & Gross, 2008), there are significant interactions between cultural values and emotion suppression in predicting physiological arousal such that the emotion suppression and physiological arousal link is attenuated for Asian Americans and not for European Americans.

However, the downstream effects of these cultural differences remain unclear. The diminished acute physiological arousal related to emotion suppression among Asian Americans in the lab does not necessarily indicate protection from morbidity in terms of mental health and health outcomes. These data could simply indicate that Asian Americans are highly facile at emotion suppression, utilizing it with less exertion. Consistent with this interpretation, electrophysiology findings reveal that East Asians show greater dissipation of late parietal positivity (LPP) when suppressing emotion compared to European Americans indicating greater efficiency in down-regulating affective neural activity (Murata, Moser & Kitayama, 2013). The purpose of Part One of this dissertation is to examine questions concerning cultural differences in emotion expression versus suppression in response to stressful life experiences and to understand whether the consequences of these processes differ across cultural groups.

Part Two: Cultural variability in social-cognition in motivation and implications for processing stressful personal experiences.

Stressful life experiences in interpersonal and achievement domains can be construed as sources of threat to the self that trigger restorative or coping responses. The cultural psychology literature suggests that such stress responses may be distinctively shaped by independent versus interdependent cultural contexts. Self-enhancement and self-improvement are examples of motivational processes that are utilized and valued differently across cultures.

Self-enhancement involves maintaining positive self-regard by focusing and elaborating upon positive information about the self and has long been thought to promote positive health and wellbeing outcomes (Taylor & Brown, 1988). This approach to threats to the self is functional in the context of a view of the self as an independent entity defined by internal fixed attributes that remain consistent across time and contexts (Markus & Kitayama, 1991). As such, feedback about shortcomings and instances of personal failure must be disarmed since the self is viewed as relatively fixed. Under the entity view, restorative self-enhancement in the face of stress is crucial (Heine & Hamamura, 2007). In contrast, the interdependent self is defined as malleable, responsive to context and thus changeable with effort and direction. Positive self-regard is then achieved not by self-enhancement, but by self-improvement and maintaining one's standing with others. Self-enhancing motivations appear weaker among individuals of East Asian descent compared with European Americans (Heine & Hamamura, 2007). An incremental view of the self may promote vigilance to evidence of shortcomings or failures which can be remediated through self-improvement and an emphasis on persistence (Heine et al., 1999; Stevenson, 1994).

Based on this premise, there may be cultural differences in the extent to which individuals

reflect on stress experiences through the lens of self-enhancement versus self-improvement. Furthermore, it may be fruitful to explore whether culturally syntonic approaches to coping with stressful personal experience are associated with optimal well-being. Part two of the dissertation addresses this question by examining how self-enhancement versus self-improvement social cognition within expressive writing interventions may predict outcomes distinctly across cultural groups.

Expressive Writing Interventions and Cultural Variation in Outcomes

Within an interdependent worldview, the unrestrained expression of emotion is seen as potentially harmful or burdensome in relationships. Expressive writing interventions may provide a way for individuals to process stressful personal experiences and emotions in a manner that removes any potential interpersonal costs of emotion expression. Meta-analyses demonstrate that emotional disclosure through writing leads to increased physical and psychological well-being, including fewer doctor visits, decreased anxiety and depressive symptoms, and fewer physical health complaints (see, Frattaroli, 2006, for a review). Yet, just as there are questions about cultural variability in the effects of emotion suppression versus expression, there are questions about the potential utility of expressive writing across groups. Although only two studies have been conducted to date, researchers have begun to examine ethnicity as a moderator for expressive writing interventions (Lu & Stanton, 2010; Knowles, Wearing, & Campos, 2011).

There is some indication that Asian Americans may benefit more than European Americans from the exploration of stressful personal experiences and expression of distressing emotions and thoughts through writing under some conditions. Lu and Stanton (2010) randomly assigned Asian and European Americans to one of three expressive writing conditions (1) emotional disclosure (i.e., “Write about your deepest emotions, and to really let go and explore

feelings and thoughts”), (2) cognitive reappraisal (i.e., “Write about positive and negative consequences, perceptions, challenges, and opportunities arising from the event”), and (3) combined emotional disclosure and cognitive reappraisal. They measured physical symptoms, positive and negative affect, and ambivalence over emotional expression at baseline, 1 month, 2 months, and 4 months after the final writing session. They found that Asian Americans benefited more from the cognitive reappraisal and combined conditions in decreasing physical symptoms (e.g., frequency of headaches per month) than European Americans, though there were no cultural differences in the benefit of expressive writing in the emotional disclosure condition. Notably, individuals highly ambivalent over emotional expression were more likely to benefit from expressive writing. The latter finding provides some support for the notion that among cultural groups for whom emotion expression is more foreign or non-normative, expressive writing may provide a channel to reap the benefits of emotion processing that other groups derive from interpersonal channels for expressing affect.

On the other hand, there are also data suggesting that Asian Americans may benefit less from expressive writing than European Americans. Knowles and his colleagues (2011) randomly assigned Asian American and European American participants to write about their worst traumas or trivial topics (control) and measured change in their physical illness symptoms. European Americans who wrote about trauma increased their use of insight words over the four writing sessions and reported fewer illness symptoms a month later, but neither effect was obtained for Asian Americans. To explain their null findings for Asian Americans, the authors suggested that because East Asian cultures deemphasize verbalization as a means of meaning making and seeking support (Taylor et al., 2004), the task of recounting one’s traumatic experience through writing may have mirrored processes in interpersonal communications of distress that resulted in

discomfort (Knowles et al., 2011). These conflicting findings on cultural differences in the benefits of expressive writing raise more questions than answers.

The second part of this dissertation draws again on cultural psychology theory to consider whether distinctive approaches to reflecting on stressful life experiences shaped by interdependent versus independent cultural orientations may result in different outcomes across groups. It may be that there are multiple ways individuals approach the task of expressive writing and that the extent to which this approach is culturally syntonic may dictate the outcomes of the intervention. A closer examination and manipulation of the mechanisms and sociocognitive processes undertaken during expressive writing can shed light on the question of whether there is cultural variability in the outcomes associated with self-enhancing versus self-improving social cognitive responses to stressful life experiences.

Overview of the Dissertation

As previously noted, this dissertation is comprised of two parts containing two studies each (see Figure 1). The first part focuses on examining cultural variation in the use and utility of emotion suppression versus expression through experimental and longitudinal designs (i.e., Study 1 and 2). The second part focuses on examining whether self-enhancement and self-improvement processes undertaken during expressive writing improves mood and stress recovery across cultural groups (i.e., Study 3 and 4).

Study 1 investigates the naturalistic use of emotion suppression and personal disclosure as a function of ethnic match in a lab-based experimental study. A cultural priming manipulation is used to test distinct hypotheses about the role of culture in shaping emotion expression among Asian American and European American participants randomized to interact with either an Asian American or European American interviewer. This study is situated within this dissertation as a

study of the determinants of emotion expression versus suppression across cultural groups. Study 2 aims to examine cultural variation in the longer-term effects of emotion suppression coping on well-being in a community sample of adolescents. This investigation uses a prospective design to examine the link between emotion suppression and depressive symptoms among Vietnamese American adolescents, a cultural group wherein emotion suppression is viewed as culturally syntonic (Slote & De Vos, 1998). Study 2 also examines whether relationship factors (i.e., stressful life events and perceived social support in family and peer relations) represent a mechanism by which emotion suppression acts on or is affected by depressive symptoms.

Study 3 shifts the focus to *translational* research examining possible cultural differences in the mechanisms predicting well-being outcomes of within an expressive writing intervention. In this section of the dissertation, I focus on how motivational processes in reflecting on stressful experiences may be shaped by cultural background. Furthermore, Study 3 examines whether writing content related to self-enhancing (viz., downward social comparison and situational attributions) and self-improving (viz., upward social comparison and persistence) motivations were differentially related outcomes (i.e., anxiety and depressive symptoms) among Asian American and European American participants. One limitation to Study 3 is that we cannot make causal inferences about the role of motivational processes because we did not directly manipulate and randomly assign individuals to self-relevant motives in their writing. Study 4 addresses this limitation by experimentally priming self-enhancement and self-improvement motivations in instructions for expressive writing in the midst of a lab-based stressor. We examined the effect of this manipulation on acute physiological (viz., cortisol, heart rate) and mood (viz., state affect) stress recovery outcomes.

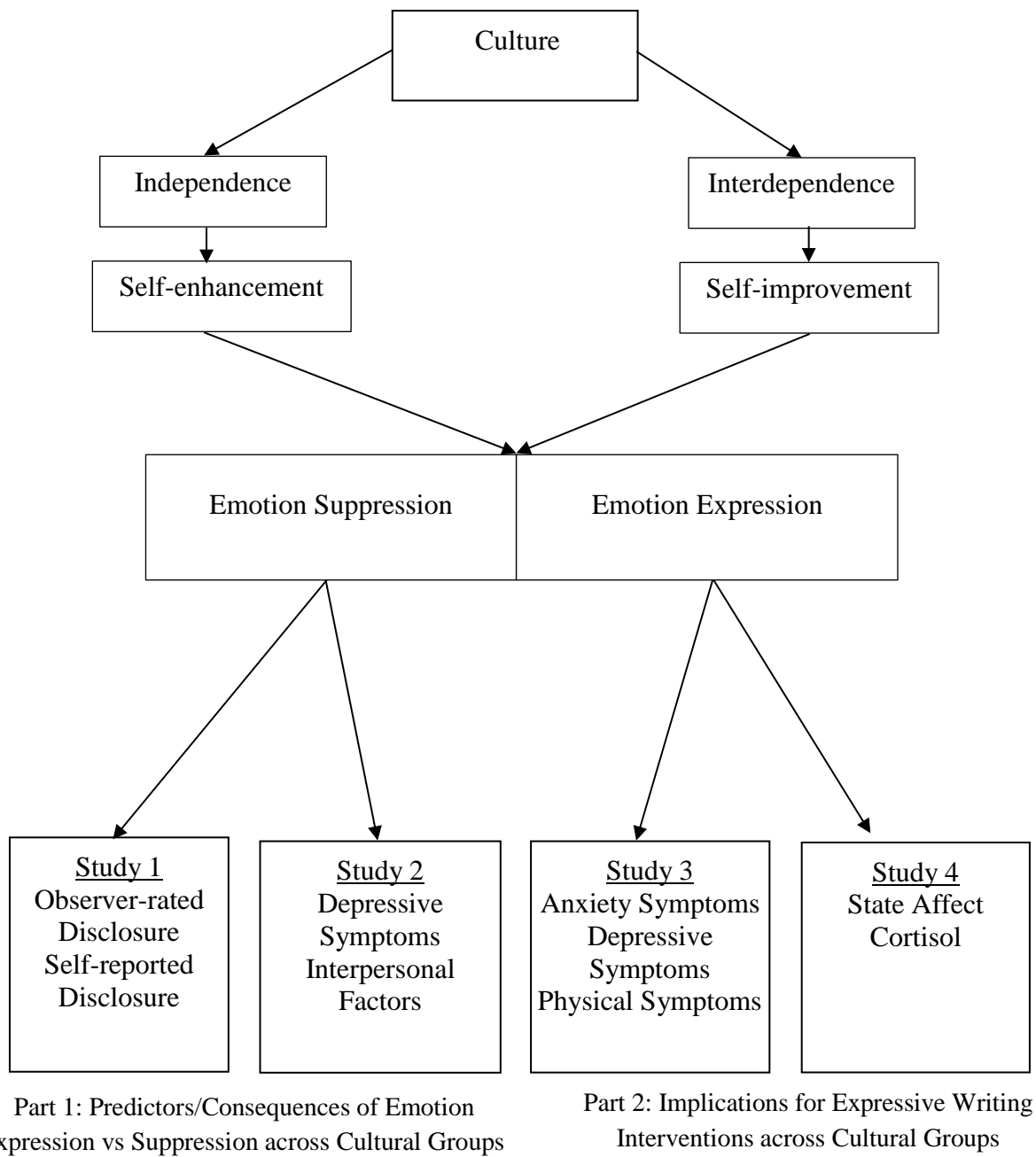


Figure 1. Dissertation Overview

STUDY 1

THE EXPERIMENTAL EFFECTS OF ETHNIC MATCH ON EMOTION EXPRESSION AND DISCLOSURE ACROSS CULTURAL GROUPS

The expression of emotion and personal disclosure are at the foundation of many evidence-based psychotherapies. Emotion expression and disclosure in therapy have been found to enhance self-acceptance, foster self-understanding, and improve social relationships (Kennedy-Moore & Watson, 2001). However, research suggests that emotion expression and personal disclosure can carry different meanings and implications across cultural groups (Mesquita & Frijda, 1992; Markus, Kitayama, & VandenBos, 1996). Individuals from interdependent cultural contexts, such as East Asia, may refrain from personal disclosure because the expression of personal feelings is not encouraged in contexts that prioritize group goals and harmony. Moreover, given stronger concerns about face loss and shame in interdependent contexts, self-disclosure in treatment contexts may be discouraged (Liao & Bond, 2010). These cultural differences may explain the underutilization of mental health care among minority groups, such as Asian Americans (Snowden, 2003). Once in treatment, Asian Americans have shorter treatment stays and higher rates of premature attrition than European Americans (Zane et al., 2005; Abe-Kim et al., 2007; Snowden & Yamada, 2005).

Given these troubling disparities, the importance of culturally-sensitive services has been promoted. One avenue to achieve cultural sensitivity has been to pair clients with ethnically-matched therapists. Through presumed shared cultural norms and values, ethnic match may facilitate a connection with clients and lead to greater disclosure and emotion expression. However, there is actually little evidence that ethnic match improves outcomes for Asian Americans or other racial ethnic groups (Maramba & Hall, 2002; Shin et al., 2005). Recent

meta-analytic findings suggest that individuals moderately prefer ethnically matched counselors, and to a smaller extent rate ethnically matched therapists more positively on some dimensions (Cabral & Smith, 2011). There is almost no observable benefit of ethnic matching on counseling outcomes, in terms of improvements in symptoms or functioning (Cabral & Smith, 2011). But some findings suggest increased retention and lower dropout in counseling associated with ethnic match (Ibaraki & Hall, 2014). The current study draws from theories in social and cultural psychology that result in competing hypotheses about the possible effects of ethnic match on processes of emotion expression and personal disclosure among distinct cultural groups.

Ethnic Match and Social Identity Theory.

It has been argued that counselor ethnic match promotes in-group identification, trust, and rapport building owing to perceived shared experiences and nonverbal communication styles (Sue, 1988). In-group bias, favoring one's self-identified in-groups over out-groups, has long been confirmed and explained by social identity theory (Tajfel & Turner, 1986). Preference for interacting with in-group members starts from a young age and typically persists across the lifespan (Yee & Brown, 1992). Expectations for a sense of shared understanding that results from a common cultural heritage could account for some observed preferences for ethnic match in the literature.

Early in an interpersonal interaction, counselor ethnicity is salient above other features and may shape impressions of the likelihood of shared cultural worldview (Cabral & Smith, 2011). Consistent with this notion, Meyer et al. (2011) asked Asian American college students to listen to a brief counseling session and to provide their perceptions of the session and the counselor. When they were led to believe the counselor was Asian American (as opposed to European American), participants perceived greater experiential similarity with the counselor,

which in turn, was related to greater perceived counselor credibility. Advantages in ethnic match may thus be explained by a presumption of shared heritage and implicit communion. In fact, there may be some credence to this assumption of a shared worldview. Ibaraki and Hall (2014) found that ethnically-matched clients shared more similar attitudes, values, and cultural beliefs with their counselors than ethnically mismatched dyads. Thus, ethnic match may be a proxy for perceived congruence in values or belief systems. While the literature remains thin and mixed, the match perspective contends that in-group interactions will facilitate greater emotional expression and personal disclosure.

Ethnic Match and Cultural Priming.

In contrast, cultural frame-switching may lend a distinct perspective leading to different predictions about the influence of counselor ethnicity on emotion expression and disclosure. From a cultural psychology perspective, bicultural individuals can access distinctive cognitive networks that govern the self and are made salient in specific contexts. Thus, a collectivistic cultural context would foster interdependent values that views the self as fundamentally connected and related to others through group memberships. This focus on relationships and social harmony can prompt an emphasis on meeting social roles with the disclosure of personal feelings discouraged (Suh, Diener, Oishi, & Triandis, 1998). In contrast, an individualistic cultural context would foster independent values that view the self as autonomous and self-sustaining. In terms of emotionality, independent contexts encourage individuals to freely assert and communicate internal states and to express their feelings (Matsumoto et al., 2008). Regarding relationality, individualistic contexts may elicit interaction with strangers or outgroup members and preference for direct over indirect communication; whereas collectivistic contexts prompt in-group preferences and prioritizing indirect communication.

Through priming, a bicultural individual's endorsement of individualistic values or collectivistic values can be modified by intentionally making salient the relevant cultural model (Oyserman & Lee, 2008). When individualism is primed, individualistic content of self-concept and ways of communicating with others should become more salient and more likely to drive behavior, affect, and cognition. Thus, it is plausible that when bicultural individuals encounter a counselor signaling interdependent cultural norms, a collectivistic self-concept and norms regarding relationality may down-regulate emotion expressivity due to the activation of prescribed emotional display rules and face concerns. In contrast, match with a counselor whose phenotypic group membership primes a more individualistic and independent self may make salient norms governing the free expression of feelings and personal experiences.

The Current Study

The objective of the current study was to test competing predictions arising from social identity theory and cultural priming theory regarding the impact of interviewer ethnicity on self-reported and observer-rated emotional expression and personal disclosure. The study employed 2 (interviewer ethnicity: Asian American vs. European American) x 2 (participant ethnicity: Asian American vs. European American) between-subject factorial design. We examined emotion expression and personal disclosure as the study outcomes.

We evaluated two competing hypotheses. First, based on social identity theory, ethnic match would be hypothesized to result in greater emotional expression and greater personal disclosure compared to a cross-ethnic match. Thus, a significant interaction between interviewer and participant ethnicity would reveal that participants in the match conditions would show more expression and disclosure than those in mismatch conditions, across participants from both ethnic groups. Furthermore, we predicted that the effects of ethnic match will be more

pronounced in domains that are more sensitive in nature (e.g., romantic relationships and family). Second, based on cultural priming theory, we predicted that among bicultural Asian Americans, ethnic match may prime collectivistic orientation in the interview setting thus inhibiting emotional expression and disclosure. Thus, a simple main effect of interviewer ethnicity on Asian American participants would reveal that pairing with a European American interviewer would result in greater expression and disclosure. In contrast, European Americans, not having full access to the network of associations concerning collectivism and relationality would not be affected by ethnic matching.

Methods

Participants

Participants were 78 Asian American and 59 European American undergraduate students who participated in exchange for a \$20 retail gift card. Of the 137 participants, 60% were female. Ages ranged from 18 to 36, $M = 19.85$, $SD = 2.12$. Among the 78 Asian Americans in the sample, 24 were 1st generation (i.e., foreign-born), 53 were second-generation, and 1 was 3rd generation; 59% were Chinese, 3% were Japanese, 24% were Korean, 8% were Vietnamese, and 6% were Filipino. Among the 59 European Americans, 2 were 2nd generation, and 57 were post-2nd generation.

Inclusion criteria were: 1) students aged 18 years or older. 2) Asian Americans were included in the sample they were of East or Southeast Asian descent (i.e., Chinese, Vietnamese, Korean, or Japanese). To increase the probability of bicultural orientation, the following inclusion criteria were adopted from Zou, Morris, and Benet-Martinez (2008). For 1st generation Asian American, they must have lived in the United States for at least 5 years. Second generation Asian Americans were included when they reported proficiency in an Asian language or that

their parents spoke an Asian language to them more than 50% of the time. 3) European Americans were included if they were post 2nd generation (not foreign born).

Procedure

Participants first completed an online survey two weeks before the scheduled experiment. Upon arrival in the lab, participants were greeted by the experimenter who obtained informed consent and were told that they would be taking part in a confidential interview exploring different areas in their life for about 30 minutes. Participants were fitted with a blood pressure cuff, and were invited to browse through neutral content magazines for 6 minutes to allow them to acclimate to the experimental environment. Cardiovascular arousal data was not used in the present analysis. After 6 minutes, the interviewer entered the room to administer the adult version of the UCLA Life Stress Interview (Hammen, 1991). Participants were randomly assigned to either an Asian American or European American gender-matched interviewer. At the conclusion of the interview, the experimenter returned and asked participants to complete a post-interview survey. Participants were then compensated and debriefed on the purpose of the study.

UCLA Life Stress Interview

The adult version of the UCLA Life Stress Interview (LSI; Hammen, 1991) is a semi-structured interview designed to assess participants' chronic stress and episodic stressful life events over the past 6 months. We adapted the protocol to include five domains (i.e., academic, friends, family, romantic relationships, and health) most relevant to college student experiences. Levels of chronic stress were rated by the interviewer based on each participant's objective circumstances on a 5-point Likert scale ranging from 1 (extremely positive conditions) to 5 (extremely poor conditions) using the LSI coding manual (see Hammen, 1991, for coding rubrics and instructions). The LSI has been found to possess good reliability and validity (Hammen,

1991). Independent raters were trained using the data from the first five participants. Following the training period, inter-rater reliability was assessed by examining the coding for the next 15 participants. Intraclass correlations (ICC) for each domain were as follows: academic (.88), friends (.82), family (.90), romantic relationships (.79), and health (.88). Chronic stress scores across domains were averaged and used as a covariate in the regression analyses.

Experiment Interviewers

In total, three female and three male interviewers (3 Asian Americans and 3 European Americans UCLA undergraduate students) were trained to administer the LSI. All interviewers were provided the same four hour-long sessions by the author of this dissertation. Four of the five interviewers were trained together (the fifth and sixth interviewers were trained a few months after the beginning of data collection to improve the rate of data collection). Each interviewer was provided a manual that outlined general tips for the interview (e.g., “1. Interviewers should listen with full attention and an open mind, refrain from judgmental responses and show general acceptance.”), and specific questions to ask in each domain (e.g., “What is your major?”) (See Appendix A). Each interviewer completed a practice interview with another experiment interviewer and the author of this dissertation before they started data collection.

Measures

Behavioral Observations. Digital video recordings were used to observe the participants’ facial expressions, movements, and tone of voice. The first author trained 4 Asian American and 2 European American coders to use a global observational coding system created for this study. The behavioral observations included ease of disclosure (i.e., “The interviewee seemed comfortable sharing his/her personal experiences.”), spontaneous responses (i.e., “The

interviewee often provided information that was not specifically solicited by interviewer prompts, maybe even somewhat tangential.”), emotion expression (i.e., “The interviewee allowed himself/herself to express his/her emotions freely”), elaboration (i.e., “The interviewee elaborated on his/her answers with substantial detail, talked a lot, but was definitely on task.”), tension/unease (i.e., “The interviewee seemed uneasy being asked about personal experiences, as though this was a novel or unwelcome interaction.”), eye contact (i.e., “The interviewee maintained socially appropriate eye contact and did not avert his/her gaze.”), and body language (i.e., “The interviewee fidgeted a lot, sat in a “closed” body posture with arms crossed, facial muscles appeared tensed.”). Raters coded for interviewee behavior during each LSI domain section (e.g., Family) using 7-point Likert scales (1 = “Strongly Disagree” to 7 = “Strongly Agree”). For each behavior code (e.g., elaboration), an overall code was created by averaging the scores across the sections of the interview. Independent raters were trained using 10 randomly-selected training videos, following the training period inter-rater reliability was assessed for a subset of 26 (20%) videos were randomly selected and coded by two separate raters. Intraclass correlations (ICC) for each behavior code were as follows: ease of disclosure (.87), spontaneous responses (.90), elaboration (.90), emotion expression (.85), tension/unease (.71), eye contact (.84), and body language (.65).

