Emotion

A Cultural Perspective on Emotional Experiences Across the Life Span

Igor Grossmann, Mayumi Karasawa, Chiemi Kan, and Shinobu Kitayama
Online First Publication, April 21, 2014. http://dx.doi.org/10.1037/a0036041

Emotion

1528-3542/14/$12.00 DOI: 10.1037/a0036041

A Cultural Perspective on Emotional Experiences Across the Life Span

Igor Grossmann
University of Waterloo

Mayumi Karasawa
Tokyo Woman's Christian University

Chiemi Kan
University of Tokyo

Shinobu Kitayama
University of Michigan

Past research suggests that older adults place a greater priority on goals of maintaining positive experiences and distancing from negative experiences. We hypothesized that these aging-related differences in emotional experiences are more pronounced in Western cultures that encourage linear approaches to well-being compared with Eastern cultures that encourage more dialectic approaches to well-being. We compared reports of positive and negative emotional experiences from random samples of Americans (a culture characterized by focus on positive and distancing from negative experiences) and Japanese (a culture characterized by its endorsement of dialectical experiences). In support of our hypothesis, older Americans reported significantly less negative emotions in unpleasant situations, relative to their younger counterparts. Furthermore, both trait-level negativity (i.e., rumination) and interpersonal negativity (i.e., recall of unpleasant relationships and intensity of an unpleasant interpersonal experience) were lower among older compared with younger Americans. In contrast, such aging-related effects were absent in the Japanese respondents. Even though older and younger Japanese reported the same amount of negative emotions in unpleasant situations, older Japanese also reported more positive emotions in the same unpleasant situations. Together, these findings highlight the role of culture for understanding how emotional experiences unfold across adulthood.

Keywords: aging, culture, emotional experiences, positive reappraisal, socioemotional selectivity theory, well-being

Seniors are the fastest growing population worldwide. In some countries such as Japan, the percentage of the population over 65, compared with that of 15- to 64-year-olds, is already high (over 23% in 2011), and it is predicted to represent 25% of the total population by the year 2025 (Statistics Japan, 2011). For the first time in human history, older adults will outnumber children (Lutz, Sanderson, & Scherbov, 2008). Despite these forecasts, psychologists know relatively little about the socioemotional aspects of aging in different cultures (Karel, Gatz, & Smyer, 2012). We attempted to fill this gap by simultaneously examining how culture and aging affect several aspects of emotional experience.

Igor Grossmann, Department of Psychology, University of Waterloo, Waterloo; Mayumi Karasawa, Department of Communication Science, Tokyo Woman's Christian University; Chiemi Kan, Department of Mental Health, University of Tokyo; Shinobu Kitayama, Department of Psychology, University of Michigan.

This research was supported by the University of Waterloo/Social Sciences Humanities Research Council 4A research grant from the University of Waterloo and the International Max Plank Research *LIFE* Fellowship awarded to Igor Grossmann, as well as National Institute on Aging Grant 5RO129509-02 and National Science Foundation Grant 2007 BCS 0717982 awarded to Shinobu Kitayama. The views presented here are not necessarily those of National Science Foundation. We thank Jaap Denissen, Toni Antonucci, Michaela Riediger, and Clemens Tesch-Römer for their feedback on versions of the article.

Correspondence concerning this article should be addressed to Igor Grossmann, Department of Psychology, University of Waterloo, 200 University Avenue West, Waterloo, Ontario, Canada N2L 3G1. E-mail: igrossma@uwaterloo.ca

Aging-Related Shifts in Emotional Experience

Past research has demonstrated that aging in Western cultures is associated with changes in cognitive processing and socioemotional experiences. Whereas fluid cognitive abilities such as working memory or executive functioning decline over adulthood (Park & Reuter-Lorenz, 2009), on measures related to emotions older Americans report greater well-being than their younger counterparts (e.g., Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Grossmann, Na, Varnum, Kitayama, & Nisbett, 2013; Mroczek & Kolarz, 1998). Theorists suggest that age-related differences in emotional well-being may reflect experience-based optimization of affect and cognition (e.g., Labouvie-Vief & Blanchard-Fields, 1982), in part due to motivational shifts in older age. The most specific motivational framework for age differences in emotional experiences has been proposed by Carstensen and colleagues within socioemotional selectivity theory (SST; Carstensen, Isaacowitz, & Charles, 1999; for other accounts, see Heckhausen & Schulz, 1995; Labouvie-Vief, 2003). SST postulates that younger people view the future as expansive and prioritize goals that prepare them for a long future, particularly goals of gaining knowledge and information. However, as people age, they may realize that their time is limited and, as a consequence, they may reorient

themselves toward goals of current emotional well-being over future-oriented goals (Charles & Carstensen, 2010; Fung & Carstensen, 2006). One means older adults adopt to maintain their present well-being is to become more selective with respect to their socioemotional experiences. The theory therefore predicts that as a function of age people become more motivated to preserve positive experiences while distancing themselves from negative experiences (Urry & Gross, 2010). Based on the idea that goals influence information processing (Moskowitz, 2002; Neisser, 1979), SST researchers have also examined aging-related differences in cognitive processing and found that older Americans favor positive over negative