An exploratory factor analysis with an orthogonal rotation was conducted on the 7 behavioral codes. The pattern of factor loadings revealed two subscales. One factor contained 4 items related to personal disclosure (i.e., ease of disclosure, spontaneous response, emotion expression, and elaboration) (eigenvalue = 3.28) and accounted for 54.58% of the variance. The second factor contained 3 items related to hesitation (i.e., eye contact, tension/unease, and body language) (eigenvalue = 1.41) and accounted for 20.71% of the variance. Factor loadings ranged

from .63 to .93. Finally, personal disclosure and hesitance were found to be reliable composites, with adequate Cronbach's α of .92 and .66 for Asian Americans, and .90 and .65 for European Americans respectively. Self-disclosure and hesitance were correlated at $r = -.48$ for European Americans and $r = -.33$ for Asian Americans, $ps < .01$.

Self-reported Disclosure. Participants' self-reported emotion expression and ease of disclosure during the interview was assessed with a 2-item measure created for this study. Participants rated the extent to which they agreed with the two items on a 7-point Likert scale (1 = "Strongly Disagree", 7 = "Strongly Agree"): "I allowed myself to express my emotions freely to the interviewer" and "I felt comfortable sharing personal experiences with the interviewer. These two items were correlated at $r = .86$ for European Americans and $r = .68$ for Asian Americans, $ps < .05$. Thus, a composite variable was created by averaging across the two items. Cronbach's α were .92 for European Americans and .81 for Asian Americans.

Covariates: Trait Negative Emotion Expressiveness, Average Objective Stress, Interview Length, English Fluency, and Interviewer Warmth.

In addition to controlling for age and gender, we also controlled for a number of variables that may influence our behavioral sample of emotion expression and personal disclosure during the interview. Trait negative emotion expressivity was measured with the 8-item negative emotion expressivity subscale of the Emotion Expressiveness Questionnaire (EEQ; King & Emmons, 1990). Participants rated the extent to which they agreed with each item on a 7-point Likert scale (1 = "Strongly Disagree", 7 = "Strongly Agree"). Sample items for negative emotion expressivity are "When I am angry people around me usually know" and "If someone makes me angry in a public place, I will cause a scene". King and Emmons (1990) reported good internal consistency and good concurrent validity with other self-report measures of emotion expression.

In the current sample, there was good internal consistency for the negative emotion expressivity subscale (Cronbach's $\alpha = .76$ for Asian Americans and $.69$ for European Americans).

In order to account for the possibility that individuals with more stressful life circumstances may have more emotionally laden content to disclose, we controlled for chronic stress by averaging objective threat chronic stress scores across the five LSI domains. As longer interviews may provide greater opportunities for disclosure and emotion expression, we also controlled for interview length in seconds.

In addition, because less fluent English speakers may exhibit more verbal hesitance or less disclosure than native English speakers as a function of discomfort with their language proficiency, we controlled for interviewer-rated English fluency. English fluency was assessed by 3-items: 1) Fluency (9-point Likert-scale ranging from 1 = Extremely Fluent to Extremely Not Fluent), 2) Comprehensibility (9-point Likert scale ranging from 1 = Extremely Easy to Understand to 9 = Impossible to Understand), 3) Accentedness (9-point Likert scale ranging from 1 = Native North American accent to 9 = Very strong foreign language accent). A composite English fluency variable was created by averaging the 3-items. Cronbach's alpha indicated strong internal consistency for this composite ($\alpha = .92$ for European Americans and $.90$ for Asian Americans).

Lastly, interviewer characteristics such as their level of warmth may influence participants' disclosure. As such, observers coded relevant interviewer behaviors. Independent raters used a global observational coding system to rate 8 interviewer dimensions, including skillfulness (i.e., "The interviewer asked questions and responded to the participant's answers in a professional, tactful, skilled, and polished way."), interest (i.e., "The interviewer conveyed the impression that he/she is genuinely interested in what the participant has to say about their

experiences?”), friendly (i.e., “The interviewer appeared amicable, approachable and friendly with the participant”), likeable (i.e., “The interviewer is someone that people would generally want to spend time with”), respectful (i.e., “The interviewer conveyed respect by valuing the participant’s time and effort”), sincere (i.e., “The interviewer appeared to be sincere in their interactions with the participant”), trustworthy (i.e., “The interviewer seemed like someone that could be relied upon to be honest and ethical in their interactions”), and warm (i.e., “The interviewer expressed care, concern, empathy, and warmth toward the participant.”). Each interviewer dimension was coded for each portion of the LSI (e.g., Family) using a 7-point Likert scale (1 = “Strongly Disagree” to 7 = “Strongly Agree”). For each behavior code (e.g., skillfulness), an overall code was created by averaging across the 5 LSI domains. Coding training and procedures were as described above for interviewer behavior. ICC’s for each interviewer behavior code were as follows: skillfulness (.81), interest (.84), respectful (.79), warm (.88), friendly (.85), trustworthy (.81), sincere (.83), and likeable (.79). An exploratory factor analysis with orthogonal rotation was conducted on the 8 items, and factor loadings revealed one factor related to Interviewer Positive Qualities (eigenvalue = 6.04) accounting for 75% of the variance. Internal consistency of the Interviewer Positive Qualities composite was adequate for both groups (Cronbach’s α = .85 and .91, for Asian Americans and European Americans respectively).

Manipulation Check

To examine whether interviewer ethnicity had priming effects on Asian Americans in our sample we administered the Twenty Statements Test (TST; Kuhn & McPartland, 1954) following the interview. Participants were asked to make 20 statements to answer the question “Who Am I?” This instrument allowed us to observe individuals’ own sense of the self in a free-

response format. To code the TST, we adopted a modified version Kanagawa, Cross, and Markus's (2001) coding system. We retained coding categories that were relevant to independent self-construals, that included fixed individual attributes including Physical Traits (e.g., "I am tall"), Preferences (e.g., "I like to cook"), Goals (e.g., "I want to be a nurse"), Psychological Attributes (e.g., "I am outgoing."), and Individuating self-references (e.g., "I am Michelle"). These coding categories were summed to create an independent self-construal composite. In addition, we coded for interdependent self-construals categories, including Relationships (e.g., "I have a brother"), Social Memberships and Roles (e.g., "I am a student"), and Others' judgments (e.g., "People say I am considerate"). Similarly, these categories were summed to create an interdependent self-construal composite. Interrater reliability was assessed based on double-coded responses for 26 responses (20%), revealing ICCs of .81 to .93.

Evidence for a priming effect would involve significant differences in the number of interdependent statements between Asian Americans who were interviewed by European Americans and Asian Americans who were interviewed by Asian Americans. Independent samples *t*-tests revealed that there were no significant differences in the number of independent self-construal statements between Asian Americans by interviewer ethnicity, $t(69) = .82, p > .05$. However, consistent with our predictions, Asian Americans who were interviewed by European American interviewers ($M = 2.40, SD = 2.04$) provided significantly fewer interdependent self-construal statements than those who were interviewed by Asian American interviewers ($M = 3.73, SD = 3.07$), $t(69) = 2.06, p = .04$. This provided some evidence for a successful priming effect of interviewer ethnicity for Asian American participants.

We also examined the effects of priming on the European American participants. Independent samples *t*-tests revealed no significant differences in the number of interdependent

self-construal statements. However, we found that ethnically matched European Americans provided marginally more independent self-construal statements than Asian Americans. Consistent with our predictions, interactions with Asian American interviewers did not result in greater interdependent self-views.

Results

Preliminary Analyses

We conducted independent samples *t*-tests to examine mean differences between outcome variables between groups. Means, standard deviations, and bivariate correlations for each group are shown in Table 1. European Americans ($M = 5.23$, $SD = 0.97$) were rated by observers as having significantly higher levels of personal disclosure than Asian Americans ($M = 4.84$, $SD = 0.99$), $t(122) = 2.24$, $p < .05$. No significant differences were found between Asian and European Americans on observer-rated hesitance or self-reported disclosure. We then tested the correlations between study outcomes. As expected, there was a negative association between observer-rated disclosure and observer-rated hesitance for both Asian and European Americans ($r_s = -.33$ and $-.48$, $p_s < .05$, respectively). Behavior-coded disclosure was positively correlated with self-reported disclosure for European Americans ($r = .34$, $p = .01$) but not for Asian Americans ($r = .02$, $p > .05$).

Effects of Interviewer and Participant Ethnicity on Disclosure and Expression

Controlling for the covariates, we conducted 2 (Participant Ethnicity: Asian American vs. European American) x 2 (Interviewer Ethnicity: Asian American vs. European American) Analysis of Covariance (ANCOVA) to examine the effects of ethnic match on our three outcomes of interest (see Table 2 for a summary of ANCOVA findings). Furthermore, we explored whether the effects of ethnic match would be more pronounced in domains that are

more sensitive in nature (e.g., romantic relationships and family). Controlling for the set of covariates, we conducted a series of ANCOVAs for each of the 5 LSI domains separately for each outcome.

Observer-rated disclosure. The main effect of participant ethnicity was significant, $F(1, 110) = 3.90, p = .05, \eta_p^2 = .03$, such that European Americans ($M = 5.20, SD = 0.11$) exhibited higher levels of disclosure than Asian Americans ($M = 4.89, SD = 0.10$). There was no main effect of interviewer ethnicity. We found a significant participant ethnicity x interviewer ethnicity interaction in predicting behavioral disclosure, $F(1, 110) = 4.37, p < .05, \eta_p^2 = .04$. Planned comparisons revealed that European Americans ($M = 5.43, SD = 0.16$) exhibited significantly greater levels of personal disclosure than Asian Americans ($M = 4.8, SD = 0.16$) when interviewed by European Americans. Among Asian Americans, there was no significant differences in observed disclosure by interviewer ethnicity (see Figure 1).

Next, we explored whether the effects would be more pronounced in domains that are more sensitive in nature (e.g., romantic relationships and family). We found significant participant ethnicity x interviewer ethnicity interactions in predicting the romantic relationship, $F(1, 109) = 7.12, p < .01, \eta_p^2 = .06$, family, $F(1, 109) = 5.22, p < .02, \eta_p^2 = .05$, and health domains, $F(1, 109) = 4.99, p < .03, \eta_p^2 = .04$. Across these interactions, planned comparisons showed that European Americans exhibited greater disclosure when they were ethnically matched with European American interviewers but there was no effect of interviewer ethnicity among Asian Americans in the romantic relationship, family, and health domains. There were no significant interactions in predicting observer rated disclosure in the academic and friendship domains.

Observer-rated hesitance. There were no significant main effects of participant ethnicity or interviewer ethnicity, but there was a significant participant ethnicity x interviewer ethnicity interaction, $F(1, 103) = 4.06, p < .05, \eta_p^2 = .04$ (See Figure 2). Planned comparisons revealed that European Americans ($M = 2.55, SD = 0.15$) exhibited lower levels of hesitance than Asian Americans ($M = 3.07, SD = 0.16$) when interviewed by a European American interviewer. Asian Americans did not differ in levels of hesitance across both European and Asian American interviewers.

In domain specific analyses, we found a significant participant ethnicity x interviewer ethnicity interaction in predicting observer rated hesitance in the family domain, $F(1, 102) = 5.43, p = .02, \eta_p^2 = .05$, and a marginally significant participant ethnicity x interviewer ethnicity interaction in in the romantic relationship domain, $F(1, 102) = 3.63, p = .06, \eta_p^2 = .03$. There were neither significant main effects nor interactions in predicting observed hesitance in the friendship, health, and academic domains. Planned comparisons showed that European Americans were less hesitant when interacting with European American interviewers (vs. Asian American interviewers) during these more sensitive domains, but there was no effect of interviewer ethnicity on Asian American participants.

Self-reported emotion expression and personal disclosure. We found a significant main effect of participant ethnicity for self-report emotion expression and disclosure such that Asian Americans ($M = 11.01, SD = 0.36$) endorsed lower ease of disclosure than European Americans ($M = 11.97, SD = 0.39$). There was no main effect of interviewer ethnicity and no significant participant ethnicity x interviewer ethnicity interaction on self-reported expression or disclosure.

In the domain specific analyses, there were also no significant main effects or interactions in predicting self-reported disclosure in any of the LSI domains.

Discussion

The present study was designed to test two competing hypotheses regarding the effects of ethnic match on emotional expression and personal disclosure across cultural groups. Based on tenets of social identity theory, it could be anticipated that being matched with an interviewer of the same ethnicity might invoke greater personal disclosure than being paired with an outgroup member, and that this may apply across Asian American and European American participants. In contrast, cultural priming theory might predict that pairing a bicultural Asian American with an Asian American interviewer may make interdependent social interaction norms salient thereby suppressing expressivity and disclosure.

Ultimately, the findings from this experiment did not clearly align with either set of predictions. There was evidence that European Americans in the ethnic match condition exhibited greater personal disclosure and lower hesitance than European Americans in the ethnic mismatch condition. This pattern was consistent across the more sensitive interview domains including romance and family, but not in the less sensitive interview domains such as academic or friendship stress. For this cultural group, our findings might be construed as support for the notion that a shared social identity would promote in-group comfort and intimacy. Social identity theory suggests that markers of a shared in-group may lend a perception of shared values, attitudes, and life experiences that may prompt closeness. Alternatively, reduced emotion expression and disclosure among the ethnically mismatched European Americans may represent a lack of familiarity with interacting with Asian Americans. Although speculative, European Americans who were interviewed by Asian Americans may have engaged in greater self-regulation in order to inhibit or modulate behaviors to prevent behaving in prejudiced ways. But it is unclear why this effect did not extend to Asian Americans in our study.

Cultural priming theory suggested that interviewer ethnicity might prime an interdependent social orientation in bicultural Asian Americans, which might subsequently influence expressive behavior. That is, for this group, Asian American interviewers may prime interdependent relational norms, leading to inhibited personal disclosure and greater hesitance. By contrast, European American interviewers may prime independent promotions of the self, leading to greater personal disclosure and lower hesitance for Asian American participants. Our manipulation check revealed evidence that interviewer ethnicity resulted in a greater number of self-generated interdependent self-statements when Asian Americans were paired with an ethnically matched interviewer. However, we saw no effect of interviewer ethnicity on expressive behavior or disclosure among Asian Americans, despite what appears to have been a successful prime. Although speculative, it is possible that any effects of a shared in-group identity may have been counteracted by cultural frame-switching, such that the interdependent cultural primes may have dampened any facilitative effects of presumed shared experience.

Adding to a growing number of studies that have reported limited benefits of ethnic match for Asian Americans (e.g., Cabral & Smith, 2011), we did not find support that ethnic match facilitated greater emotion expression and personal disclosure for Asian Americans. Indeed, the process of disclosing negative information about the self can be universally difficult, but it can be especially challenging for individuals that come from interdependent cultural contexts that value face (Liao & Bond, 2010; Zane & Yeh, 2002), as evinced by the moderately sized main effect of ethnicity on observed disclosure in this study. Because of cultural concerns about face loss, Asian Americans may be more hesitant to disclose negative information about the self when interacting with in-group members. Consistent with this line of reasoning, our manipulation check showed that interactions with Asian American interviewers resulted in

greater number of interdependent self-construal statements in Asian American participants but not European American participants. Thus, together these findings suggest a need to move beyond a simple in-group/out-group approach to understanding the effects of ethnic match on personal self-disclosure.

Although this study generated new hypotheses about the potential effects of interviewer ethnic match on personal disclosure across two cultural groups, it also has several limitations. First, the study pertained to healthy college students, so results may not be generalizable to clinical populations. Nevertheless, these findings provide contributions to understanding the effects of interviewer ethnicity on important counseling processes such as personal disclosure and emotion expression. Second, because our cultural predictor relied on ethnic membership, examining more proximal predictors such as cultural values may be more illuminating. Third, the effects were demonstrated for observer-rated disclosure but not self-reported emotion expression and disclosure. Psychometrically, there were some concerns about the reliability and validity of the self-report measures across groups. The self-reported emotion expression measure consisted of only two items, and was correlated with observer-rated disclosure for European Americans but not for Asian Americans, leading to questions about the cross-group validity of the measures. More research is needed to understand the implications of this method variance to determine whether the measurement discordance captures something meaningful about disclosure in interdependent cultural groups.

Despite these limitations, the study shed new light on how we might best understand the effects of ingroup versus outgroup processes on personal disclosure across cultural groups. It is plausible that culturally primed values concerning face loss and restraint may counteract the effects of a shared in-group identity on disclosure processes. Future research might identify the

conditions under which each effect might be isolated. For example, using a “neutral content” interview such as focusing on participants’ future goals might alleviate the face concerns related with disclosing personal stress events. Without the interference of interdependent cultural primes associated with face concerns, different task demands may allow for sensitive test of the effects of shared social identity versus interdependent cultural priming processes. Furthermore, future research that includes other cultural groups (e.g., individuals from Mexico) that differ in social distance may help disentangle our findings. The interactions between Asian Americans and European American (i.e., closer social distance) may be different from their interactions with individuals from another country (i.e., farther social distance).

Table 1. Descriptive Statistics and Correlations of Outcome Variables by Ethnicity

	Asian American		European American		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Behavior Coded Disclosure	4.84	0.99	5.23	0.97	2.24*
2. Behavior Coded Hesitance	3.03	0.79	2.81	0.76	1.56
3. Self-Reported Disclosure	5.52	1.17	5.64	1.12	0.59

	1.	2.	3.
1. Behavior Coded Disclosure	--		
2. Behavior Coded Hesitance	-.52** (-.34**)	--	
3. Self-Reported Disclosure	.34*** (.02)	-.17 (-.19)	--

Note. * $p < .05$. ** $p < .01$. Correlations inside parentheses are for Asian Americans.

Table 2. Summary of Findings for ANCOVAs

Outcomes	Predictors		
	Interviewer Ethnicity	Participant Ethnicity	Participant Ethnicity x Interviewer Ethnicity Interaction
Overall			
Observer-rated Disclosure	0.73	3.90*	4.37*
Observer-rated Hesitance	0.87	1.15	4.06*
Self-reported Expression and Disclosure	0.03	3.10*	.003
Sensitive Domains			
Family			
Observer-rated Disclosure	1.57	1.87	5.22*
Observer-rated Hesitance	2.77	0.15	5.43*
Self-reported Expression and Disclosure	1.62	2.59	1.44
Romantic Relationships			
Observer-rated Disclosure	0.04	2.33	7.12*
Observer-rated Hesitance	1.17	1.58	3.63†
Self-reported Expression and Disclosure	0.19	0.78	0.23

Note. The numbers reported are F-statistics. † $p < .10$ * $p < .05$

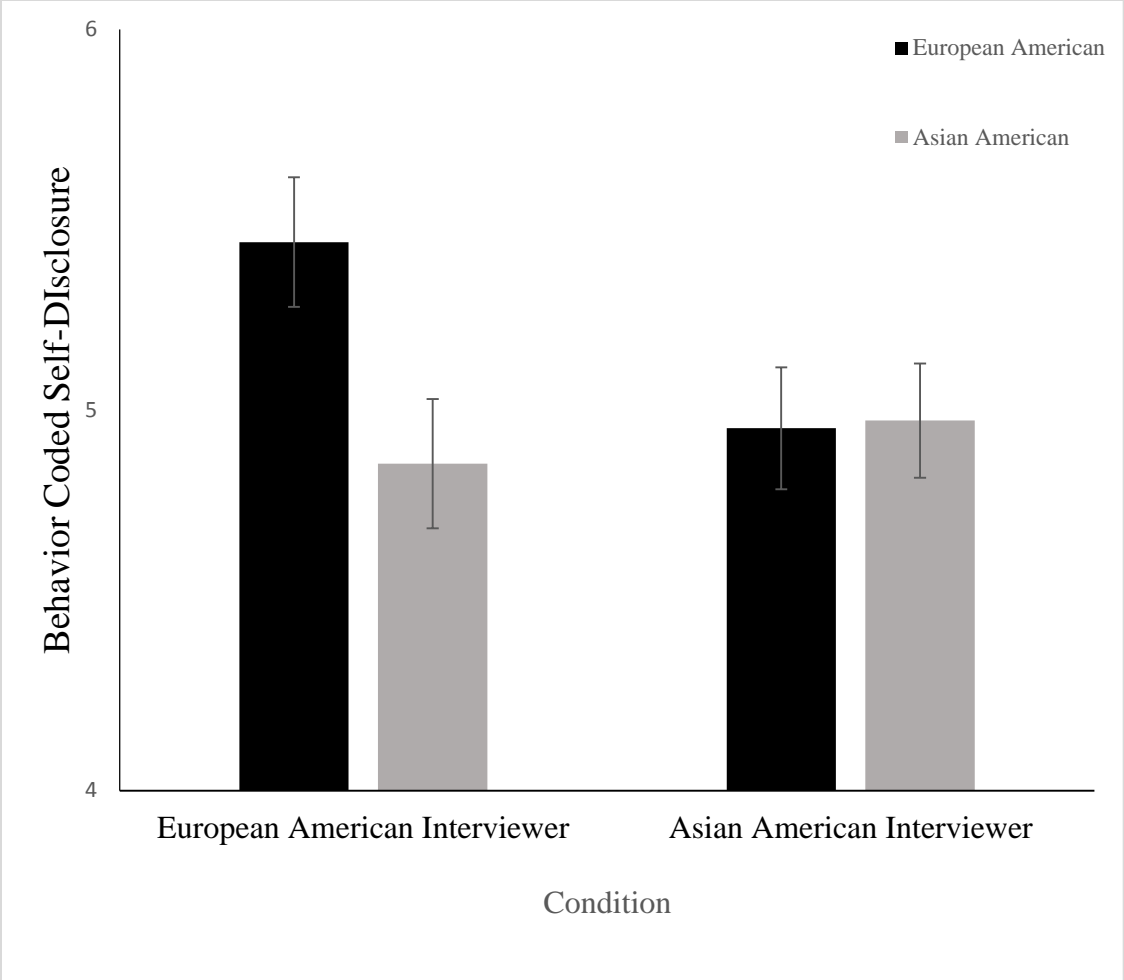


Figure 1. Participant Ethnicity x Interviewer Ethnicity in predicting Observer-rated Disclosure.
* $p < .05$

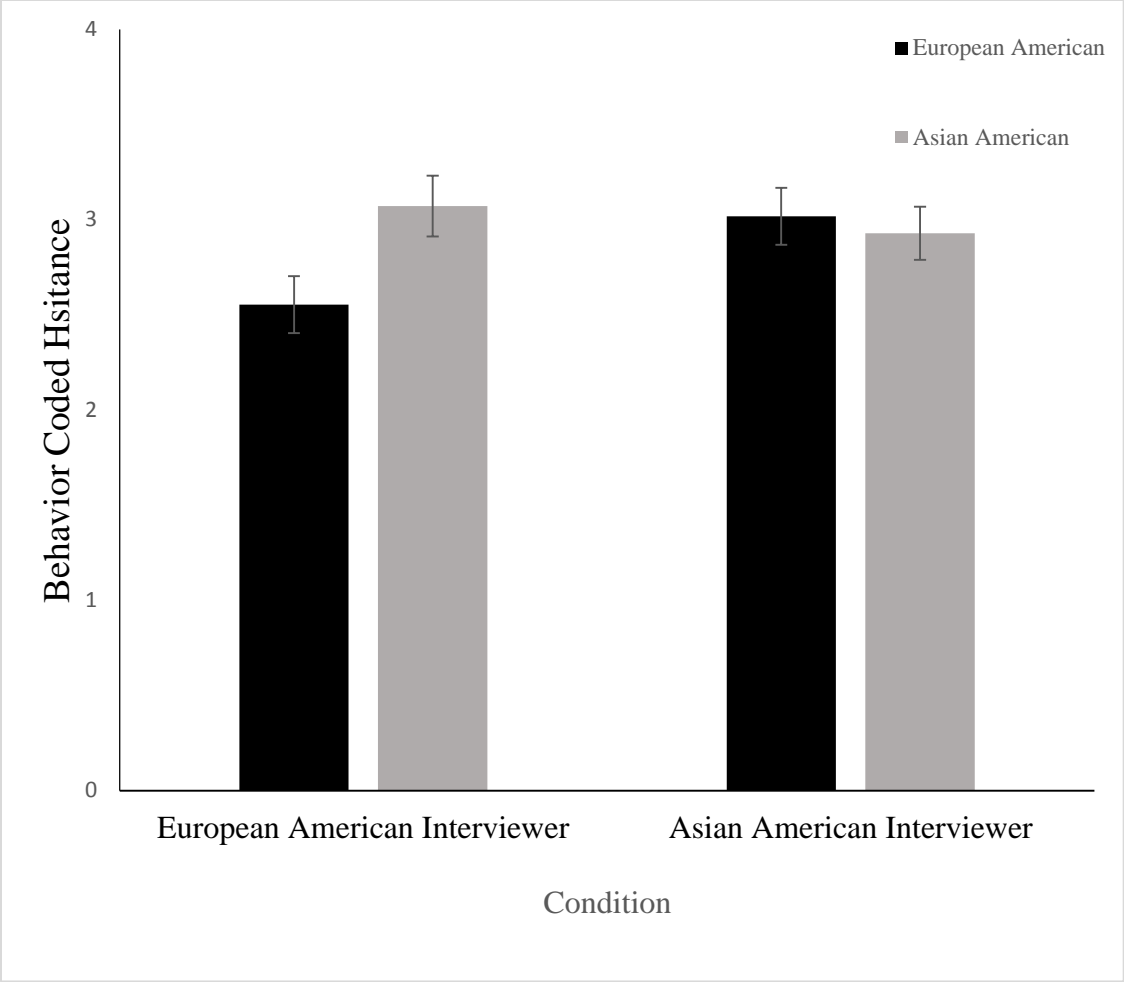


Figure 2. Participant Ethnicity x Interviewer Ethnicity in predicting Observer-rated Hesitance.

* $p < .05$

STUDY 2

RECIPROCAL RELATIONS BETWEEN EMOTION SUPPRESSION AND MALADJUSTMENT AMONG VIETNAMESE AMERICAN AND EUROPEAN AMERICAN ADOLESCENTS

Expressive emotion suppression is a response-focused emotion regulation strategy that involves reducing or inhibiting the expression of affect after it is aroused (Gross & John, 2003). Although considerable research has linked emotion suppression to greater depressive symptoms (Aldao & Nolen-Hoeksema, 2010) and poorer social functioning (Gross & John, 2003), several key aspects of the emotion suppression-maladjustment link are not yet fully delineated. First, the directionality of these relations is not yet clear. That is, it is not yet established whether emotion suppression increases risk for later maladjustment, whether earlier distress precipitates reliance on emotion suppression, or both. In addition, it is unclear the extent to which the (mal)adaptiveness of emotion suppression varies as a function of cultural context (Kitayama, Karasawa, & Mesquita, 2004). There are theoretical reasons to suspect that the effects of emotion suppression on mental health may vary, given cultural variation in attitudes towards emotional expression as a function of independent and interdependent self-construals (Markus & Kitayama, 1991). Lastly, few studies have examined these relations across ethnic groups during adolescence, a key developmental period during which emotion regulation may play a prominent role in emergent risk for psychopathology (Larsen et al., 2013).

Thus, the objective of the present study was to assess reciprocal relations between emotion suppression coping and maladjustment as indexed by depressive symptoms and interpersonal problems across two ethnic groups. Our sample included Vietnamese American adolescents, an ethnic group placing a relative emphasis on interdependent values, and European

American adolescents, an ethnic group generally considered to place a relative emphasis on independent values. In the present study we examined adolescents' use of expressive emotion suppression following a stressful life event (and thus refer to emotion suppression and emotion suppression coping interchangeably).

Emotional Suppression: Consequence or Cause of Depressive Symptoms

On the one hand, it is possible that increased use of emotion suppression following stressful experiences is a consequence of depression (Campbell-Sills, Barlow, Brown, & Hoffman, 2006), in that emotion suppression is consistent with certain core clinical features of depression. For instance, anhedonia is a central feature of depression, and represents reduced experience and expression of affect. In addition, individuals attempting to cope with the negative affect that is definitional to depression may be highly motivated to avoid these aversive emotions, through suppression. As such, emotion suppression may be a consequence of depression. Supporting this perspective, Larsen and colleagues (2013) tested reciprocal relations between emotion suppression and depressive symptoms in a sample of Dutch adolescents, and found that depressive symptoms predicted increased self-reported emotion suppression one year later, but that emotion suppression did not predict increased depressive symptoms.

On the other hand, emotion suppression coping may cause or exacerbate depressive symptoms (Wegner & Zanakos, 1994), because it may not be an adaptive coping strategy for regulating distress or resolving the environmental stress underlying the depressive symptoms. In an experimental study, Gross (1998) found that individuals instructed to suppress their emotions during a distressing film clip were able to successfully modulate expressive display compared to those in the control condition, but emotion suppression did not decrease the subjective experience of negative emotions. Other studies have suggested that emotion suppression may

lead to incongruence between felt emotion and expressed emotion, which itself may result in increased anxiety, depression, increased rumination, and re-experiencing of the suppressed negative affect (Gold & Wegner, 1995; Wegner, Schneider, Cioffi & Holloway, 1993). As negative emotion lingers, physiological stress responses accumulate (i.e., increased activation of the sympathetic nervous system) which can in turn further disrupt mood and cognition (Roberts, Levenson, & Gross, 2008).

Emotion Suppression: Consequence or Cause of Poor Interpersonal Functioning

Emotions serve a fundamental role in facilitating social communication and connection (Mesquita & Leu, 2007), which suggests that under certain conditions suppression of emotions may lead to adverse interpersonal outcomes (Gross & John, 2003). Indeed, emotional expressiveness is positively associated with interpersonal intimacy and greater relationship quality (e.g., Gottman & Levenson, 1992; Geist & Gilbert, 1996), which suggests that emotion suppression in contrast may be associated with reduced social support (Sprecher & Hendrick, 2004; John & Gross, 2004). The suppression of emotional display appears to result in reduced attention to interpersonal partners, diminishing feelings of social connection, sometimes engendering ill will or conflict (Butler et al., 2003; Richards, Butler & Gross, 2003). Consequently, individuals who inhibit emotional display may be interpreted by close others as distant or insensitive, and may thus contribute to conflict or rejection experiences as they fail to communicate their feelings or emotional needs (Sprecher & Hendrick, 2004). In addition, individuals who engage in emotion suppression following a stressful experience may fail to signal distress and recruit support from others, resulting in reduced social support.

Considering the other causal direction, the experience of social rejection and poor relationship quality may result in greater use of emotion suppression. Campbell-Sills and her

colleagues (2006) found that the relation between depressive symptoms and emotion suppression was mediated by the belief that one's distressing emotions are unacceptable. Thus, adolescents who experience interpersonal stress and poor social support may increasingly withdraw and engage in emotion suppression to insulate against further social problems.

Cultural Variability in Emotion Suppression

Recent research on emotion suppression suggests that there may be cultural variation in the causal processes linking emotion regulation and psychological adjustment. Culture is an important factor shaping the valuation of emotional expressivity (Markus & Kitayama, 2001), and thus may shape the mental health correlates of emotion suppression coping. As a consequence of socialization for interdependent cultural norms, individuals of Asian descent are more likely to engage in emotion suppression than European Americans (Gross & John, 2003). In East Asian cultures in particular, socialization within an interdependent context prioritizes exercising restraint over emotion display to accommodate to the needs of others and to promote group harmony. In contrast, in Euro-American ethnic groups children are socialized to individualistic values that emphasize independence and the assertion of the autonomous self, including open expression of internal states, with the goal of influencing others (Markus & Kitayama, 1991). Evidence suggests that cultural display rules regarding suppression of emotional expression (Matsumoto, 1990; Matsumoto et al., 1998) are socialized by early childhood (Louie, Oh & Lau, 2013; Tsai, Louie, Chen & Uchida, 2007), with ethnic group differences mediated by these values regarding emotion regulation (Mauss et al., 2010).

In laboratory manipulations, Asian origin individuals show less physiological arousal (e.g., based on evoked response potential; cardiovascular activity; subjective affect) than European Americans (Murata, Moser & Kitayama, 2013) when using emotion suppression.

Some naturalistic studies have produced results supportive of this perspective (e.g., Butler, Lee & Gross, 2007). For instance, Soto, Perez, Kim and Minnick (2011) found that self-reported habitual emotion suppression was related to decreased quality of health among European Americans but not among Hong Kong Chinese. However, findings have not been entirely consistent with this perspective. Roberts, Levenson, and Gross (2008) reported that in response to an emotion suppression manipulation, both European American and Chinese American participants showed increases in systolic and diastolic blood pressure, and in sympathetic activation of the cardiovascular system, and that the two groups did not differ significantly on these variables. Thus, some research suggests that the negative consequences of emotion suppression may vary culturally, and are only maladaptive in cultural contexts that encourage and emphasize emotion expressivity, but additional research is necessary to clarify inconsistencies found in the literature.

The Current Study

To date no studies have examined the prospective relations between emotion suppression and maladjustment (i.e., depressive symptoms, family stress events, peer stress events, and family and peer support) in an ethnic group that prioritizes interdependence. The present study had two primary goals. First, we examined the relative use (i.e., level) of emotion suppression to cope with stress among Vietnamese American and European American adolescents. Due to cultural differences in display rules and prioritization of social harmony, we predicted that Vietnamese American adolescents would engage in greater emotion suppression than European American adolescents. Second, we assessed the directionality of the relations between emotion suppression coping and maladjustment using cross-lagged analyses within a 6 month longitudinal design. Because emotion suppression may be more normative and less maladaptive

among interdependent ethnic groups, we hypothesized that the prospective associations between emotion suppression and later maladjustment (i.e., greater depressive symptoms, greater family/peer stress events, and poorer family/peer support) would be attenuated among Vietnamese Americans relative to European Americans.

Method

Participants and Procedures

The sample was drawn from a larger study examining cultural variation in adolescents' stress experiences, coping, and mental health among Vietnamese American and European American 10th and 11th grade students. Over three consecutive academic years (2011-2014), a total of three cohorts of students from 10 ethnically diverse public high schools participated in this study. Across the ten schools, European American students represented approximately 26.0% of enrolled students (range: 1.7% to 59.6%) whereas Asian American students represented approximately 36.9% of students (range: 8.1% to 76.0%). These schools included a significant proportion of Latino students as well (range: 14.5% to 57.1%). The schools were in both lower- and middle-income communities, with the percent of students qualifying for a free or reduced cost lunch ranging from 12% to 77%, with five schools designated as Title 1 eligible. Students were compensated with \$20 or \$25 retail gift cards for their participation in assessments in the baseline and two follow-up assessments, respectively.

Study recruitment involved research assistants making brief announcements in all 10th and 11th grade classrooms in the early fall of the school year in a given department (e.g., Social Studies, or Science), describing the study and distributing consent packets to interested students. Students were instructed to return the packets with a signed parental consent form and adolescent assent form if they wished to be considered for the study. Small incentives were provided to

individual students who returned the forms (regardless of interest in participating) and the top three classrooms per cohort with the highest return rates were given a pizza party. In schools with smaller enrollments of eligible students (i.e., our target ethnic groups), targeted recruitment was undertaken by the school sending eligible students emails, inviting them to sessions describing the study. Among the 5,035 students who returned consent packets, 1,937 (38.5%) declined participation, 3,098 (61.5%) students expressed interested in participating, but 896 (17.8%) were found to be ineligible (due to ethnicity). Thus, in total, 2,202 eligible students provided parental consent and adolescent assent for project participation.

A total of 1,549 students ($M_{\text{age}} = 15.6$ years, $SD = .63$) were selected stratified by gender and ethnicity from among the 2,202 eligible students who provided consent for the Time 1 survey. Because of their fewer numbers all eligible European American and all male students were selected for study participation. However, more Vietnamese American females volunteered than were needed for the study, and a random sample from this group was selected to participate in the baseline survey. The baseline sample was 37.6% ($n=582$) male, and 56.6% ($n=876$) Vietnamese American, 31.6% ($n=494$) European American, 7.5% ($n=116$) Hispanic/Latino American¹, 2.3% ($n=36$) multiracial, and 1.3% ($n=20$) were from other racial/ethnic groups. Participants completed the survey in small groups at the school.

A subset of the baseline survey sample was invited to participate in a prospective study including the baseline survey and an additional follow-up assessment over the course of the school year (Time 2). Selection for the prospective study followed a random stratified sampling procedure that further balanced both gender and ethnicity, and selected from low, medium and high stress scores on the Adolescent Life Events Questionnaire (ALEQ; Hankin & Abramson, 2002) across the target groups to reduce skewness. From the 1,549 participants surveyed at

baseline, 678 were followed prospectively for the remainder of the academic year. Of these participants, 54.9% ($n=372$) were Vietnamese American and 44.8% ($n=304$) were European American, and 48.1% ($n=326$) were male. Six months after the baseline survey, participants completed follow-up surveys. Participants were compensated with \$20 retail gift cards for the first survey and \$25 retail gift cards for each follow-up survey.

The present study used the prospective survey data from the 372 Vietnamese American participants (48.4% males; 40.2% sophomores) and 304 European American adolescents (47.4% males; 49.7% sophomores). Within the longitudinal sample, 79.3% of Vietnamese American and 96.4% of European American adolescents were born in the United States. Among those who were foreign born, Vietnamese American adolescents had been residing in the U.S for an average of 8.42 years ($SD=.40$) whereas the European American adolescents had been residing in the U.S. for 11.5 years ($SD=5.07$). Of those who knew their parents' education level, about 32.3% of Vietnamese American fathers, 35.6% Vietnamese American mothers, 44.4% of European American fathers and 52.9% of European American mothers had a college degree or higher. In addition, although more than half of the mothers and fathers of both ethnicities had full time employment, 10.5% of Vietnamese American fathers, 8.1% of Vietnamese American mothers, 6.6% of European American fathers and 5.6% of European American mothers were unemployed and searching for job.

Measures

Emotion Suppression. The extent to which adolescents attempted to suppress their emotional expression towards others (*expressive suppression*), or their internal emotional response (*experiential suppression*) following a stressful event was assessed at T1 and T2 using one item from the Children's Coping Strategies Checklist Scale (CCSC; Ayers, Sandler, West &

Roosa, 1996) as well as four items created for the present study. The five items were “I pretended to other people that everything was fine”, “I hid my emotions”, “I let other people know how I felt (reverse coded)”, “I kept my emotions under control”, “I pretended to other people that everything was fine”, and “I did not let myself get emotional.” Similar to the CCSC, participants responded to each of these items on a 4-point Likert scale (from Never to Most of the time). An exploratory factor analysis with varimax rotation was conducted on the five items. The magnitude of factor loadings revealed two factors (Fabrigar, Wegener, MacCallum, & Strahan, 1999). An Expressive Suppression factor contained three items (i.e., “I pretended to other people that everything was fine”, “I hid my emotions”, and “I let other people know how I felt”), with factor loadings ranging from .71 to .85. An Experiential Suppression factor contained two items (i.e., “I did not let myself get emotional” and “I kept my emotions under control”); given the focus of the present study on expressive suppression, the second factor was not used in the present study. As would be expected given the relatively small number of items on the scale, internal consistency was relatively low, but still adequate, for expressive suppression at T1 (Cronbach’s $\alpha = .60$ for Vietnamese Americans and $.74$ for European Americans) and at T2 (Cronbach’s $\alpha = .62$ for Vietnamese Americans and $.67$ for European Americans).

Depressive symptoms. Depressive symptoms were assessed by the Youth Self Report (YSR; Achenbach & Rescorla, 2001), at T1 and T2 . The YSR consists of 112 items covering various internalizing and externalizing symptoms and behaviors experienced by adolescents, using response options of 0 (“not true”), 1 (“somewhat or sometimes true”), or 2 (“very true or often true”). In the present study, we used the YSR-DSM-IV Affective Problems subscale, which includes 11 items such as “I am unhappy, sad, or depressed”, “I don’t eat as well as I should”, and “I feel worthless or inferior.” Internal consistency was adequate, at T1 (Cronbach’s

$\alpha = .72$ for Vietnamese Americans and $.80$ for European Americans) and at T2 (Cronbach's $\alpha = .78$ for Vietnamese Americans and $.80$ for European Americans).

Family and Peer Support. Participants completed the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) at T1 and T2, to assess level of perceived social support (e.g., “I get the emotional help and support I need from my family”; “I can count on my friends when things go wrong.”). The MSPSS consists of 8 items rated on a 6-point Likert scale (1= “strongly disagree” to 6 = “strongly agree”). The scale contains two subscales: Family Support and Peer Support. The composite of each subscale with 4 items each was used to determine the level of support from friends and level of support from family. The MSPSS has good reliability, convergent, and discriminant validity across ethnic groups (Kazarian & McCabe, 1991). In the present samples there was good internal consistency for T1 family support (Cronbach's $\alpha = .88$ for Vietnamese Americans and $.91$ for European Americans), T1 peer support (Cronbach's $\alpha = .86$ for Vietnamese Americans and $.91$ for European Americans), T2 peer support (Cronbach's $\alpha = .87$ for Vietnamese Americans and $.90$ for European Americans), and T2 family support (Cronbach's $\alpha = .88$ for Vietnamese Americans and $.87$ for European Americans).

Family and Peer Stress Events. The Adolescent Life Events Questionnaire (ALEQ; Hankin & Abramson, 2002) was used to assess family and peer interpersonal stress events at T1 and T2. In this measure participants are asked to indicate whether certain negative events have happened to them over the past 3 months (0=No; 1=Yes). The ALEQ assesses a broad range of life events, including school/achievement problems, friendship and romantic difficulties, and family problems. We excluded family and peer stressful events that were independent of the adolescents' behaviors (e.g., “A close family member died.”), only including events that were at

least in part potentially caused by adolescents' behavior (e.g., "You got into an argument or fight with a friend."). The ALEQ has good test-retest reliability and internal consistency (e.g., Hankin & Abramson, 2002).

Results

Preliminary Analyses

To determine whether Vietnamese American and European American adolescents differed in their use of emotion suppression coping and in maladjustment, a series of independent samples *t*-tests were conducted. Results indicated relatively small but significant mean ethnic group differences on several variables. As expected, Vietnamese Americans ($M = 10.89$, $SD = 2.85$) endorsed significantly greater T1 emotion suppression than European Americans ($M = 10.44$, $SD = 3.11$), $t(661) = 1.97$, $p < .05$, $d = .15$. Vietnamese American adolescents also reported significantly higher levels of T1 depressive symptoms than European Americans ($M = 61.85$, $SD = 7.67$; $M = 60.54$, $SD = 8.44$, respectively), $t(661) = 2.11$, $p < .05$, $d = .16$. Furthermore, Vietnamese American adolescents ($M = 5.73$ and 3.68 , $SD = 3.12$ and 1.33) endorsed significantly more T1 family stress events and lower family support ($M = 4.68$ and 4.39 , $SD = 3.09$ and 1.26) than European American adolescents. Vietnamese American and European American adolescents did not differ on peer support and peer stress events.

Table 2 presents bivariate correlations of the study variables separately for Vietnamese and European Americans. We found cross-sectional support for the maladaptive nature of emotion suppression for both groups. For example, T1 emotion suppression was associated with greater T1 depressive symptoms ($r = .42$ and $.30$, $p < .01$, respectively), lower T1 peer support ($r = -.38$ and $-.39$, $p < .01$, respectively), and higher T1 family stress events ($r = .32$ and $.28$, $p < .01$, respectively) for both European Americans and Vietnamese Americans.

Cross-lagged Models

To examine the longitudinal relations between emotion suppression and maladjustment over the 6-month interval between T1 and T2, we used multi-group Structural Equation Modeling (SEM) with observed variables using MPLUS 6.11 (Muthén & Muthén, 2007). MPLUS handles missing data using full-information maximum likelihood (FIML) estimation, which uses all available data in the analyses. All models tested included age, gender, and generation status as covariates.

Depressive Symptoms. First, we examined the prospective associations between emotion suppression and depressive symptoms from T1 to T2 (see Figure 1). The model fit the data adequately according to standard conventions (comparative fit index [CFI] = .97; root mean square error of approximation [RMSEA] = .08; standardized root mean square residual [SRMR] = .04) (Hu & Bentler, 1999). As expected, depressive symptoms and emotion suppression were moderately stable over time for both Vietnamese ($\beta = .65$ and $.54$, respectively) and European Americans ($\beta = .56$ and $.54$, respectively). There were also positive cross-sectional associations between emotion suppression and depressive symptoms at both time points for both ethnic groups (T1: $\beta = .43$ and $.29$, T2: $\beta = .20$ and $.12$, for European Americans and Vietnamese Americans, respectively).

The cross-lagged path from T1 emotion suppression to T2 depressive symptoms was significant for European Americans ($\beta = .15$, $p < .01$) and marginally significant for Vietnamese Americans ($\beta = .07$, $p = .08$). A model with this parameter constrained across groups had significantly poorer fit than the initial model with the unconstrained path ($\chi^2[1] = 5.11$, $p = .02$), indicating that the prediction from T1 emotion suppression to T2 depressive symptoms was significantly larger for the European American vs. between the Vietnamese American

adolescents. The cross-lagged prediction from T1 depressive symptoms to T2 emotion suppression was marginally significant for European Americans ($\beta = .10, p = .09$), but not for Vietnamese Americans ($\beta = .01, p = .90$). A model with a multi-group constraint on this parameter did not differ in fit compared to the initial unconstrained model ($\chi^2[1] = 1.07, p = .30$), indicating that the estimates were not significantly different across groups.

Family and Peer Stress Events. For the cross-lagged model between emotion suppression and family stress events (see Figure 2), the model had an adequate fit with CFI = .92, RMSEA = .09, and SRMR = .06. There were positive cross-sectional associations between emotion suppression and family stress events for both Vietnamese Americans and European Americans ($\beta = .28$ and $.32, p < .05$, respectively). There were no significant cross-lagged paths, however.

For the cross-lagged model between emotion suppression and peer stress events, the model had an adequate fit with CFI = .92, RMSEA = .08, and SRMR = .05. There were positive cross-sectional associations between emotion suppression and peer stress events for European Americans ($\beta = .27, p < .05$) but not for Vietnamese Americans ($\beta = .08, p > .05$). The cross-lagged path from T1 emotion suppression to T2 peer stress events was significant for European Americans ($\beta = .14, p < .05$) and nonsignificant for Vietnamese Americans ($\beta = -.06, p = .19$). A model with this parameter constrained across groups had a significantly poorer fit than the initial model with the unconstrained path ($\chi^2[1] = 3.77, p = .05$), indicating that the estimate was significantly different between the Vietnamese American and European American groups. The cross-lagged path from T1 peer stress events to T2 emotion suppression was nonsignificant for both ethnic groups.

Family support and peer support. The emotion suppression and family support model had satisfactory fit with CFI = .94, RMSEA = .09, and SRMR = .05 (see Figure 3). Although

there were negative cross-sectional associations between emotion suppression and family support for both Vietnamese Americans and European Americans ($\beta = -.32$ and $-.43$, $p < .05$, respectively), the cross-lagged paths were nonsignificant for both ethnic groups.

There was satisfactory model fit for the emotion suppression and peer support model with CFI = .95, RMSEA = .08, and SRMR = .05. The cross-lagged path from T1 emotion suppression to T2 peer support was significant for European Americans ($\beta = -.14$, $p < .05$) and nonsignificant for Vietnamese Americans ($\beta = .02$, $p > .05$). A model with this parameter constrained across groups did not have a significantly poorer fit than the initial model with the unconstrained path ($\chi^2[1] = 1.26$, $p > .05$), indicating that the estimate was not significantly different between the Vietnamese American and European American groups. The cross-lagged path from T1 peer support to T2 emotion suppression was significant for Vietnamese Americans ($\beta = -.14$, $p < .05$) and marginally significant for European Americans ($\beta = -.05$, $p > .05$). The estimates were not significantly different between the Vietnamese American and European American groups.

Discussion

The negative effects of emotion suppression have been documented in experimental research, and observed in cross-sectional studies among Western populations (e.g., Gross & John, 2003; John & Gross, 2004), but few studies have examined prospective relations in naturalistic studies (i.e., where emotion suppression occurs in response to actual stressors, rather than in experimentally manipulated situations). Another limitation of this literature is that most studies of emotion suppression have involved populations within which emotion suppression is viewed as culturally undesirable. Our findings are consistent with research on display rules in interdependent cultures (Keltner et al., 2003), such that Vietnamese American adolescents at baseline reported greater use of emotion suppression coping than European American

adolescents. Furthermore, we found that the outcomes associated with emotion suppression varied across groups. For European American teens, emotion suppression led to maladjustment in the form of increased depressive symptoms and worsened peer relationships. This may be because emotion suppression runs contrary to independent cultural norms and expectations (as evidenced by the lower levels of usage by European Americans). In contrast, for the Vietnamese American adolescents, the prospective associations between emotion suppression and later maladjustment were either nonsignificant or less significant than those for the European Americans. This pattern suggests that emotion suppression may have more benign implications within an interdependent ethnic group. Together, these findings suggest that there may be cultural variability in the relations between emotion suppression and maladjustment.

Our cross-lagged analyses suggested a single direction of influence, from emotion suppression to later peer relationship quality, and were restricted to the European American sample. For the European Americans, emotion suppression may result in increased rumination, compounding distress (Liverant et al., 2011), which may have negative effects on interactions with peers. In fact, in experimental studies with primarily European American participants, suppressing negative emotions does not typically lead to emotional relief (Gross & Levenson, 1997).

In contrast, across both ethnic groups, there was little evidence that depressive symptoms and interpersonal problems resulted in increased emotion suppression over time, with one exception. This exception was that perceived peer support at baseline among Vietnamese American teens predicted greater emotion suppression coping at follow-up. Poor perceived peer support may have prompted Vietnamese American adolescents to worry about the security of their relationships, and to engage in emotion suppression to avoid further rejection or negative

evaluation, given that there may be more of a social pressure for emotion suppression among their peer group. Other research has found that adolescents are more likely to express emotion when a supportive reaction is expected (Fuchs & Thelen, 1988; Zeman & Garber, 1996). Our finding that only Vietnamese American teens appeared to respond to poor perceived peer support with increasing reliance on emotion suppression is consistent with the idea that emotion regulation and expressive behavior among individuals with an interdependent orientation is more likely to be shaped by social context cues than individual needs (Markus & Kitayama, 1991).

Overall, our findings stand in contrast to those of Larsen et al. (2013), who examined the reciprocal associations between emotion suppression and depressive symptoms in a sample of early adolescents in the Netherlands. Whereas Larsen and colleagues found that depressive symptoms at baseline predicted increases in emotion suppression, the bulk of our findings supported the opposite direction of influence. That is, among European American youth in particular, emotion suppression coping at baseline predicted increases in depression and more negative peer relations. One explanation for this discrepancy is that the relation between emotion suppression and depressive symptoms may change with development, as our study included primarily 15 to 17 year olds whereas Larsen et al. included younger adolescents. Emotion suppression coping may represent a risk factor, temporally preceding distress, when children fail to develop mature emotion expression and interpersonal skills in the transition to late adolescence or young adulthood (Laible, 2007; Bronstein et al., 1996). This developmental period corresponds to a period during which the risk of depression escalates sharply, with incidence among late adolescents approaching that of adults (Lewinsohn, Rohde, & Seeley, 1996).

Although the effects for emotion suppression coping on maladjustment were either non-

significant for the Vietnamese Americans, or significantly smaller than for the European Americans, it is important to note emotion suppression was not an adaptive coping strategy for this ethnic group. That is, emotion suppression was not associated with *decreased* depressive symptoms nor with *improved* interpersonal adjustment. Among cultures in which emotion suppression is normative, the objective of emotion suppression coping is not to regulate one's affect in a manner that is adaptive for the individual, but rather to control the display of affect in a manner that is adaptive for the social group. Thus, emotion suppression coping may be adaptive in the sense that it facilitates group harmony, but this may have relatively little direct benefit for the individual's affective functioning. Future research employing multi-informant designs would allow for an investigation of the extent to which the social network may either benefit from suppression among its members. Extant research indicates that members of interdependent cultural groups are less likely to be seen as hostile, and resulted in less hostile conversations when suppressing their emotions during a laboratory-based task (Butler et al., 2007)

An unexpected but important pattern in our findings was that the negative interpersonal consequences of emotion suppression were evident in the peer domain but not in the family domain, and only for European American teens. Some research suggests that emotion suppression coping may be utilized more by children at school among peers, and less so at home among family members (Zeman and Garber, 1996). Moreover, children appear motivated to suppress their negative emotions (e.g., anger or sadness) in the presence of peers to avoid negative interpersonal consequences, such as peer rejection or ridicule (Zeman & Garber, 1996). However, our findings suggest that unfortunately using emotion suppression may have negative impacts within peer relationships. Saarni (1991) suggested that the degree of affiliation within a

relationship can strongly influence whether an adolescent will engage in emotion suppression and may also determine the impact of suppression. Perhaps the unconditional bond between adolescents and their parents may protect against any threats to relationship integrity conferred by emotion suppression coping for European American teens. By contrast, friendships are more discretionary than obligatory, such that peers may elect to exit friendships more freely, especially among individuals holding independent orientations (Markus & Kitayama, 1991). Thus, in the context of European American valuation of expressivity, peers may negatively evaluate, and reject, teens who routinely suppress emotion.

There are several study limitations that should be considered. First, our measure of emotion suppression was derived from the Children's Coping Strategies Checklist Scale, but its concurrent validity with other measures of emotion suppression (e.g., the Emotion Regulation Questionnaire; John & Gross, 2003) is unknown. Second, the sample was selected from neighborhoods and schools with relatively high ethnic density of Vietnamese Americans. Thus, the generalizability of our results to Vietnamese Americans who are a local minority is unknown. Third, this study relied exclusively on adolescent reports, thus making third variable explanations linked to informant possible. For example, reporting increased levels of depressive symptoms as well as affective display values might reflect a negative response tendency, either in general or directed towards the self. However, although such processes might explain cross-sectional relations, it is less clear how they might explain longitudinal relations; nonetheless it will be useful for future research to use multi-informant and multi-method data, although self-report overall may be the most valid approach for assessing affect and beliefs about affect display. Finally, most of our effect sizes were relatively small. However, our longitudinal timeframe was relatively short, six months from T1 to T2, which may have limited the magnitude of our effects,

given these constructs' stability during mid- to late adolescence.

Despite these limitations, our findings highlight important differences in the utilization and functions of emotion suppression across ethnic groups. Evidenced by the increased utilization of emotion suppression among Vietnamese American adolescents, emotion suppression may represent a more culturally-acceptable process. Moreover, emotion suppression predicted increases in depressive symptoms, peer stress events, and decreases in peer support for European Americans but not for Vietnamese Americans. Future research should continue to investigate the prospective relations between emotion suppression and maladjustment by including potential mediators and different time lags.

Footnotes

¹Although not part of the study design, these students were included because administrators in two schools required that we extend the research opportunity to all students regardless of ethnicity.

Table 1. Mean differences of study variables between ethnic groups

Variable	Vietnamese American (<i>n</i> =372)		European American (<i>n</i> =304)		<i>t</i> -statistic
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
T1 Emotion Suppression	10.89	2.85	10.44	3.11	1.97*
T1 Depressive Symptoms	61.85	7.67	60.54	8.44	2.11*
T1 Peer Stress Events	2.50	2.14	2.73	2.16	1.41
T1 Family Stress Events	5.73	3.12	4.68	3.09	4.36***
T1 Peer Support	4.65	1.08	4.59	1.16	.70
T1 Family Support	3.68	1.33	4.39	1.26	7.06***
T2 Emotion Suppression	10.41	2.91	10.21	2.89	.83
T2 Depressive Symptoms	60.73	8.48	58.41	7.85	3.36***
T2 Peer Stress Events	1.32	1.67	1.16	1.48	1.25
T2 Family Stress Events	3.42	3.04	2.54	2.64	3.64***
T2 Peer Support	4.69	0.98	4.83	0.98	1.76
T2 Family Support	3.89	1.22	4.58	1.11	7.06***

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

Table 2. Correlations between study variables for each ethnic group.

	1	2	3	4	5	6	7	8	9	10	11	12
1. T1 Sup	--											
2. T1 Dep	.42*** (.30***)	--										
3. T1 PS	-.38*** (-.39***)	-.38*** (-.08)	--									
4. T1 FS	-.42*** (-.32***)	-.48*** (-.34***)	.43*** (.23***)	--								
5. T1 FSE	.32*** (.28***)	.44*** (.40***)	-.21*** (-.09)	-.55*** (-.47***)	--							
6. T1 PSE	.27*** (.09)	.37*** (.30***)	-.24*** (-.05)	-.33*** (-.20***)	.51*** (.40***)	--						
1. T2 Sup	.58*** (.55***)	.34*** (.18***)	-.28*** (-.33***)	-.32*** (-.17**)	.23*** (.18***)	.16*** (-.02)	--					
2. T2 Dep	.40*** (.28***)	.63*** (.68***)	-.31*** (-.09)	-.34*** (-.29***)	.33*** (.33***)	.29*** (.23***)	.40*** (.22)	--				
3. T2 PS	-.33*** (-.21***)	-.28*** (-.12*)	.56*** (.54***)	.24*** (.16**)	-.12 (-.07)	-.17*** (-.03)	-.39*** (-.30***)	-.30*** (-.16**)	--			
4. T2 FS	-.30*** (-.26***)	-.40*** (-.30***)	.30*** (.16**)	.72*** (.65***)	-.51*** (-.36***)	-.31*** (-.21***)	-.39*** (-.23***)	-.46*** (-.31***)	.35*** (.39***)	--		
5. T2 FSE	.25*** (.15**)	.33*** (.35***)	-.22*** (-.04)	-.38*** (-.27***)	.55*** (.59***)	.38*** (.33***)	.31*** (.15**)	.48*** (.38***)	-.15* (-.05)	-.51*** (-.34***)	--	
6. T2 PSE	.24*** (-.01)	.21*** (.23***)	-.16** (.03)	-.14* (-.12*)	.28*** (.33***)	.37*** (.50***)	.12 (-.02)	.28*** (.33***)	-.30*** (-.02)	-.29*** (-.19***)	.39*** (.45***)	--

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Correlations inside parentheses are for Vietnamese Americans. Sup = Emotion Suppression, Dep = Depressive Symptoms, PS = Peer Support, FS = Family Support, FSE = Family Stress Events, PSE = Peer Stress Events

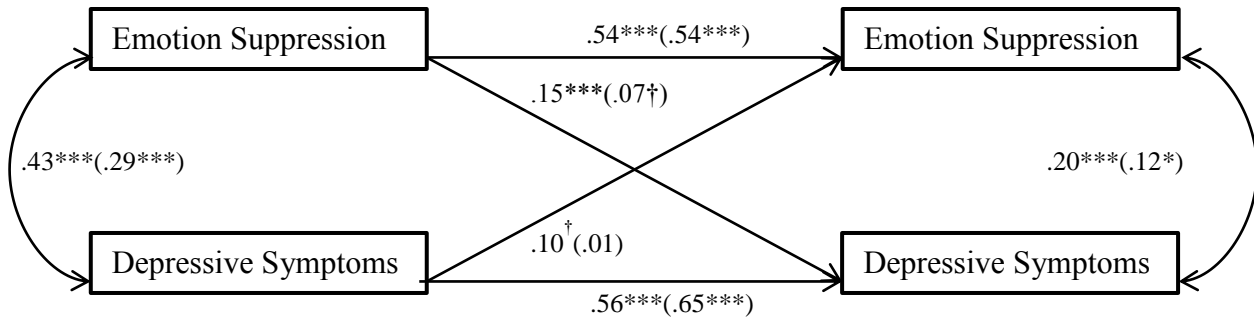


Figure 1. Cross-lagged model of emotion suppression and depressive symptoms. Coefficients inside parentheses are for Vietnamese Americans and coefficients outside parentheses are for European Americans. $^{\dagger}p < .10$, $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$

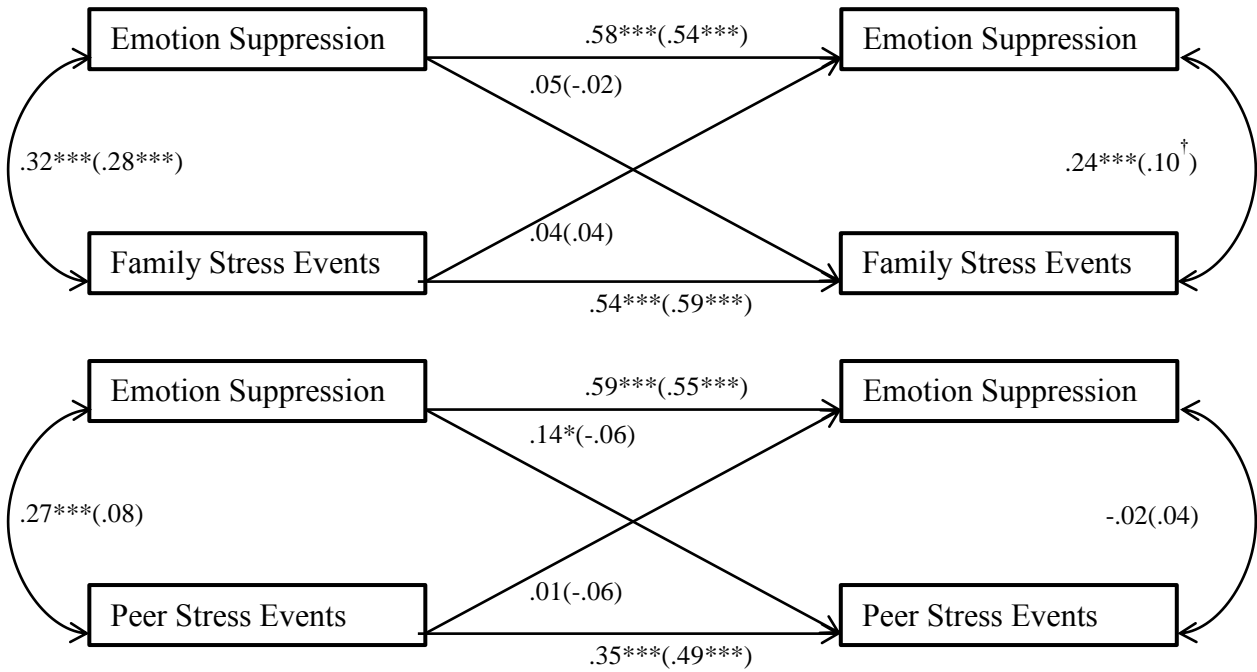


Figure 2. Cross-lagged model of emotion suppression and family and peer stress events. Coefficients inside parentheses are for Vietnamese Americans and coefficients outside parentheses are for European Americans. [†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

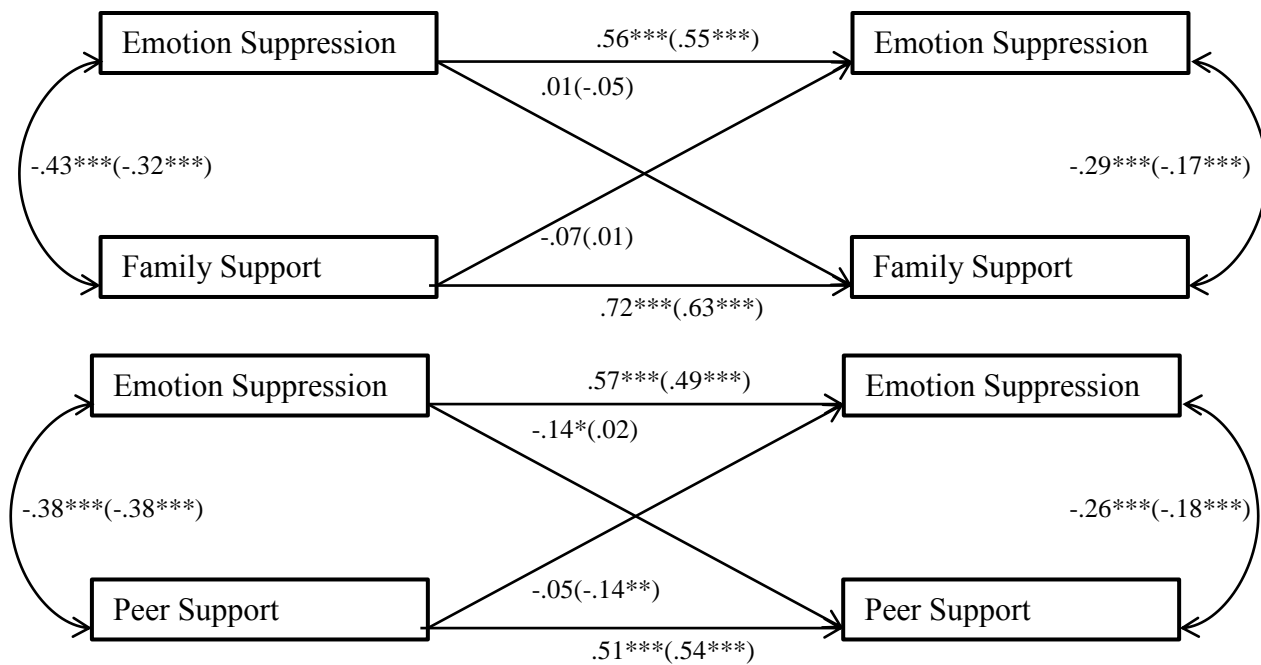


Figure 3. Cross-lagged model of emotion suppression and family and peer support. Coefficients inside parentheses are for Vietnamese Americans and coefficients outside parentheses are for European Americans. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

STUDY 3

ETHNICITY MODERATES THE OUTCOMES OF SELF-ENHANCEMENT AND SELF-IMPROVEMENT THEMES IN EXPRESSIVE WRITING

The positive effects of expressive writing (EW) on psychological and physical health are well-documented (see Frattaroli, 2006, for a review). However, there is still much to be learned about the mechanisms underlying the ameliorative effects of EW, and the wide variability in effect sizes across studies suggests possible moderators of efficacy. Recent findings suggest cultural differences in the benefits of EW, but these studies raise more questions than answers because studies have variably revealed that individuals of Asian descent benefited more (Lu & Stanton, 2010) or less (Knowles, Wearing, & Campos, 2011) than European Americans. Examination of processes undertaken by individuals during EW may help to explain differential outcomes across cultural contexts. In this study, we examined whether the approach to writing about stressors would enhance outcomes to the extent that it is in line with broader cultural goals. Using data from a trial of EW (Niles, Haltom, Mulvenna, Lieberman, & Stanton, 2013), we examined whether self-relevant motivations (i.e., writing content related to self-enhancing and self-improving motivations) predicts EW outcomes distinctly across cultural groups.

Cultural Differences in Self-Enhancement and Self-Improvement

Self-enhancement involves maintaining positive self-regard by focusing and elaborating upon positive information about the self (Heine & Hamamura, 2007; Taylor & Brown, 1988). Cross-cultural research demonstrates that self-enhancing motivations appear weaker among individuals of East Asian descent compared with European Americans (Heine & Hamamura, 2007), a pattern related to East-West differences in self-construal (Markus & Kitayama, 2010). East Asian cultures foster a view of the self as interdependent and defined by relational context,

where behavior is dictated by the social situation, so that the self is malleable and responsive to social context and referenced against social standards rather than fixed. Thus, interdependent individuals are accustomed to holding a self-critical stance and learning to exercise vigilance to areas where one is falling short of group standards in service of social harmony. In contrast, European Americans tend to view the self as an independent entity defined by internal fixed attributes that remain consistent across contexts (Markus & Kitayama, 1991). Under the entity view, when confronted with a threat to self, restorative self-enhancement becomes crucial (Heine & Hamamura, 2007). In contrast, within an incremental view self-improvement is propelled by open consideration of one's shortcomings and an emphasis on struggling with difficulty (Heine et al., 1999; Stevenson, 1994).

Whereas European Americans achieve positive self-regard through self-enhancement, East Asians achieve positive self-regard through self-improvement and maintaining one's standing with others (Heine & Hamamura, 2007). Supporting these theories, European Americans who maintains positive self-views through self-enhancement report having greater psychological well-being (Taylor & Brown, 1988). On the other hand, East Asians report having greater psychological well-being and higher self-worth when they focus on maintaining or improving their interpersonal relationships (Kang, Shaver, Sue, Min, & Jing, 2003). These findings support the hypotheses that individuals who reflect on stress experiences in a culturally-syntonic manner (i.e., Westerners engaging in self-enhancement and Easterners engaging in self-improvement) may report better psychological well-being. However, what remains unclear is whether individuals who reflect on stressors in a culturally-dystonic manner (i.e., Westerners engaging in self-improvement and Easterners engaging in self-enhancement) will report greater distress. In the present study, we aim to address this question by examining how writing content related to

self-relevant motivations predicts EW outcomes distinctly across cultural groups.

Processes supporting self-enhancement: Self-serving attributions and downward social comparison

When reflecting on stressful personal experiences, situational attributions can enhance positive self-views. When “blame” is laid elsewhere, one can preserve the view of the self as efficacious (Bandura, 1999). There is some evidence that situational attributions for failure are more common among European Americans than East Asians. European Americans are more likely to characterize assessments as not credible when they experience failure, whereas Japanese individuals are less likely to endorse the credibility of tests when they succeed (Heine et al., 2001). Indeed, Westerners are significantly more likely than East Asians to make dispositional attributions for positive events and situational attributions for negative events (Mezulis, Abrahamson, Hyde, & Hankin, 2004).

Another strategy that can deflect threat is social comparison. Individuals may seek social comparison information in ways that promote self-enhancement or self-improvement goals. Social comparison can involve comparing oneself to others doing better (i.e., upward social comparison) or worse (i.e., downward social comparison) than the self. Downward social comparison is a self-enhancing strategy for restoring positive self-regard when self-esteem is threatened (Wills, 1981; Crocker, Thompson, McGraw, & Ingerman, 1987). In Western samples, individuals who attend to their strengths through downward social comparison report greater life satisfaction and less depression (Taylor & Brown, 1988; Diener, 1984). However, cross-cultural studies suggest that European Canadians are more likely than East Asians to engage in downward social comparisons in their spontaneous self-descriptions (Ross et al., 2005) and when reflecting on negative life events (White & Lehman, 2005a) in ways driven by self-enhancement

motives.

Processes supporting self-improvement: Upward social comparison and persistence facing failure

Complementing the findings above, East Asians appear more likely than Westerners to engage in upward social comparison, consistent with a self-improving or mastery orientation focus (Butler, 1992). When given performance feedback and an opportunity to compare themselves to better or worse performers, Asian Canadians were more likely than European Canadians to seek upward social comparisons (Lehman & White, 2005b). In the context of academic self-assessments, students with greater interdependent values report a greater desire to make upward comparisons, and lower desire to make downward comparisons compared to those low in interdependent values (Chung & Mallery, 1999).

A second process that supports self-improving motives involves pursuing challenges that are tied to past failure. Easterners tend to subscribe to incremental theories of ability that suggest that achievement hinges on effort not talent, making persistence crucial (Heine & Hamamura, 2007). Indeed, whereas Japanese participants are more likely to continue working on a difficult task if they have been given failure feedback as opposed to success feedback, European Americans are more likely to elect a novel task not associated with past failure (Heine et al., 2001). Japanese individuals judge failures as having more influence on self-esteem than successes, whereas the converse applies to North Americans (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997).

The Current Study

In the current study we conducted content analysis of essays from Niles et al. (2013) to examine cultural differences in the use and impact of attributions, social comparison, and

persistence themes in EW. Niles and colleagues (2013) found no significant main effects of writing condition on anxiety, depressive, or physical symptoms in a sample of 116 participants ($M_{\text{age}} = 21.2$ years old, $SD_{\text{age}} = 2.89$); however, trait emotional expressiveness moderated the effects of EW. The goal in the present analysis is to elucidate potential cultural variability in psychological mechanisms underlying the therapeutic benefits of EW. We predicted that Asian Americans will engage in more self-improvement writing whereas European Americans will engage in more self-enhancement writing. Moreover, we predicted that the social cognitive processes apparent in participants' writing would have positive implications for psychological and physical functioning when it is syntonic with the writer's culturally modal self-motives. That is, we hypothesized that cultural group would moderate the effects of social comparison, attributions, and persistence focus, with Asian Americans benefiting more from self-improving themes in their writing whereas European Americans would benefit more from writing reflecting self-enhancement motives.

Method

Participants

Participants included 34 Asian American and European American adults who participated in a randomized study of 116 adults on expressive writing. Eligibility criteria were ages between 18 and 40 years, fluent in English, no self-reported psychiatric disorder or serious physical illness, and having experienced a stressful event within the past five years that they rated as 5 or greater in stressfulness on a 7-point Likert scale. A total of 116 participants met eligibility and were randomly assigned to the expressive writing ($n = 59$) and control ($n = 57$) conditions. The current analysis only focused on individuals in the expressive writing condition who self-identified as Asian American ($n=17$) or European American ($n = 17$). All 34 participants used in

the present study completed the follow-up questionnaire. Participants were 19 (55%) males and were an average of 20.76 years old ($SD = 3.31$, range = 18-35 years). Among the 17 Asian Americans, 12 (71%) were born in the U.S., and 5 were foreign-born. The Asian American participants included 8 Chinese (47%), 1 Korean (6%), 2 Japanese (12%), 3 Filipino (18%), 2 Vietnamese (12%), and 1 participant declined to state. Among the 17 European Americans, 14 (82%) were born in the U.S., and 3 were foreign-born.

Procedure

Participants were students and adults recruited from introductory psychology courses and flyers posted in the community. In a baseline session (T1), they provided consent, completed questionnaires, and completed a fMRI scan. Participants then engaged in four 20-minute writing sessions, scheduled at least three days apart and occurring within the eight weeks following T1. Participants completed the four writing sessions in an average of 24.83 days ($SD = 5.16$). During the initial writing session, participants were assigned randomly to a writing condition (expressive writing or control). In the expressive writing condition, participants wrote about their “deepest thoughts and feelings” regarding their “most stressful or traumatic experience during the past five years.” Three months after the final writing session, participants completed follow-up questionnaires online (T2).

Dependent Measures

Depressive Symptoms. A composite scale was created comprised of three measures of depressive symptoms (Niles et al., 2013): the 7-item Depression subscale of the Depression, Anxiety, and Stress Scale (DASS-21; e.g., “I couldn't seem to experience any positive feeling at all”; Antony, Bieling, Cox, Enns, & Swinson, 1998), the Beck Depression Inventory 1A (BDI; e.g., “I feel I am a complete failiure as a person”; Beck & Steer, 1984), and the 20-item Center

for Epidemiologic Studies Depression Scale (CES-D; e.g., “I felt depressed”; Radloff, 1977). All are psychometrically sound measures of depressive symptoms (Antony et al., 1998; Steer, Beck, Garrison, & Lester, 1988; Radloff, 1977). Standardized scores on the three measures were averaged at T1 and T2 to create composite scores, which had a mean of zero and standard deviation of one at T1. Correlations between depression measures at T1 ranged from .63 to .78, and at T2, from .60 to .86. In this sample, α s are .86, .80, .62 for Asian Americans and .81, .74, .70 for European Americans at T1, and .88, .94, .85 for Asian Americans and .84, .78, .91 for European Americans at T2 for DASS, BDI-1A, and CES-D respectively.

Anxiety Symptoms. A composite measure was created from standardized scores on three measures of anxiety symptoms: the 7-item Anxiety subscale of the DASS (e.g., “I found myself in situations that made me so anxious I was most relieved when they ended.”), and the Anxiety and Somatization subscales from the Brief Symptom Inventory (BSI; e.g., “Suddenly scared for no reason” & “Faintness or dizziness”; Derogatis & Melisarotos, 1983). Correlations between anxiety scales at T1 ranged from .61 to .63 and at T2, from .81 to .83. In this sample, α s for the Anxiety subscale were .90, .87, .89 for Asian Americans and .67, .74, .60 for European Americans at T1, and .83, .90, and .70 for Asian Americans and .81, .91, .83 for European Americans at T2 for the BSI-Anxiety, BSI-Somatization, and the DASS-Anxiety subscales respectively.

Physical Symptoms. The 54-item *Pennebaker Inventory of Limbic Languidness* (PILL; Pennebaker, 1982) assesses a number of common physical symptoms (e.g., “Chills”, “Tightness in chest”, “Nausea”). Participants indicate how often they have experienced each symptom on a five-point Likert scale (1 = never or almost never, 5 = more than once every week). In this sample, α s were .91 for Asian Americans and .96 for European Americans at T1 and .95

for Asian Americans and .93 for European Americans at T2.

Essay Coding

The 134 essays (33 participants with four essays, one participant with two essays) from the EW condition were content analyzed by coders who were unaware of the study hypotheses and participants' demographic information. The first author trained 3 Asian Americans and 1 Latino American coder to use a manual adapted from Niles et al. (in preparation) and Creswell et al. (2007). Coders were trained to detect the presence of a situational attribution for the negative event, social comparison, and persistence themes in essays, with a sentence being the smallest unit of text that could be coded. Coders went through the essays line-by-line and codes were applied to "meaning units," which could span a single sentence or multiple consecutive sentences. A form of dichotomous interval coding was used, such that codes were either *present* or *absent* within a 5-line block of text (e.g., lines 1-5, 6-10, & 11-15). Thus, although multiple meaning units might be found within a 5-line block, only its presence was recorded. If a single meaning unit spanned multiple line blocks, the attached code was counted in multiple blocks (e.g., a meaning unit spanning lines 4-8 would be noted in two line blocks). We used dichotomous interval coding and not summed frequency counts of sentences to be consistent with how we calculate inter-rater reliability. Codes were not considered mutually exclusive. Thus, meaning units could contain multiple codes. A limitation of this approach is that overlapping coding may lead to violating the statistical assumption of independence of observations when multiple coded variables are entered into a statistical model. Thus, each category of essay codes was assessed alone.

Coders were trained using 12 randomly-selected training essays, and then all four independently coded an additional 28 essays (19.2% of the sample). Interrater reliability was

assessed based on the post-training essays. Agreement was satisfactory across the codes for situational attribution (85-90% agreement ; kappa between pairs of coders ranged from 0.70–0.82), downward social comparison (92.5-97.5% agreement; kappa ranged from 0.60 – 0.82), upward social comparison (90-95% agreement; kappa ranged from 0.65– 0.85), and persistence (90-95% agreement; kappa ranged from 0.70–0.87). As such, the remaining essays were content analyzed by single coders.

Formal operational definitions and text examples of each coding category are provided in Table 1. We defined downward social comparison as “comparison to others doing worse than the self,” and upward social comparison as “comparison to others doing better than the self.” The self must be explicitly mentioned in a comparison with others to be coded. Situational attribution was defined as “explaining negative personal events with external attributions,” such that codes were applied when themes of “blaming others or the context for personal failures” appeared. Persistence was defined as “the process of actively thinking about persevering and working through adversity/stress/failure.” As such, codes were applied when themes of “sticking with it” and “not giving up” appeared. Statements simply describing negative feelings, thoughts, and events did not qualify as persistence. Persistence had to involve writing about the negative events/experiences in a way that demonstrated drive for overcoming failure.

Covariates: Objective threat, number of positive/negative emotion words, and word count.

We also controlled for age and gender because previous research shows that these variables can influence the effectiveness of EW (Smyth, 1998). In addition, we included covariates related to the stressor reflected on in the EW, and other characteristics of EW that may impact intervention outcomes.

Because the nature of the traumas written about may be a moderating variable (Smyth,

1998), the objective threat associated with the stressor was examined as a covariate. Procedures for rating the severity of stressful life events outlined in the UCLA Life Stress Interview protocol was used (Hammen, Marks, de Mayo, & Mayol, 1985). Two coders rated the stressfulness of the event on a 1-5 Likert scale (1 = minimal impact, 5 = worst impact) and then discussed their impressions to come to a consensus. Severity ratings were based on the number of life domains affected by the event (e.g. social, work/school) as well as how severely the area was affected. Prior to consensus rating, the two coders' independent ratings were highly correlated ($r = .74$).

We controlled for the number of positive and negative emotion words in the EW essays because emotional expressivity can predict health outcomes of EW (e.g., Pennebaker, Mayne, & Francis, 1997; Lepore & Greenberg, 2002). Our goal was to determine whether self-relevant motivations predicted outcomes independently of negative or positive affectivity during EW. The number of positive and negative emotion words was identified using the Linguistic Inquiry and Word Count (LIWC) program (Francis & Pennebaker, 1993). LIWC calculates the percentage of total words written that were either positively emotionally valenced (e.g. love, nice sweet) or negatively valenced (e.g. hurt, ugly).

Word count was included as a covariate to control for overall engagement during EW and to address the potential for essay length to be confounded with the frequencies of each code of interest. Longer essays are more likely to yield higher code frequency than shorter essays.

Statistical Analyses

Data were examined for outliers (>3 SD from the mean) on outcomes and for EW codes. Three outliers were identified for anxiety and one outlier for depressive symptoms. Outliers were replaced with the next highest value based on the Winsor method (Guttman, 1973). Testing the normality of the predicted residuals for T2 anxiety symptoms revealed a slight positive skew.

Thus, we also tested our anxiety models using Poisson regression, and the results remained the same as using linear regression. We report linear regression results because no comparable approximations of R^2 effect sizes currently exist for Poisson regression.

To examine cultural differences in the associations between essay codes and psychological and physical well-being at T2, we conducted a series of linear regression analyses separately for each essay code. For each regression equation, in step 1, the psychological or physical well-being score at T1, objective threat, word count, gender, age, and number of positive and negative emotion words were included as covariates.¹ In step 2, ethnicity and essay codes were entered. In the final step, the interactions between ethnicity and essay codes were entered.

Results

Preliminary Analyses

Preliminary analyses indicated that the cultural groups were matched on gender ($\chi^2 = 1.07, ns$), age ($t(32) = 0.93, ns$), number of positive ($t(32) = 0.88, ns$) and negative emotion words ($t(32) = 0.65, ns$), and objective threat of the events ($t(32) = 0.71, ns$). We examined correlations between essay codes with T1 and T2 psychological and physical functioning outcomes across ethnic groups (see Table 2 for descriptive statistics and Table 3 for zero-order correlations). Contrary to predictions, independent samples t-tests showed that cultural groups did not differ significantly in the frequency of self-relevant motivations ($ps > .05$). We also examined frequency of essay codes using multi-level mixed-effects linear regression by the ordinal position of the essay (i.e., first through fourth essays), and found no significant change across time (χ^2 range = 0.30 to 2.32, $p = ns$). To compare the degree of relatedness among essay codes, the number of line blocks double-coded was assessed. Essay codes shared a small degree

of overlap: 2% in upward social comparison and persistence, 3% in upward social comparison and situational attribution, 2% in persistence and downward social comparison, and 7% in persistence and situational attribution overlapped. There was no triple coding. Correlations between essay codes and frequency of positive and negative emotion words were not significant.

Table 3 displays cultural differences in the relationships between essay codes and EW outcomes. Downward social comparison writing was associated with poorer outcomes at both time points for Asian Americans (r range = .60 – .66, $p < .05$) but not for European Americans (r range = -.40 – -.09, ns), and persistence writing was associated with poorer outcomes at T2 for European Americans ($r = .46$, $p < .05$) but not for Asian Americans (r range = -.38 – -.41, ns). The differences between these correlation coefficients between ethnic groups (i.e., Asian Americans and European Americans) are significantly different from each other using Fisher r -to- z transformations ($ps < .05$).

Self-Enhancement: Downward Social Comparison and Situational Attributions.

Regression analyses revealed significant interactions of ethnicity x downward social comparison writing on anxiety ($F(1, 21) = 5.30$, $p < .05$, $\Delta R^2 = 12.67\%$, $\eta_p^2 = .20$), and depressive symptoms ($F(1, 21) = 3.50$, $p < .05$, $\Delta R^2 = 8.99\%$, $\eta_p^2 = .14$), but not on physical symptoms (See Figure 1). Simple slopes plotted in Figure 1 revealed that downward social comparison writing was positively associated significantly with an increase in anxiety and depressive symptoms for Asian Americans ($B = 0.27$ and 0.37 , $p < .05$, respectively). In contrast, downward comparison predicted a significant improvement in anxiety for European Americans ($B = -0.30$, $p < .05$; depressive symptoms in the same direction, although not statistically significant).

We found a significant interaction of ethnicity x situational attributions on depressive

($F(1,21) = 7.85, p < .01, \Delta R^2 = 17.68\%, \eta_p^2 = .27$) symptoms, and a marginally significant interaction of ethnicity x situational attributions on anxiety ($F(1, 21) = 3.64, p = .07, \Delta R^2 = 8.83\%, \eta_p^2 = .15$). Simple slopes plotted in Figure 3 reveal that situational attribution was significantly associated with an increase in anxiety and depressive symptoms at T2 for Asian Americans ($B = 0.22$ and $0.28, p < .05$, respectively), but approached zero and was not significant.

Self-Improvement: Upward Social Comparison and Persistence

Regression analyses revealed no significant interactions of ethnicity x upward social comparison writing in predicting psychological and physical well-being. There were significant interactions of ethnicity x persistence writing on depressive ($F(1, 21) = 10.38, p < .01, \Delta R^2 = 21.13\%, \eta_p^2 = .33$) and anxiety ($F(1, 21) = 2.31, p < .05, \Delta R^2 = 5.24\%, \eta_p^2 = .10$) symptoms, but not on physical symptoms. Simple slopes plotted in Figure 2 reveal that persistence writing was associated with an increase in anxiety and depressive symptoms at T2 for European Americans ($B = 0.39$ and $0.30, p < .05$, respectively), but with a significant improvement in depressive, but not anxiety symptoms for Asian Americans ($B = -1.14$ and $-0.26, p < .01$ and *ns*, respectively).¹

Discussion

Bridging influential theories from cultural psychology to the EW paradigm, we found that writing that reflects culturally syntonic self-relevant motivation predicts improved psychological functioning, and that a cultural mismatch of self-relevant motivation predicts poorer psychological functioning at 3-month follow-up. For European Americans, downward social comparison is predictive of more positive outcomes, whereas writing marked by persistence themes is predictive of poorer outcomes. For Asian Americans, writing about persistence through failure predicts improved psychological adjustment, whereas writing that

reflects downward social comparison and situational attribution for negative personal events predicts poorer outcomes. Results suggest stronger evidence for cultural mismatch being predictive of poorer functioning than for cultural match being predictive of improved functioning. Notably, we did not find cultural differences in the frequency of self-relevant motivations such that Asian Americans wrote more self-improvement themes and European Americans wrote more self-enhancement themes. Although speculative, it may be that cultural group differences in the utilization of self-enhancement and self-improvement rely on behavioral measures and may not be observable through written measures (e.g., self-report; Heine, Lehman, Peng, & Greenholtz, 2002). Indeed, the majority of studies have demonstrated cultural differences through examining behavioral measures of self-relevant motivations (e.g., time persisting on task; Heine & Raineri, 2009).

Writing about the importance of persisting through failure appears to confer important emotional benefits for Asian Americans. Previous experimental findings have revealed a greater tendency on the part of Easterners to focus on areas awareness of relative weakness, arguably to allow for the opportunity to self-correct. However, the current findings are novel suggesting that when individuals of Asian descent focus on persisting in areas of difficulty, they reap psychological benefits as well as potential performance advantages. On the other hand, making downward social comparisons and attributing failure outcomes to external circumstances may reflect attempts to deflect poor outcomes or negative evaluations. One possibility is that among cultural groups for whom self-enhancement is less normative, downward social comparison in the context of negative personal experiences may be more likely be a reflection of trait negative affectivity (e.g., resentment) which may not palliate distress. Indeed, inconsistency with self-improving orientation in EW appeared to undermine benefits for Asian Americans.

In contrast, downward social comparison was beneficial for European Americans. This may be taken as indirect evidence that European Americans subscribe to entity theories of the self as relatively immutable, resulting in negative information about the self becoming relatively more threatening. Downward social comparison may help European Americans focus on areas of strength to maintain positive self-regard. Although our results show situational attributions for negative personal events to be unrelated to EW outcomes for European Americans, the positive relationship between downward social comparison and situational attributions provides support for the notion that both processes subserve self-enhancement motives. This dovetails with findings from Creswell and colleagues (2007) that self-affirmation (i.e., writing about valued aspects of the self) predicted better outcomes in their primarily European American sample. It is plausible that for European Americans, tenacious persistence in areas of previous failure may present some risk to emotional well-being, as this orientation may continue to expose individuals to threats to the self. Effort to restore self-efficacy by diverting attention from negative self-relevant information is congruent with a self-enhancement motivation.

Our findings may also inform efforts to reconcile previous contradictory findings about the benefits of EW across cultural groups. Lu and Stanton (2010) found that Asian Americans benefitted more from EW compared to European Americans, whereas Knowles et al. (2011) reported the opposite pattern. Whereas Lu and Stanton (2010) instructed writers to use cognitive reappraisal, Knowles et al. (2011) instructed participants simply to write about their deepest thoughts and feelings. Perhaps the cognitive reappraisal instructional set shaped a more culturally congruent self-improvement focus among Asian Americans in Lu and Stanton (2010).

Self-enhancement and self-improvement motivations were not differentially related to physical symptom outcomes across the two cultural groups. This was unexpected given that

stronger intervention effects have been noted for physical symptoms than for psychological symptoms (Frattaroli, 2004). Perhaps psychological symptoms are more closely related to the EW processes revealed in self-relevant motivations than physical symptoms. It is also possible that cultural differences in the mechanisms of EW may be more easily detected in affective outcomes.

Although this study provides compelling data on cultural variability in the function of self-enhancement and self-improvement motivations in predicting psychological well-being in EW, it also has several limitations. First, the present study has a small sample revealing large effect sizes, but future replication is essential as small sample sizes could lead to inaccurate and spurious findings (Schonbrodt & Perugini, 2013). Second, it is not possible to examine within-group variability (e.g., generational status or Asian subgroups); results may not generalize to the larger Asian American and European American community. Third, we did not manipulate self-relevant motivations directly. Instead, we assessed the naturalistic occurrence of these motives through writing. Although this limitation restricts our ability to make causal statements, we had the opportunity to compare the naturalistic use of these foci to test underlying psychological mechanisms in EW (also see Niles et al., 2013, in preparation). Lastly, we used ethnic group membership as a proxy for cultural differences in self-construals. Future research should directly assess independent and interdependent self-construals to provide more direct evidence of the culturally-based theories posed.

Despite these limitations, this study used a novel approach for assessing potential psychological mechanisms of expressive disclosure and provided empirical evidence supporting the links between self-relevant motivations and outcomes. In EW, we found that self-enhancement motivation in the form of downward social comparison is adaptive for European

Americans, but not for Asian Americans. In contrast, self-improvement motivation in the form of persistence themes is adaptive for Asian Americans, but not for European Americans. Findings from the present research suggest the importance of future work focused on the roles of cultural values and processes to clarify our understanding of the mechanisms underlying the ameliorative effects of EW.

Footnotes

¹The inclusion of the set of covariates did not substantially influence the significance or direction of effects in any of the reported results for the exception of situational attributions in predicting depressive symptoms when the set of covariates were not included in the model (i.e., from $B=0.28, p<.05$ to $B=0.16, p=ns$).

Table 1. Definitions and Examples of Self-enhancement and Self-Improvement Codes by Ethnicity

SELF-ENHANCEMENT

Situational Attributions for Negative Events: Explaining negative personal events with external attributions

European American

“I don't know why it is but I don't do very well in a stable environment”

Asian American

“Stress from school always seemed to affect the relationship, not enough time for each other, worrying about poor grades.”

Downward Social Comparison: Comparison to others doing worse than the self

European American

“My other siblings easily drop the ball.”

Asian American

“I can handle the stress of certain tests that people deemed too difficult.”

SELF-IMPROVEMENT

Upward Social Comparison: Comparison to others doing better than the self

European American

“I can't help but feel uneasy and useless, not good enough when my friends seem to be getting so far ahead, yet I feel like I've back-tracked 20 steps.”

Asian American

“Looking at great men who came before me, as role models, I should strive to emulate their consistency and composure.”

Persistence: Actively Thinking about Persevering through Conflicts/Stressors

European American

“It is amazing how I was still able to do well in high school and come here to University.”

Asian American

“I was proud of my tenacity - I pulled through that experience and now I am a better person because of it.”

Table 2. Descriptive Statistics Between Asian Americans and European Americans on Essay Codes and Psychological and Physical Well-being.

	Asian Americans (<i>n</i> =17)		European Americans (<i>n</i> =17)		<i>p</i>
	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)		
<i>Essay Codes</i>					
Situational Attribution*	4.18(2.83)		4.76(5.74)		ns
Downward Social Comparison*	1.00(1.22)		0.65(1.00)		ns
Upward Social Comparison*	0.47(0.80)		0.53(1.18)		ns
Persistence*	2.76(2.11)		0.94(1.60)		ns
<i>Covariates</i>					
Positive Emotion Words	12.62(3.50)		11.57(3.49)		ns
Negative Emotion Words	12.71(3.44)		13.61(4.49)		ns
Age	20.24(1.15)		21.29(4.55)		ns
Objective Threat of the Event	2.63(0.67)		2.79(0.61)		ns
	Time 1 <i>M</i> (<i>SD</i>)	Time 2 <i>M</i> (<i>SD</i>)	Time 1 <i>M</i> (<i>SD</i>)	Time 2 <i>M</i> (<i>SD</i>)	
Depressive Symptoms	-0.33(0.52)	0.03(1.00)	-0.07(0.79)	0.29(1.04)	ns
Anxious Symptoms	-0.07(0.70)	-0.29(0.52)	-0.01(0.62)	0.46(1.29)	ns
Physical Symptoms	98.06(20.22)	102.24(25.39)	108.12(30.03)	107.06(24.13)	ns

Note. *Means and standard deviations of Essay Codes are the number of line blocks (i.e., 5 lines / block). LIWC, Linguistic Inquiry and Word Count (LIWC) Program. Independent samples *t*-tests showed that all study variables were not significantly different between ethnic groups.

Table 3. Zero-order Correlations between Essay Codes and Psychological and Physical Well-being for European Americans (n =17) and Asian Americans (n =17)

Variable	1	2	3	4	5	6	7	8	9	10
1. Situational Attributions	-									
2. Downward Social Comparison	.50* (.38)	-								
3. Upward Social Comparison	-.10 (-.09)	-.05 (.15)	-							
4. Persistence	-.07 (-.22)	-.20 (-.36)	.55** (.18)	-						
5. T1 Depressive Symptoms	.22 (.23)	.16 (.65)**	-.12 (-.15)	-.06 (-.35)	-					
6. T1 Anxious Symptoms	-.39 (.30)	-.32 (.60)*	.03 (-.13)	-.01 (-.32)	.44 (.82)**	-				
7. T1 Physical Symptoms	-.36 (.30)	-.09 (-.23)	-.23 (.14)	-.44 (-.11)	.02 (.38)	.38 (.39)	-			
8. T2 Depressive Symptoms	-.16 (.31)	-.32 (.63)*	.49* (-.16)	.46 (-.47)	.31 (.48)	.50* (.40)	-.01 (.31)	--		
9. T2 Anxious Symptoms	.05 (.52)*	-.40 (.66)**	.48* (-.10)	.46 (-.38)	.22 (.71)**	.22 (.68)**	.09 (.27)	.74** (.79)**	--	
10. T2 Physical Symptoms	-.36 (.11)	-.32 (-.27)	-.08 (-.01)	-.24 (-.41)	-.01 (.53)*	.22 (.59)*	.79** (.76)**	.15 (.39)	.38 (.32)	--

Note. * $p < .05$, ** $p < .01$. Bolded correlations are significantly different at $p < .05$. Results inside parenthesis are for Asian Americans.

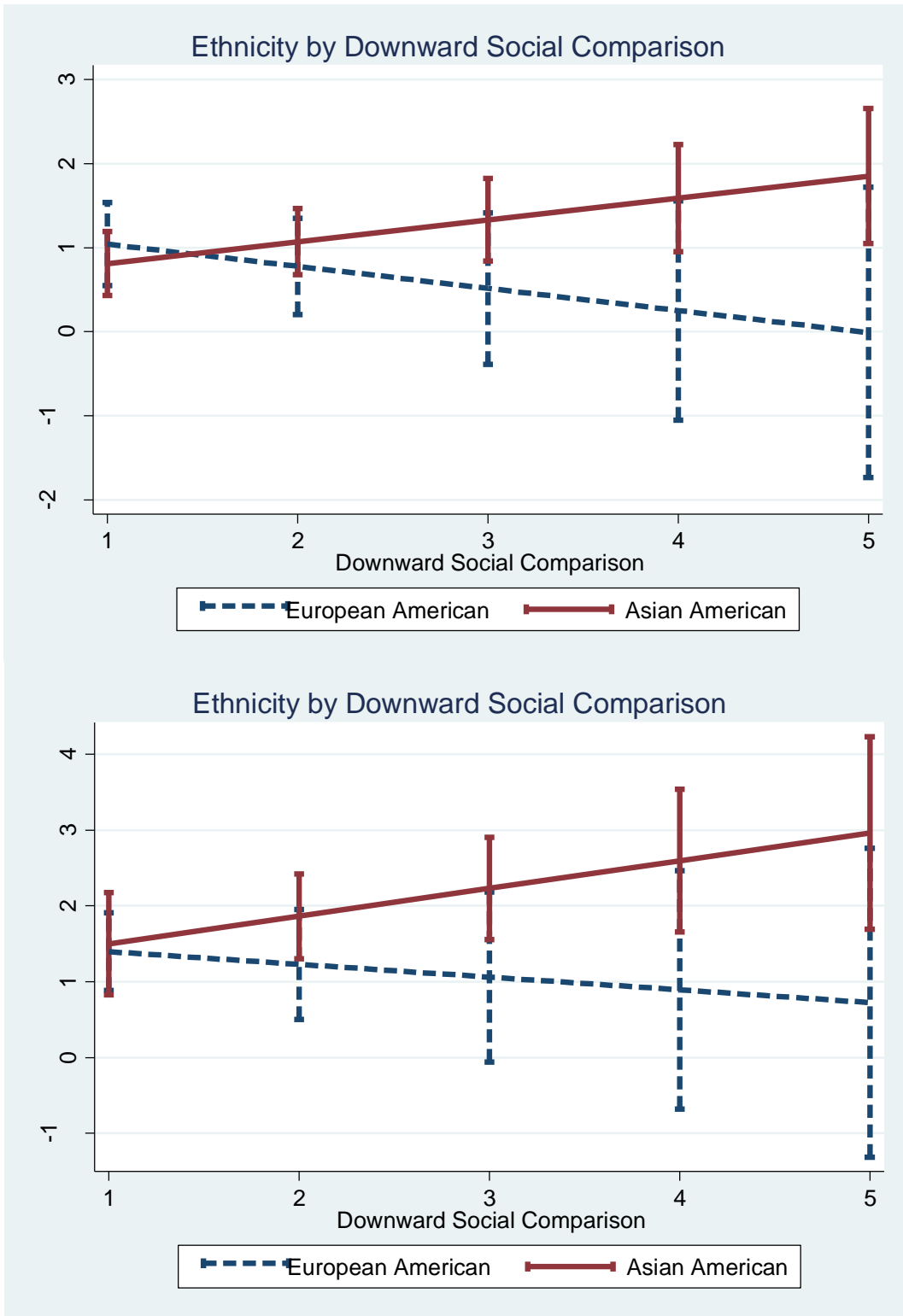


Figure 1. Interaction of Ethnicity x Downward Social Comparison on Psychological Well-being.

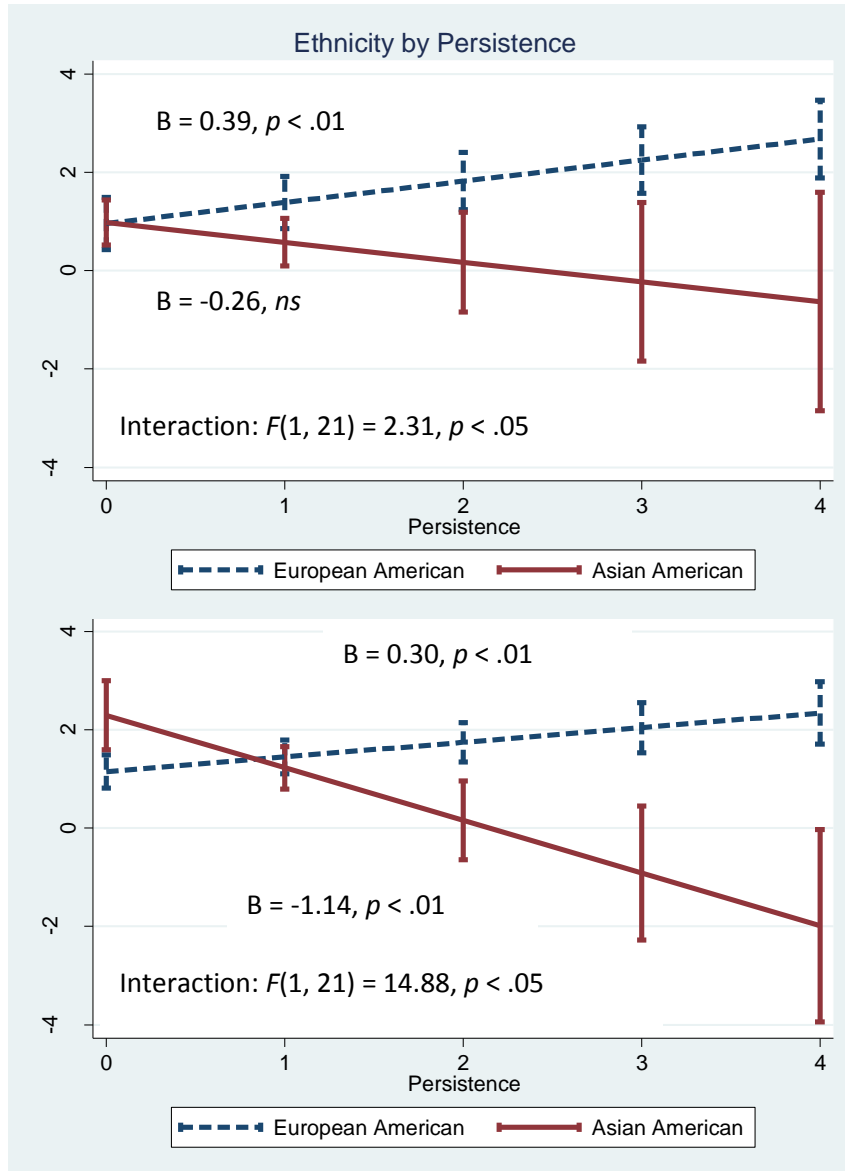


Figure 2. Interaction of Ethnicity x Persistence on Psychological Well-being.

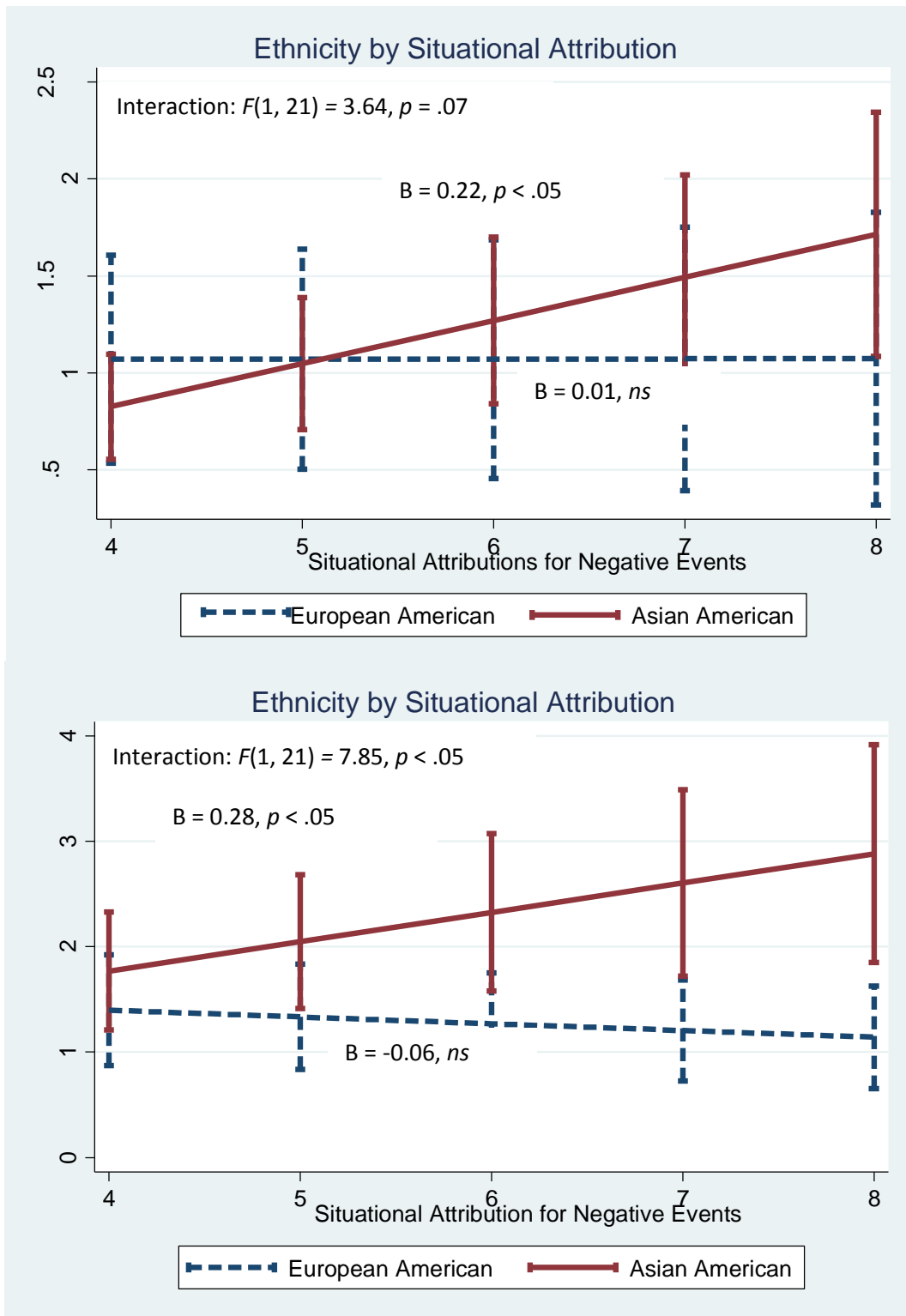


Figure 3. Interaction of Ethnicity x Situational Attribution on Psychological Well-being.

STUDY 4

THE EFFECTS OF SELF-ENHANCEMENT AND SELF-IMPROVEMENT ON RECOVERY FROM STRESS DIFFER ACROSS CULTURAL GROUPS

Reflecting on negative experiences can help individuals make sense of their emotions and actions, facilitating understanding of problems and self-awareness (Pennebaker & Graybeal, 2001). In particular, self-enhancement, or the process of focusing on favorable information about the self (Heine & Hamamura, 2007), can restore positive self-regard and has been linked to improved psychological well-being during stressful experiences (Taylor & Brown, 1988). However, the extent to which self-enhancement is normative and adaptive may depend on the cultural context (Heine & Hamamura, 2007), given cultural differences in independent and interdependent self-construals (Markus & Kitayama, 2010).

The independent self-construal is prevalent in individualistic Western cultures and views the self as an entity defined by internal, stable attributes (Markus & Kitayama, 1991). Under this entity view, compensatory self-enhancement is functional in maintaining self-esteem when confronted with a threat to self (Heine et al., 2001). In contrast, the interdependent self-construal is prevalent in collectivistic Asian cultures and holds that the self is a relational entity that is malleable and dictated by context. Under this incremental view, self-improvement is propelled by open consideration of one's shortcomings and failures (Dweck, Chiu, & Hong, 1995; Heine et al., 1999). Cultural differences in sources of self-esteem (i.e., personal vs relational) may also underlie differential use of self-enhancement and self-improvement processes (Taylor & Brown, 1988). Personal self-esteem involves knowledge of one's abilities, whereas relational self-esteem involves approval from others. Self-enhancement motivation may lead European Americans to focus on areas of relative strengths to restore a sense of competence (i.e., personal self-esteem),

whereas self-improvement motivation may lead Asian Americans to focus on areas of weakness to avoid losing “face” with others (i.e., relational self-esteem). Supporting these East-West differences, a meta-analysis of 91 cross-cultural studies demonstrated that self-enhancing motivations appear weaker among individuals of East Asian descent compared with those of European descent (Heine & Hamamura, 2007).

Prior work suggests that engaging in culturally congruent self-motivational processes may be beneficial. Specifically, Tsai et al. (in press) found that expressive writing marked by self-enhancement themes was associated with decreased depression and anxiety symptoms for European Americans, whereas expressive writing marked by self-improvement themes was associated with decreased depressive and anxiety symptoms for Asian Americans. Extant research has also documented the effects of self-enhancement and self-improvement on task motivation. In one study, European Americans were less likely to endorse the credibility of tests when they received negative feedback, whereas Japanese individuals were less likely to do so when they received positive feedback (Heine, Kitayama, & Lehman, 2001). In another study, Japanese participants tended to persist in working on a difficult task when given failure feedback, whereas European Americans tended to elect a novel task when given failure feedback (Heine et al., 2001).

Whether these findings extend across distinctive outcomes of stressful experiences remains to be tested. This is an important gap to address because stressful experiences are commonplace and have consequences for emotional and physical health. Stressful life events increase negative affect (Bolger, DeLongis, Kessler, & Schilling, 1989) and risk for depression (Hammen, 2005). Stress also activates the HPA axis, resulting in secretion of the hormone cortisol. Although this biologically facilitates management of stress, prolonged activation of the

HPA axis or a failure to shut down can disrupt homeostasis and result in dysregulation (McEwen, 1998), which in turn increases risk for adverse physical health outcomes (Cohen, Janicki-Deverts, & Miller, 2007). The implications of culturally congruent self-reflection processes for persistence in the face of stress are also important to examine because persistence through challenge is essential in achievement contexts.

The Current Study

The current study examines the effects of self-enhancement vs. self-improvement oriented reflection following a laboratory social stressor. More specifically, we examined whether these distinct motivational processes had differential effects on mood, hypothalamic-pituitary-adrenal (HPA) axis recovery, and persistence across interdependent (Asian American) and independent (European American) cultural groups. We hypothesized that culturally syntonic self-reflection processes would result in improved emotional (i.e., greater reduction in negative affect) and physiological (i.e., quicker return to baseline levels of cortisol) recovery, and greater persistence (i.e., declarative response to challenge) both within and across the self-enhancement and self-improvement conditions. Across conditions, we predicted that Asian Americans would experience improved recovery and greater persistence when engaged in self-improvement writing than in self-enhancement writing, whereas European Americans would experience improved recovery and greater persistence following self-enhancement writing than self-improvement writing. Within conditions, we predicted that European Americans would experience greater recovery than Asian Americans in the self-enhancement condition, and that Asian Americans would experience greater recovery than European Americans in the self-improvement condition. Lastly, we hypothesized that there would be no ethnic group differences in motivation, emotional, or physiological recovery in the control condition.

Method

Participants

Participants were 56 Asian American and 58 European American undergraduate students who participated in exchange for Psychology course credit. Our target sample size of at least 80 participants was based on previously published research (Taylor et al., 2007) with a similar 2 (Ethnicity) x 3 (Condition) experimental design using the Trier Social Stress Task (TSST; Kirschbaum, Pirke, & Hellhammer, 1993). Of the 114 participants, 66 (58%) were female. Ages ranged from 18 to 40, $M = 19.64$, $SD = 2.70$. Among the 56 Asian Americans in the sample, 77% were 1st generation (i.e., foreign-born) and 23% were second-generation (i.e., US-born). 66% were Chinese, 5% were Japanese, and 29% were Korean. Among the 58 European Americans, 7% were 1st generation, 10% were 2nd generation, and 83% were post-2nd generation. The four 1st generation European Americans have lived in the United States for at least nine years.

Inclusion criteria were: 1) 1st or 2nd generation East Asian Americans (i.e., Korean, Chinese, or Japanese), 2) European American, 3) Non-smoker, 4) not currently on hormonal contraceptives or pregnant, and 5) free from any major medical or mental health conditions. Inclusion criteria 3 through 5 were to rule out artifacts to salivary cortisol levels. Twenty-four hours prior to the laboratory visit, participants were instructed to refrain from consuming alcoholic beverages 24 hours before the experiment, dairy products three hours prior to the session, and any food or beverage an hour prior to the session. Due to experimenter errors (e.g., dropped Salivettes, mistimed saliva collection times), six participants were dropped from the cortisol analyses.

Procedure

All experimental sessions were scheduled at either 1:00pm or 3:30pm to control for the diurnal rhythm of cortisol (Kudielka, Schommer, Hellhammer, & Kirschbaum, 2004). Upon arrival, participants provided informed consent and were fitted with a blood pressure cuff. Participants then browsed through neutral content magazines for eight minutes to allow them to acclimate to the experimental environment (baseline). After this baseline period, participants provided the first saliva sample and completed measures of demographic information and current affect.

Next, participants were administered a brief semi-structured interview by the experimenter designed to identify the participants' occupational goal after graduation, and a job position they would need to meet their goals. Participants were then given instructions for a modified version of the Trier Social Stress Test (TSST), a laboratory stressor that reliably produces an increase in cortisol levels (Dickerson & Kemeny, 2004). This marked the onset of the stressor. In the modified TSST, participants delivered a speech in front of an evaluative panel substantiating why they would be a good candidate for the job position they had previously identified. The evaluative panel consisted of one male and one female ethnically-matched confederates (e.g., Asian American participants were evaluated by Asian American confederates) trained to behave in a stoic manner.

Participants were given five minutes to prepare for their speech, after which they delivered their speech while being video-recorded. Following the speech delivery, participants observed the confederates ostensibly rate their speech performances. Soon after the confederates left the room, the experimenter returned to inform the participants of their scores. All participants received the same scores of 4, 5, and 6 on a 10-point Likert Scale on speech persuasiveness,

clarity, and content, respectively. Self-reported affect was assessed again after the speech delivery to assess changes in mood.

Following the assessment of post-speech affect, participants were asked to reflect on their speech performance in an 8-minute writing task. Participants were randomly assigned to one of three conditions: 1) self-enhancement, 2) self-improvement, or 3) neutral (control). The experimenter was blind to participant's assigned condition. Following the self-reflection task, participants reported their affect, completed questionnaires, and provided three additional saliva samples at 25 minutes after the TSST onset to assess cortisol reactivity and 35 and 45 minutes after the TSST onset to assess cortisol recovery. After completing the questionnaires, participants were debriefed.

Experimental Conditions

The self-enhancement and self-improvement condition prompts were created from a comprehensive review of the self-enhancement literature (see Heine & Hamamura, 2007).

Self-enhancement. Participants were primed to write self-enhancement themes such as identifying reasons why the negative feedback was not credible or representative, making downward social comparisons, and situational attributions for poor performance.

Specific instructions were: "Please examine and reflect on your scores from your speech performance. Think about how your scores may not accurately reflect your true abilities and potential. Perhaps you were more successful and effective in similar situations in the past, but the conditions and the judges negatively impacted your performance. Think about the factors or conditions that would have enabled you to better showcase your abilities and potential. Can you think of people you know who would have done the same or worse than you in this same situation? Please write your thoughts down continuously for the next 8 minutes. It is completely

anonymous and confidential. Don't worry about grammar, spelling, sentence structure, and erasing or crossing things out."

Self-improvement. Participants were primed to write self-improvement themes such as identifying reasons why the negative feedback was credible or representative, making upward social comparisons, and dispositional attributions for poor performance.

Specific instructions were: "Please examine and reflect on your scores from your speech performance. Think about how your scores may accurately reflect your true abilities and potential. Perhaps your performance today was consistent with how you did in similar situations in the past; as the conditions and the judges are similar to those you have encountered elsewhere. Think about your areas of weakness and realistic steps you could take to correct them. Can you think of people you know who would have done better than you in this same situation? Please write your thoughts down continuously for the next 8 minutes. It is completely anonymous and confidential. Don't worry about grammar, spelling, sentence structure, and erasing or crossing things out."

Control. Adapted from Pennebaker et al. (1990), participants were asked to write chronologically and in great detail about what they had done that day since waking.

Specific instructions were: "Please reflect on your day so far. Think about what you have done since waking up this morning. Think about the routines and events of your day, focusing on the details of what you've done so far. Perhaps you brushed your teeth, took a shower, ate something, made the trip to campus or to class, and eventually you came here. It is important that you recall your day with as much detail as possible, focusing on specific events rather than on your thoughts or feelings about them. Please write your thoughts down continuously for the next

8 minutes. It is completely anonymous and confidential. Don't worry about grammar, spelling, sentence structure, and erasing or crossing things out."

Manipulation Check

A judge blind to assignment read each essay and coded them according to which condition instructions they appeared to be responding to. Of the 114 essays, 109 (95.6%) were correctly classified. Five out of 40 self-enhancement condition essays were incorrectly assigned to the self-improvement condition¹. All of the self-improvement and control condition essays were correctly assigned.

We used the Linguistic Inquiry Word Count (LIWC) program (Francis & Pennebaker, 1993) to examine the number of positive emotion (e.g., "happy"), negative emotion (e.g., "hurt"), and cognitive process (e.g., "cause",) words written in each essay. As expected, we found significant main effects of condition for each word category, such that participants wrote more positive/negative emotion and cognitive process words in the self-enhancement and self-improvement condition than the control condition. However, there were no significant differences in these word categories between the self-enhancement and self-improvement condition, suggesting that observed differences across these conditions may not be explained simply by differences in mood induction or engagement in general cognitive processing.

Measures

State affect. Negative affect was assessed with the negative affect subscale of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1994). The PANAS is a 20-item self-report measure of positive and negative affectivity with 10 items to assess for positive affectivity (e.g., "cheerful") and 10 items to assess for negative affectivity (e.g., "scared"). Participants rated the way they felt *right now* for each item using a 5-point

Likert scale ranging from 1 (very slightly) to 5 (extremely). Higher scores indicate higher levels of negative affect. Evidence for construct validity has been reported in past research, indicating significant correlations with measures of depressive symptoms, and adequate test-retest reliabilities (Watson et al., 1988). The PANAS was administered at baseline (T1), and immediately after speech delivery (T2), and writing task (T3). Change scores were calculated by subtracting T3 negative affect from T2 negative affect. Thus, higher scores indicate greater *reduction* in negative affect.

Cortisol. Four saliva samples were collected using Salivettes (Sarstedt, Inc.) at baseline (T1), and 25 minutes (T2), 35 minutes (T3), and 45 minutes (T4) after the onset of the TSST. Saliva samples were frozen at -20° C until sent to University of Trier, Germany where they were assayed for cortisol. Cortisol levels were determined employing a complete solid phase time-resolved fluorescence immunoassay with fluorimetric end point detection (DELFLIA). Cortisol recovery was calculated in two ways by subtracting: 1) T3 from T2 cortisol, and 2) T4 from T3 cortisol. Thus, higher positive values indicate *quicker* recovery to baseline.

Persistence. Participant's behavioural intentions to persist with challenge despite receiving a negative evaluation were assessed immediately after T3 negative affect with a single self-report item: "If I was asked to present another speech under the same circumstances, I would choose to practice for ____." Responses to the item were answered using a 6-point Likert scale (e.g., 1 = "less than 3 minutes", 4 = "7-10 minutes", to 6 = "more than 15 minutes"). Thus, higher scores indicated a more persistent declarative response to challenge.

Potential confounds. Participants reported on health behaviors that could interfere with HPA functioning. These included smoking, physical activity, sleeping patterns, and caffeine and alcohol consumption during the past week and 24 hours, general physical health, and current

medication use (Kirschbaum & Hellhammer, 1989). General physical health was assessed with the 54-item Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982). The PILL assessed a number of common physical symptoms (e.g., “Chills”). Participants indicated how often they have experienced each symptom on a five-point Likert scale (1 = never or almost never, 5 = more than once every week).

Word count was tested as a covariate to control for engagement with the writing task.

Results

Descriptive statistics for each outcome across cultural groups are reported in Table 1.

Effect of Culture and Condition on Negative Affect

At baseline, an independent samples *t*-test demonstrated no significant differences in negative affect between Asian Americans and European Americans ($M_s = 13.70$ and 13.55 , $SD_s = 4.79$ and 5.21 , $t(112) = .15$, $p > .05$). Controlling for baseline positive affect, we conducted a 2 (Ethnicity: Asian American vs. European American) x 3 (Condition: self-enhancement vs. self-improvement vs. control) analysis of covariance (ANCOVA) to examine participants' reduction in negative affect². We found a significant Ethnicity x Condition interaction in predicting reduction in negative affect, $F(2, 100) = 3.9$, $p = .04$, $\eta_p^2 = .06$ (See Figure 1). There were no significant main effects of condition or ethnicity.

To determine if the interaction reflected the predicted patterns, we conducted planned comparisons for each cultural group and condition. Asian Americans ($M = 4.57$, $SD = 1.27$) experienced significantly greater reduction in negative affect than European Americans ($M = 0.27$, $SD = 1.32$) in the self-improvement condition, $p = .02$. By contrast, European Americans experienced significantly greater reduction in negative affect in the self-enhancement condition ($M = 3.67$, $SD = 1.09$) than the self-improvement condition ($M = 0.27$, $SD = 1.32$).

Lastly, there was no significant difference in reduction of negative affect between Asian Americans ($M = 4.27$, $SD = 1.11$) and European Americans ($M = 1.72$, $SD = 1.24$) in the control condition, $p > .05$.

Effect of Culture and Condition on Cortisol Recovery

The distribution of cortisol concentration at each time point was significantly positively skewed, and thus, values were natural log-transformed. An independent samples t -test demonstrated no significant differences in baseline cortisol values between Asian Americans and European Americans ($M_s = 0.51$ and 0.61 , $SD_s = 0.33$ and 0.27 , $t(105) = 1.59$, $p > .05$). There were no significant main effects of ethnicity, condition, or ethnicity x condition interaction in cortisol reactivity, indicating successful random assignment.

Next, we examined the effects of self-reflection on cortisol recovery (i.e., T2-T3 cortisol and T3-T4 cortisol). Controlling for baseline cortisol value and general physical health, we conducted two 2×3 ANCOVAs to examine the effect of self-reflection on participants' cortisol recovery³. There was a significant interaction in predicting cortisol recovery at T3 (i.e., 35 minutes post TSST onset), $F(2, 98) = 3.44$, $p = .04$, $\eta_p^2 = .07$ (See Figure 2). European Americans ($M = .09$, $SD = .02$) had significantly faster cortisol recovery from the TSST than Asian Americans ($M = .01$, $SD = .03$) in the self-enhancement condition, $p = .04$. Asian Americans ($M = .11$, $SD = .03$) experienced marginally faster cortisol recovery than European Americans ($M = .03$, $SD = .03$) in the self-improvement condition, $p = .08$. By contrast, Asian Americans had significantly faster recovery to the TSST in the self-improvement condition ($M = .11$, $SD = .03$) than the self-enhancement condition ($M = .01$, $SD = .03$), $p = .03$. European Americans did not experience differences in cortisol recovery between the self-enhancement ($M = .09$, $SD = .02$) and self-improvement condition ($M = .03$, $SD = .03$), $p = .14$.

As expected of healthy young adults who typically recover from stress tasks, we did not find a significant ethnicity x condition interaction in predicting cortisol recovery after 45 minutes, $p > .05$. This suggests that all individuals have recovered to baseline levels of cortisol values, which is consistent with prior research showing that post-stressor cortisol levels return to baseline levels by 41-60 minutes post stressor (Dickerson & Kemeny, 2004).

Lastly, there were no ethnic group differences in cortisol recovery in the control condition.

Effect of Culture and Condition on Persistence

Next, we examined the effects of self-reflection on persistence. Controlling for gender, we conducted a 2 x 3 ANCOVA to examine the effect of self-reflection on participants' persistence⁴. We found a significant main effect of condition such that individuals in both the self-enhancement and self-improvement condition endorsed greater persistence than individuals in the control condition. We also found a significant interaction in predicting persistence, $F(2, 104) = 3.82, p = .03, \eta_p^2 = .07$ (See Figure 3). European Americans ($M = 4.87, SD = .42$) endorsed marginally greater persistence than Asian Americans ($M = 3.82, SD = .46$) in the self-enhancement condition, $p = .09$. The difference between Asian Americans ($M = 4.58, SD = .48$) and European Americans ($M = 3.54, SD = .46$) in the self-improvement condition was not statistically significant, $p > .05$. Lastly, European Americans endorsed significantly greater persistence in the self-enhancement condition ($M = 4.87, SD = .42$) than self-improvement condition ($M = 3.54, SD = .46$), $p = .03$. Persistence did not differ in the control condition across groups.

Discussion

Based on previous research on self-enhancement and self-improvement, we hypothesized that a cultural match in ethnicity and self-reflection processes would lead to greater benefits from emotional disclosure through writing. The overall pattern of findings confirmed this prediction, although not all of the planned contrasts were confirmatory. We found that Asian Americans had considerably greater reductions in negative affect than European Americans in the self-improvement condition. However, there were no significant differences in affective outcomes between groups in the self-enhancement condition. Across conditions, European Americans benefited more from self-enhancement than self-improvement, but no differences were found between conditions among Asian Americans. With regard to cortisol recovery, we found that Asian Americans experienced quicker recovery to baseline in the self-improvement condition than in the self-enhancement condition, but there were no differences for European Americans between these conditions. Lastly, we found that European Americans experienced quicker recovery to baseline cortisol than Asian Americans in the self-enhancement condition, and that Asian Americans experienced marginally quicker recovery to baseline cortisol than European Americans in the self-improvement condition. Although not all hypothesized planned contrasts were significant, the overall pattern of findings suggest that the extent to which people gain emotional and physiological benefits depend on whether the self-reflection processes are congruent with individuals' heritage cultural backgrounds. These findings add to a growing body of research demonstrating important cultural differences in the most adaptive approach to reflect upon negative personal experiences (Tsai & Lau, 2013, Lu & Stanton, 2010).

Self-enhancement conferred significant emotional and biological benefits for European Americans. By engaging in downward social comparison and attributing their failure performance to the situation, European Americans likely brought to mind valued aspects of the

self and restored their positive self-regard. Because European Americans tend to view the self as an independent entity that remains consistent and autonomous across contexts, the ability to restore positive self-regard through self-enhancement becomes important for healthy functioning. In contrast, self-improvement conferred greater emotional and biological benefits for Asian Americans. By exercising vigilance to areas of weakness and identifying high performing role models, Asian Americans may bring to mind an incremental view of the self that suggests that achievement hinges on effort and not talent. Through this mindset, a failure experience may provide a valued opportunity to improve. Although Asian Americans experienced greater reductions in negative affect than European Americans in the self-improvement condition, there were no significant differences between Asian Americans in the self-enhancement and self-improvement conditions. Although speculative, engaging in self-reflection processes in general through writing may serve a facilitating function for Asian Americans. For instance, self-reflection through writing may provide a valued opportunity to process the stressor without potentially damaging harmony, a cardinal value in interdependent cultures (Chen & Chung, 1994).

Although cultural mismatch in the use of self-reflection processes resulted in smaller reductions of negative affect and slower cortisol recovery following an acute stressor, it did not lead to greater negative affect. Even though our findings suggest that individuals from all cultural backgrounds can engage in self-enhancement or self-improvement processes without detrimental outcomes (i.e., these processes generally appear ameliorative and not harmful), this may not generalize to the *spontaneous* use of culturally mismatched self-reflection processes. Indeed, cultural mismatch in the spontaneous use of self-reflection processes may reflect psychopathology (e.g., depression) that can reduce attention to, or concerns with cultural norms

of how one experience and cope with stressors, resulting in maladjustment. Lastly, the implications of these differences and changes in immediate distress are not well understood. Future work examining subsequent emotion regulation strategies and coping behaviors following negative self-reflection will provide additional understanding into how individuals from different cultural backgrounds cope with stressful experiences.

With regards to persistence, we found that European Americans endorsed greater behavioral intentions to persist in the self-enhancement condition than in the self-improvement condition. The mechanisms that underlie the intention to rise to challenge may be different across ethnic groups. In the self-improvement condition, Asian Americans may have identified an area of weakness and thus a path toward betterment. By contrast, in the self-enhancement condition, European Americans may have identified an unfair circumstance (e.g., unfriendly judges) or other disadvantage (e.g., uncomfortable setting) that prevented optimal performance, which may have inspired them to prove wrong the negative evaluation. This finding provides compelling evidence for the importance of considering cultural background in improving motivation and persistence following setbacks.

Although this study provides compelling data on the effects of self-reflection processes on psychological and physical well-being, it also has several limitations. First, the findings from the present study are novel with a small sample size, and thus future replication is essential. Second, because our cultural predictor relied on ethnic membership, examining more proximal predictors such as trait self-enhancement will provide stronger empirical support for self-reflection processes as the causal mechanism through which individuals may recover from stressors. Lastly, our categorical operationalization of culture (i.e., Asian American vs. European American) treated them as homogenous groups despite important within-group heterogeneity.

Unfortunately, the number of participants in our sample was not sufficiently large to allow for meaningful comparisons along important dimensions (e.g., acculturation, value orientations).

Despite these limitations, this study employed an experimental design to examine the causal role of self-enhancement vs. self-improvement oriented reflection in facilitating recovery from a lab-based social stressor. The present study is the first, to our knowledge, to show causal evidence that culturally congruent self-reflection processes leads to improved emotional and physiological recovery from stress.

Footnotes

¹ Given our limited sample size, data from the five participants who appeared not to clearly comply with writing instructions were included in the analyses to preserve power. However, the pattern of findings was consistent when these participants were excluded from the analyses.

²We tested a set of covariates including baseline positive/negative affect, age, gender, and word count. Baseline positive affect was a significant covariate. Non-significant covariates were dropped from the model.

³We tested a set of covariates including age, gender, time of day, baseline cortisol value, general physical health, and daily caffeine intake and physical exercise. Baseline cortisol value and general physical health were significant covariates. Non-significant covariates were dropped from the model.

⁴We tested a set of covariates including age, gender, and essay word count. Gender was a significant covariate. Non-significant covariates were dropped from the model.

⁵We also tested these regressions without the control condition, and found that the pattern of results remained the same.

Table 1. Descriptive Statistics of Outcomes across Cultural Groups

Time	Condition	Asian American				European American			
		Negative Affect		Cortisol		Negative Affect		Cortisol	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
T1	SE	11.78	2.98	.47	.22	12.68	3.50	.59	.29
	SI	16.13	6.17	.59	.25	14.06	5.74	.57	.23
	Control	13.50	4.24	.47	.42	14.11	6.39	.63	.30
T2	SE	13.33	3.83	.62	.29	16.59	7.63	.67	.24
	SI	20.19	8.90	.53	.32	13.33	4.34	.67	.31
	Control	16.95	7.37	.47	.42	15.81	6.51	.70	.35
T3	SE	11.56	3.47	.50	.26	12.55	3.62	.60	.33
	SI	16.06	7.18	.53	.28	12.76	4.32	.62	.25
	Control	12.73	5.02	.41	.48	13.68	4.68	.64	.33
T4	SE	--	--	.42	.23	--	--	.54	.27
	SI	--	--	.53	.28	--	--	.63	.25
	Control	--	--	.34	.37	--	--	.54	.28

Note. SE = Self-Enhancement, SI = Self-Improvement. Cortisol values are log-transformed.

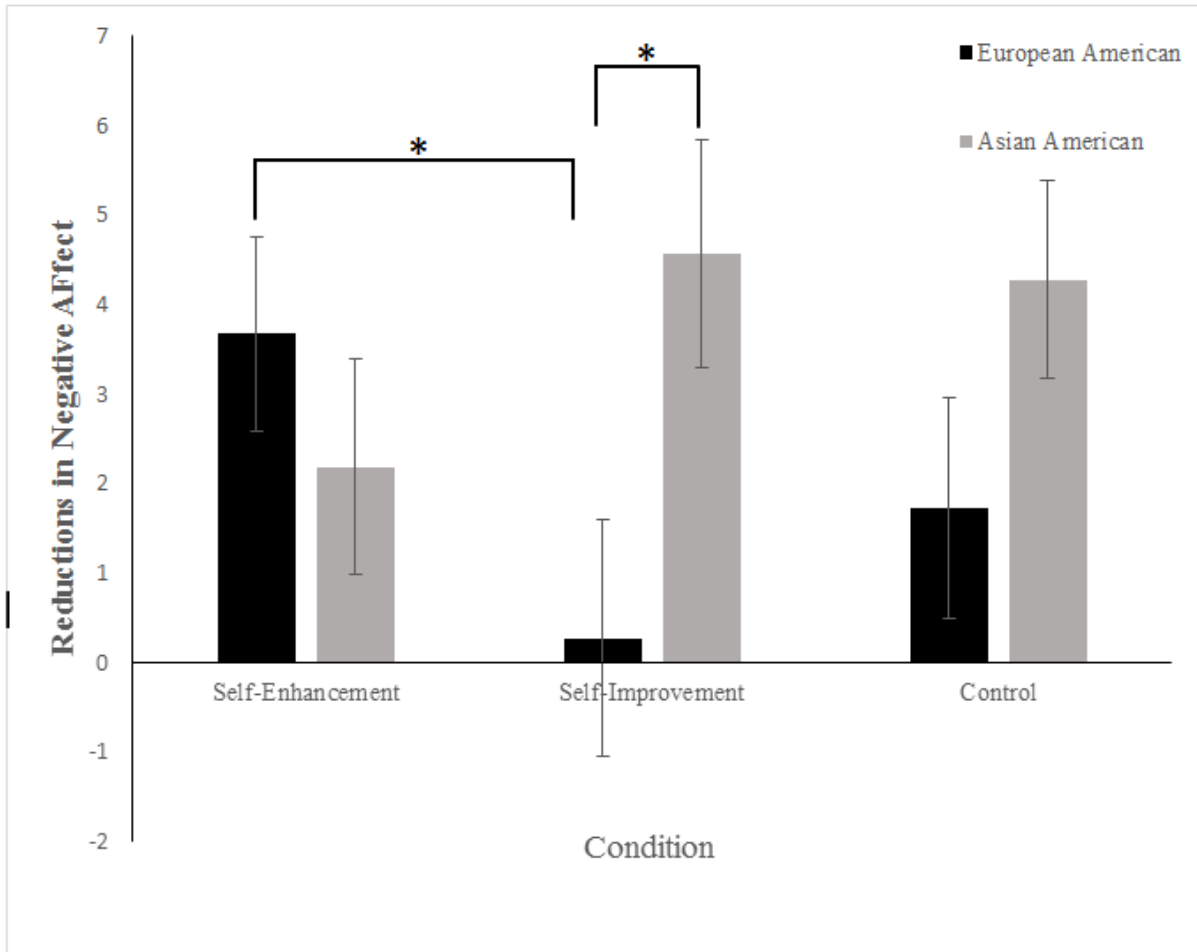


Figure 1. Condition x Ethnicity Interaction in Predicting Change in Negative Affect. * $p < .05$

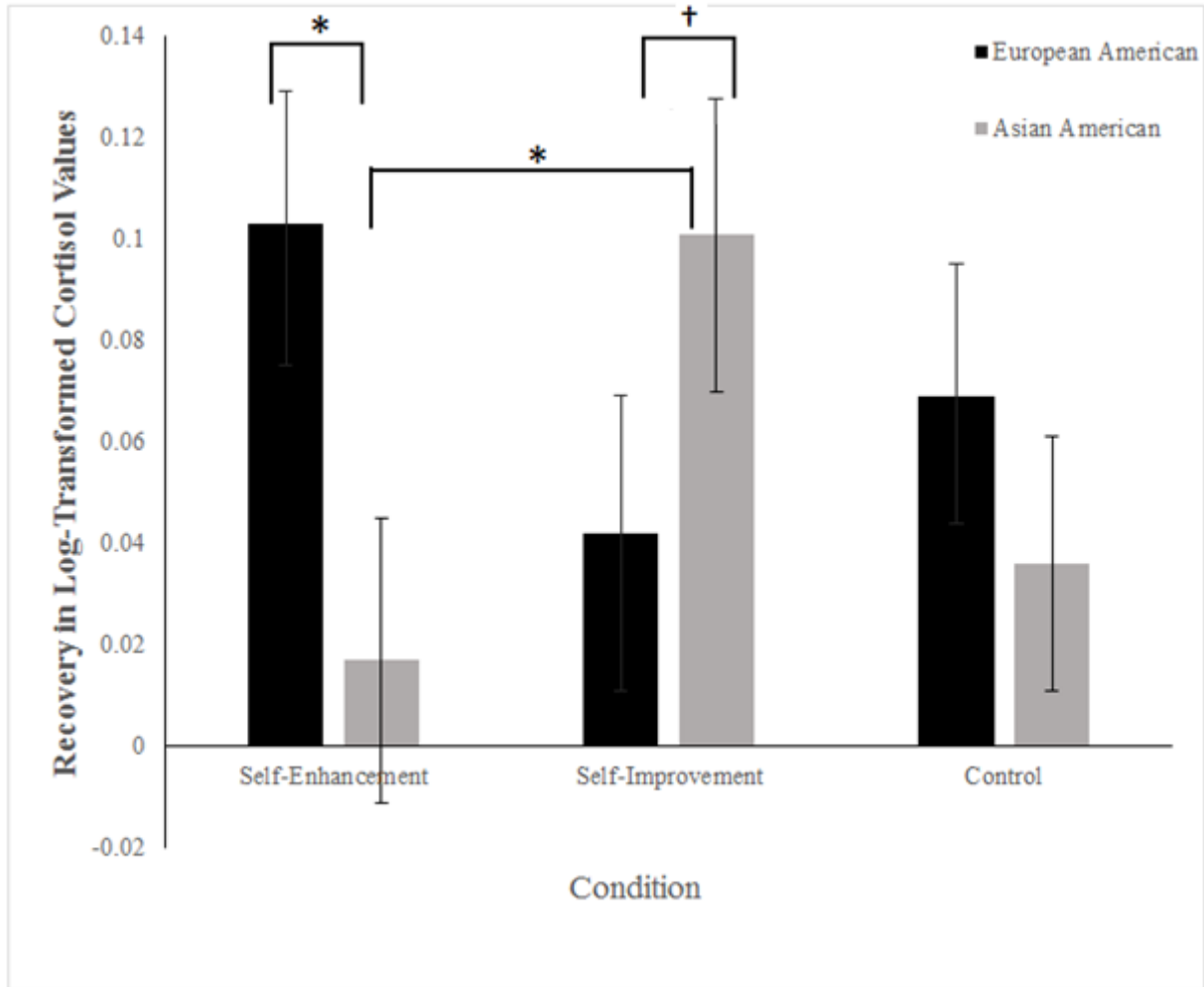


Figure 2. Condition x Ethnicity Interaction in Predicting Cortisol Recovery. † $p < .10$, * $p < .05$

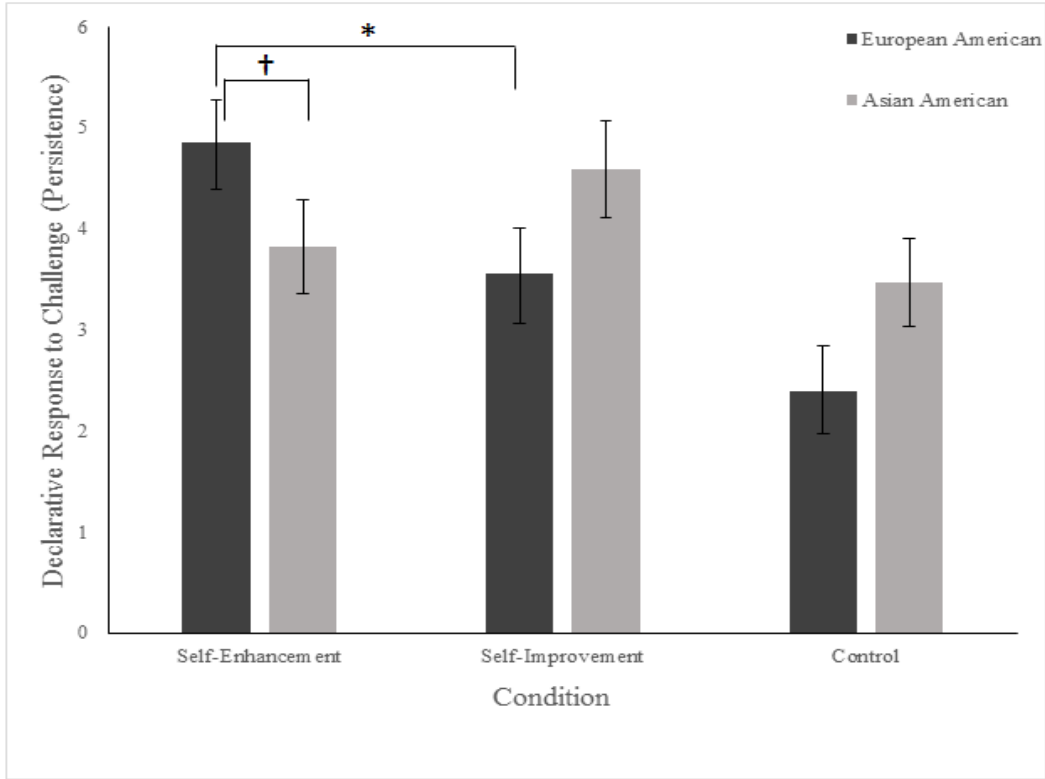


Figure 3. Condition x Ethnicity Interaction in Predicting Persistence. † $p < .10$. * $p < .05$

GENERAL DISCUSSION

Although there is much evidence that cultural groups differ in emotion regulation and social information processing, there is little research that investigates the consequences or implications of these cultural differences. Despite the recent growth in interest in this area of research, these studies have largely relied on self-report and cross-sectional designs. Recognizing these limitations in the extant literature, my dissertation has focused on examining an array of outcomes using laboratory-based stress responses, behavioral observations, experimental manipulations and prospective naturalistic designs.

One of the major goals of bringing cultural psychology theory into the study of psychopathology is to help dispel the notion that there is one pathway (i.e., universality) to psychological well-being. Along this vein, I set out to understand when reliance on psychological processes that may vary in meaning across cultural lines (e.g., emotion suppression and self-enhancement) serves to optimize or compromise psychological and physical well-being across groups. I explored this question in two distinctive psychological domains.

First, across studies 1 and 2, cultural group differences in behavioral observations and participant self-report reaffirmed that emotional restraint and emotion suppression coping represent more culturally-normative emotion regulation processes among Asian Americans than among European Americans. However, despite ostensibly subserving the cultural goals of preserving harmony through the restraint of emotion display, we found that emotion suppression coping may have unintended negative effects on relationships among young people across groups. This finding casts some doubt on the conclusion that culturally-congruent emotion suppression is always optimal. Yet, emotion suppression may remain a culturally-sanctioned behavior. A sweeping conclusion that emotion suppression is universally harmful may be

premature. Future research is needed that applies different methodologies and more nuanced exploration of this construct. For example, isolating the valence of the suppressed emotion (e.g., positive vs. negative) or experimentally manipulating the interpersonal context of suppression (e.g., interactions with friends vs strangers) could contribute significantly to research on the utility versus risks of emotion suppression across cultural contexts.

Second, although the healthy consequences of self-enhancement for mood and well-being have long been reported (Taylor & Brown, 1988), research has not examined whether this relationship holds across diverse cultural groups. In contrast to meta-analytic findings (Heine & Hamamura, 2007), results from Study 3 did not reveal cultural group differences in spontaneous self-enhancement versus self-improvement when Asian American and European Americans were asked to reflect upon their life stressors. However, the results of Studies 3 and 4 together provided the first empirical support for cultural differences in the benefits of self-enhancement vs. self-improvement focused reflection. These findings compel questions for future research. Are there boundary conditions for the functions of culturally-syntonic self-enhancement and self-improvement processes? How can culturally syntonic self-motivation processes be harnessed in responsive interventions to promote wellness?

Extant research in the social and behavioral sciences has been traditionally drawn from a narrow slice of human diversity (Henrich, Heine, & Norenzayan 2010). By bridging cultural psychological theory into clinical science, my dissertation studies allowed for the opportunity to expose meaningful variability in psychological processes that promote health and adjustment across cultural groups. Across these studies, I found that cultural background intersected with emotion regulation and sociocognitive processes, resulting in multiple pathways to well-being.

References

- Abe-Kim, J., Takeuchi, D. T., Hong, S., Zane, N., Sue, S., Spencer, M. S., ... & Alegría, M. (2007). Use of mental health-related services among immigrant and US-born Asian Americans: results from the National Latino and Asian American Study. *American journal of public health, 97*(1), 91-98.
- Adams, G., & Plaut, V. C. (2003). The cultural grounding of personal relationship: Friendship in North American and West African worlds. *Personal Relationships, 10*(3), 333-347.
- Aldao, A., & Nolen-Hoeksema, S. (2010). Specificity of cognitive emotion regulation strategies: A transdiagnostic examination. *Behaviour Research and Therapy, 48*(10), 974-983.
- Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric Properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in Clinical Groups and a Community Sample. *Psychological Assessment, 10*, 176–81.
- Bandura, A. (1999). Social Cognitive Theory of personality. In D. Cervone & Y. Shoda (Eds.), *The coherence of personality: Social cognitive bases of personality consistency, variability, and organization* (pp. 185-241). New York: Guilford.
- Barrett-Lennard, G. T. (1962). Dimensions of therapist response as causal factors in therapeutic change. *Psychological Monographs: General and Applied, 76*(43), 1.
- Beck, A. T., & Steer, R. A. (1984). Internal consistencies of the original and revised Beck Depression Inventory. *Journal of Clinical Psychology, 40*, 1365–1367.
- 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.
- Benet-Martínez, V., & Haritatos, J. (2005). Bicultural identity integration (BII): Components and psychosocial antecedents. *Journal of personality, 73*(4), 1015-1050.
- Bond, M. H. (1991). *Beyond the Chinese face*.
- Butler, R. (1992). What young people want to know when: Effects of mastery and ability goals on interest in different kinds of social comparisons. *Journal of Personality and Social Psychology, 62*, 934–943.
- Butler, E. A., Egloff, B., Wilhelm, F. H., Smith, N. C., Erickson, E. A., & Gross, J. J. (2003). The social consequences of expressive suppression. *Emotion, 3*(1), 48.
- Butler, E. A., Lee, T. L., & Gross, J. J. (2007). Emotion regulation and culture: Are the social consequences of emotion suppression culture-specific?. *Emotion, 7*(1), 30.

- Butler, E. A., Lee, T. L., & Gross, J. J. (2009). Does expressing your emotions raise or lower your blood pressure? The answer depends on cultural context. *Journal of Cross-Cultural Psychology*, 40(3), 510-517.
- Cabral, R. R., & Smith, T. B. (2011). Racial/ethnic matching of clients and therapists in mental health services: A meta-analytic review of preferences, perceptions, and outcomes. *Journal of Counseling Psychology*, 58(4), 537.
- Cheung, R. Y., & Park, I. J. (2010). Anger suppression, interdependent self-construal, and depression among Asian American and European American college students. *Cultural Diversity and Ethnic Minority Psychology*, 16(4), 517.
- Chung, T., & Mallery, P. (1999). Social comparison, individualism-collectivism, and self-esteem in China and the United States. *Current Psychology*, 18, 340-3
- Creswell, J. D., Lam, S., Stanton, A. L., Taylor, S. E., Bower, J. E., & Sherman, D. K. (2007). Does self-affirmation, cognitive processing, or discovery of meaning explain cancer-related health benefits of expressive writing? *Personality & Social Psychology Bulletin*, 33, 238–250.
- Crocker, J., Thompson, L. L., McGraw, K. M., & Ingerman, C. (1987). Downward Comparison Prejudice and Evaluations of Others: Effects of Self-Esteem and Threat. *Journal of Personality and Social Psychology*, 52,907-916.
- Curran, S. L., Andrykowski, M. A., & Studts, J. L. (1995). Short Form of the Profile of Mood States (POMS-SF): Psychometric information. *Psychological Assessment*, 7(1), 80.
- Derogatis, L. R. (1993). BSI, Brief Symptom Inventory: Administration, Scoring & Procedures Manual (4th ed.). Minneapolis, MN: National Computer Systems.
- Derogatis, L. R., & Melisaratos, N. (1983). The Brief Symptom Inventory: An introductory report. *Psychological Medicine*, 13, 595–605.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95, 542-575.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49, 71 – 75.
- Ekman, P. (1972). Universals and cultural differences in facial expressions of emotion. In J. Cole (ed.), *Nebraska Symposium on Motivation*, 1971. Lincoln, NE: University of Nebraska Press, pp. 207-283.
- Ekman, P. (1993). Facial expression and emotion. *American Psychologist*, 48(4), 384.

- English, T., & John, O. P. (2013). Understanding the social effects of emotion regulation: The mediating role of authenticity for individual differences in suppression. *Emotion*, 13(2), 314.
- Fleming, R., Baum, A., Gisriel, M. M., & Gatchel, R. J. (1982). Mediating influences of social support on stress at Three Mile Island. *Journal of Human Stress*, 8(3), 14-23.
- Francis, M. E., & Pennebaker, J. W. (1993). *LIWC: Linguistic Inquiry and Word Count*. Dallas, TX: Souther Methodist University.
- Fratraroli, J. (2006). Experimental disclosure and its moderators: A meta-analysis. *Psychological Bulletin*, 132, 823-865.
- Geist, R. L., & Gilbert, D. G. (1996). Correlates of expressed and felt emotion during marital conflict: Satisfaction, personality, process, and outcome. *Personality and Individual Differences*, 21(1), 49-60.
- Gold, D. B., & Wegner, D. M. (1995). Origins of ruminative thought: Trauma, incompleteness, nondisclosure, and suppression. *Journal of Applied Social Psychology*, 25(14), 1245-1261.
- Gottman, J. M., & Levenson, R. W. (1992). Marital processes predictive of later dissolution: Behavior, physiology, and health. *Journal of Personality and Social Psychology*, 63(2), 221.
- Gross, J. J. (1998). Antecedent-and response-focused emotion regulation: divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, 74(1), 224.
- Gross, J. J. (2013). Emotion regulation: Taking stock and moving forward. *Emotion*, 13(3), 359.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348.
- Gross, J. J., & Levenson, R. W. (1997). Hiding feelings: the acute effects of inhibiting negative and positive emotion. *Journal of abnormal psychology*, 106(1), 95.

- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. *Handbook of Emotion Regulation*, 3, 24.
- Gross, J. J., Sheppes, G., & Urry, H. L. (2011). Emotion generation and emotion regulation: A distinction we should make (carefully). *Cognition and Emotion*, 25(5), 765-781.
- Gullone, E., Hughes, E. K., King, N. J., & Tonge, B. (2010). The normative development of emotion regulation strategy use in children and adolescents: a 2-year follow-up study. *Journal of Child Psychology and Psychiatry*, 51(5), 567-574.
- Guttman, I. (1973). Care and handling of univariate or multivariate outliers in detecting spuriousity: A bayesian approach. *Technometrics*, 723-738.
- Greenfield, P. M. (2000). Three approaches to the psychology of culture: Where do they come from? Where can they go?. *Asian Journal of Social Psychology*, 3(3), 223-240.
- Greenberger, E., Chen, C., Tally, S. R., & Dong, Q. (2000). Family, peer, and individual correlates of depressive symptomatology among US and Chinese adolescents. *Journal of Consulting and Clinical Psychology*, 68(2), 209.
- Harris T, Borsanyi S, Messari S, Stanford K, Brown G, Cleary S, Shiers H, Herbert J (2000). Morning cortisol as a risk factor for subsequent major depressive disorder in adult women. *British Journal of Psychiatry*, 177, 505 - 510
- Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of abnormal psychology*, 100(4), 555.
- Hammen, C., Marks, T., Mayol, A., & DeMayo, R. (1985). Depressive self-schemas, life stress, and vulnerability to depression. *Journal of Abnormal Psychology*, 94, 308-319.
- Heine, S. J., & Hamamura, T. (2007). In search of east Asian self-enhancement. *Personality and Social Psychology Review*, 11, 1-24.
- 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.

- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, *106*, 766–794.
- Holahan, C. J., Moos, R. H., Holahan, C. K., & Brennan, P. L. (1997). Social context, coping strategies, and depressive symptoms: An expanded model with cardiac patients. *Journal of Personality and Social Psychology*, *72*(4), 918.
- John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of personality*, *72*(6), 1301-1334.
- Kahn, J. H., & Hessling, R. M. (2001). Measuring the tendency to conceal versus disclose psychological distress. *Journal of Social and Clinical Psychology*, *20*(1), 41-65.
- King, L. A., & Emmons, R. A. (1990). Conflict over emotional expression: Psychological and physical correlates. *Journal of personality and social psychology*, *58*(5), 864.
- Kim, B. S., & Atkinson, D. R. (2002). Asian American client adherence to Asian cultural values, counselor expression of cultural values, counselor ethnicity, and career counseling process. *Journal of Counseling Psychology*, *49*(1), 3.
- Kim, B. S., Hill, C. E., Gelso, C. J., Goates, M. K., Asay, P. A., & Harbin, J. M. (2003). Counselor self-disclosure, East Asian American client adherence to Asian cultural values, and counseling process. *Journal of Counseling Psychology*, *50*(3), 324.
- Kim, H. S., & Markus, H. R. (2002). Freedom of speech and freedom of silence: An analysis of talking as a cultural practice. *Engaging cultural differences: The multicultural challenge in liberal democracies*, 432-452.
- Kim, H. S., & Sherman, D. K. (2007). "Express yourself": culture and the effect of self-expression on choice. *Journal of personality and social psychology*, *92*(1), 1.
- 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.
- Kitayama, S., Park, H., Sevincer, A. T., Karasawa, M., & Uskul, A. K. (2009). A cultural task analysis of implicit independence: comparing North America, Western Europe, and East Asia. *Journal of Personality and Social Psychology*, *97*(2), 236.
- Klineberg, O. (1938). Emotional expression in Chinese literature. *The Journal of Abnormal and Social Psychology*, *33*(4), 517.
- Knowles, E. D., Wearing, J. R., & Campos, B. (2011). Culture and the health benefits of expressive writing. *Social Psychological and Personality Science*, *2*, 408-415.

- Kwon, H., Yoon, K. L., Joormann, J., & Kwon, J. H. (2013). Cultural and gender differences in emotion regulation: Relation to depression. *Cognition & Emotion*, (ahead-of-print), 1-14.
- Lepore, S. J., & Greenberg, M. A. (2002). Mending broken hearts: Effects of expressive writing on mood cognitive processing, social adjustment, and health following a relationship breakup. *Psychology and Health*, 17, 547 – 560.
- Lu, Q., & Stanton, A. L. (2010). How benefits of expressive writing vary as a function of writing instructions, ethnicity and ambivalence over emotional expression. *Psychology & Health*, 25, 669-684.
- Matsumoto, D. (1990). Cultural similarities and differences in display rules. *Motivation and emotion*, 14(3), 195-214.
- Matsumoto, D., Takeuchi, S., Andayani, S., Kouznetsova, N., & Krupp, D. (1998). The Contribution of Individualism vs. Collectivism to Cross-national Differences in Display Rules. *Asian Journal of Social Psychology*, 1(2), 147-165.
- 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. (2010). Cultures and Selves: A Cycle of Mutual Constitution. *Perspectives on Psychological Science*, 5, 420-430.
- Matsumoto, D. (1993). Ethnic differences in affect intensity, emotion judgments, display rule attitudes, and self-reported emotional expression in an American sample. *Motivation and emotion*, 17(2), 107-123.
- Matsumoto, D., Yoo, S. H., & Fontaine, J. (2008). Mapping expressive differences around the world the relationship between emotional display rules and individualism versus collectivism. *Journal of cross-cultural psychology*, 39(1), 55-74.
- Mauss, I. B., & Butler, E. A. (2010). Cultural context moderates the relationship between emotion control values and cardiovascular challenge versus threat responses. *Biological psychology*, 84(3), 521-530.
- Mauss, I. B., Butler, E. A., Roberts, N. A., & Chu, A. (2010). Emotion control values and responding to an anger provocation in Asian-American and European-American individuals. *Cognition and Emotion*, 24(6), 1026-1043.
- Maramba, G. G., & Nagayama Hall, G. C. (2002). Meta-analyses of ethnic match as a predictor of dropout, utilization, and level of functioning. *Cultural Diversity and Ethnic Minority Psychology*, 8(3), 290.
- Mesquita, B., & Albert, D. (2007). The cultural regulation of emotions. status: published.

- Mesquita, B. & Leu, J. (2007). The Cultural Psychology of Emotions. In S. Kitayama & D. Cohen (Eds.), *Handbook of Cultural Psychology*. New York: Guilford Press.
- Mezulis, A. H., Abramson, L. Y., Hyde, J. S., & Hankin, B. L. (2004). Is there a Universal Positivity Bias in Attributions? A Meta-analytic Review of Individual, Developmental, and Cultural Differences in the Self-serving Attributional Bias. *Psychological bulletin*, *130*, 711.
- Murray, C. J., & Lopez, A. D. (1997). Alternative projections of mortality and disability by cause 1990 – 2020: Global Burden of Disease Study. *The Lancet*, *349*(9064), 1498-1504.
- Nguyen, M. D. (1985). Culture shock—a review of Vietnamese culture and its concepts of health and disease. *Western Journal of Medicine*, *142*(3), 409.
- Niles, A. N., Haltom, K. E., Mulvenna, C. M., Lieberman, M. D., & Stanton, A. L. (2013). Effects of Expressive Writing on Psychological and Physical Health: The Moderating Role of Emotional Expressivity. *Anxiety, Stress & Coping*, (just-accepted). Retrieved from <http://www.tandfonline.com/doi/abs/10.1080/10615806.2013.802308>
- Oatley, K., & Jenkins, J. M. (1992). Human emotions: Function and dysfunction. *Annual Review of psychology*, *43*(1), 55-85.
- Oatley, K. and Jenkins, J. J. (1996). *Understanding emotions*, Oxford: Blackwell.
- Oyserman, D., Sorensen, N., Reber, R., & Chen, S. X. (2009). Connecting and separating mind-sets: culture as situated cognition. *Journal of personality and social psychology*, *97*(2), 217.
- Oyserman, D., & Lee, S. W. (2008). Does culture influence what and how we think? Effects of priming individualism and collectivism. *Psychological bulletin*, *134*(2), 311.
- Pennebaker, J. W. (1982). *The Psychology of Physical Symptoms*. James Pennebaker.
- Pennebaker, J. W., Mayne, T. J., & Francis, M. E. (1997). Linguistic predictors of adaptive bereavement. *Journal of Personality and Social Psychology*, *72*, 863 – 871.
- Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: evaluation of theoretical assumptions and meta-analyses. *Psychological bulletin*, *128*(1), 3.
- Quartana, P. J., & Burns, J. W. (2007). Painful consequences of anger suppression. *Emotion*, *7*(2), 400.
- Radloff, L. S. (1977). The CES-D scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement*, *1*, 385–401.

- Richards, J. M., Butler, E. A., & Gross, J. J. (2003). Emotion regulation in romantic relationships: The cognitive consequences of concealing feelings. *Journal of Social and Personal Relationships*, 20(5), 599-620.
- Ross, M., Heine, S. J., Wilson, A. E., & Sugimori, S. (2005). Cross-Cultural Discrepancies in Self-appraisals. *Personality and Social Psychology Bulletin*, 31, 1175-1188.
- Robinson, J. L., & Demaree, H. A. (2007). Physiological and cognitive effects of expressive dissonance. *Brain and Cognition*, 63(1), 70-78.
- Roberts, N. A., Levenson, R. W., & Gross, J. J. (2008). Cardiovascular costs of emotion suppression cross ethnic lines. *International Journal of Psychophysiology*, 70(1), 82-87.
- Rudolph, K. D., Hammen, C., Burge, D., Lindberg, N., Herzberg, D., & Daley, S. E. (2000). Toward an interpersonal life-stress model of depression: The developmental context of stress generation. *Development and Psychopathology*, 12(2), 215-234.
- Ryder, A. G., Alden, L. E., & Paulhus, D. L. (2000). Is acculturation unidimensional or bidimensional? A head-to-head comparison in the prediction of personality, self-identity, and adjustment. *Journal of personality and social psychology*, 79(1), 49.
- Ryder, A. G., Ban, L. M., & Chentsova-Dutton, Y. E. (2011). Towards a cultural-clinical psychology. *Social and Personality Psychology Compass*, 5(12), 960-975.
- Sapolsky R (1998). *Why Zebras Don't Get Ulcers: An Updated Guide to Stress, Stress-Related Disease and Coping*. New York, WH Freeman and Co.
- Shin, S. M., Chow, C., Camacho-Gonsalves, T., Levy, R. J., Allen, I. E., & Leff, H. S. (2005). A Meta-Analytic Review of Racial-Ethnic Matching for African American and Caucasian American Clients and Clinicians. *Journal of Counseling Psychology*, 52(1), 45.
- Slote, W. H., & De Vos, G. A. (Eds.). (1998). *Confucianism and the family*.
- Soto, J. A., Perez, C. R., Kim, Y. H., Lee, E. A., & Minnick, M. R. (2011). Is expressive suppression always associated with poorer psychological functioning? A cross-cultural comparison between European Americans and Hong Kong Chinese. *Emotion*, 11(6), 1450.
- Smyth, J. M. (1998). Written emotional expression: effect sizes, outcome types, and moderating variables. *Journal of consulting and clinical psychology*, 66, 174.
- Snowden, L. R., & Yamada, A. M. (2005). Cultural differences in access to care. *Annual Review of Clinical Psychology*, 1, 143-166.

- Sprecher, S., & Hendrick, S. S. (2004). Self-disclosure in intimate relationships: Associations with individual and relationship characteristics over time. *Journal of Social and Clinical Psychology, 23*(6), 857-877.
- Srivastava, S., Tamir, M., McGonigal, K. M., John, O. P., & Gross, J. J. (2009). The social costs of emotional suppression: a prospective study of the transition to college. *Journal of personality and social psychology, 96*(4), 883.
- Stapel, D. A., & Koomen, W. (2001). I, We, and the Effects of Others on Me: How Self-Constraint Level Moderates Social Comparison Effects. *Journal of Personality and Social Psychology, 80*, 766.
- Steer, R. A., Beck, A. T., Garrison, B., & Lester, D. (1988). Eventual Suicide in Interrupted and Uninterrupted Attempters: A Challenge to the Cry-for-help Hypothesis. *Suicide and Life-Threatening Behavior, 18*, 119–128.
- Stevenson, H. (1994). *Learning Gap: Why Our Schools Are Failing And What We Can Learn From Japanese And Chinese Education*. Simon and Schuster.
- Sue, S. (1977). Community mental health services to minority groups: Some optimism, some pessimism. *American Psychologist, 32*(8), 616.
- Sue, S., Fujino, D. C., Hu, L. T., Takeuchi, D. T., & Zane, N. W. (1991). Community mental health services for ethnic minority groups: a test of the cultural responsiveness hypothesis. *Journal of consulting and clinical psychology, 59*(4), 533.
- Suh, E., Diener, E., Oishi, S., & Triandis, H. C. (1998). The shifting basis of life satisfaction judgment across cultures: Emotions versus norms. *Journal of Personality and Social Psychology, 74*, 482–493
- Tajfel, T., Turner, J.C. (1986). The Social Identity Theory of Intergroup Behavior. Sidanius, Jim (Ed), (2004). *Political psychology: Key readings. Key readings in social psychology.*, (pp. 276-293).
- Takeuchi, D. T., Sue, S., & Yeh, M. (1995). Return rates and outcomes from ethnicity-specific mental health programs in Los Angeles. *American Journal of Public Health, 85*(5), 638-643.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and Well-being: A Social Psychological Perspective on Mental Health. *Psychological Bulletin, 103*, 193.
- Taylor, S. E., & Lobel, M. (1989). Social Comparison Activity under Threat: Downward Evaluation and Upward Contacts. *Psychological Review, 96*, 569-575.

- Taylor, S. E., Sherman, D. K., Kim, H. S., Jarcho, J., Takagi, K., & Dunagan, M. S. (2004). Culture and social support: who seeks it and why?. *Journal of personality and social psychology*, 87(3), 354.
- Tesser, A., Campbell, J. D., & Smith, M. (1984). Friendship Choice and Performance: Self-Evaluation Maintenance in Children. *Journal of Personality and Social Psychology*, 46, 561-574.
- Totterdell, P., & Parkinson, B. (1999). Use and effectiveness of self-regulation strategies for improving mood in a group of trainee teachers. *Journal of Occupational Health Psychology*, 4(3), 219.
- Kirschbaum, C., Pirke, K. M., & Hellhammer, D. H. (1993). The 'Trier Social Stress Test'—a tool for investigating psychobiological stress responses in a laboratory setting. *Neuropsychobiology*, 28(1-2), 76-81.
- Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of personality and social psychology*, 90(2), 288.
- Tsai, J. L., & Levenson, R. W. (1997). Cultural influences on emotional responding Chinese American and European American dating couples during interpersonal conflict. *Journal of Cross-Cultural Psychology*, 28(5), 600-625.
- Tsai, J. L., Miao, F. F., Seppala, E., Fung, H. H., & Yeung, D. Y. (2007). Influence and adjustment goals: sources of cultural differences in ideal affect. *Journal of personality and social psychology*, 92(6), 1102.
- Tsai, J. L., Louie, J. Y., Chen, E. E., & Uchida, Y. (2007). Learning what feelings to desire: Socialization of ideal affect through children's storybooks. *Personality and Social Psychology Bulletin*, 33(1), 17-30.
- Vaughan, C. A., Foshee, V. A., & Ennett, S. T. (2010). Protective effects of maternal and peer support on depressive symptoms during adolescence. *Journal of abnormal child psychology*, 38(2), 261-272.
- Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counseling Psychology*, 53(3), 325.
- 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.
- Wegner, D. M., Schneider, D. J., Carter, S. R., & White, T. L. (1987). Paradoxical effects of thought suppression. *Journal of personality and social psychology*, 53(1), 5.
- White, K., & Lehman, D. R. (2005). Culture and Social Comparison Seeking: The Role of Self-Motives. *Personality and Social Psychology Bulletin*, 31, 232-242.

- White, K., & Lehman, D. R. (2005). Looking on the Bright Side: Downward Counterfactual Thinking in Response to Negative Life Events. *Personality and Social Psychology Bulletin*, *31*, 1413-1424.
- Wills, T. A. (1981). Downward Comparison Principles in Social Psychology. *Psychological Bulletin*, *90*, 245.
- Wierzbicka, A. (1994). Emotion, language, and cultural scripts.
- Yee, M. D., & Brown, R. (1992). Self-Evaluations and Intergroup Attitudes in Children Aged Three to Nine. *Child Development*, *63*(3), 619-629.
- Zane, N., & Yeh, M. (2002). The use of culturally-based variables in assessment: Studies on loss of face. In *Asian American mental health* (pp. 123-138). Springer US.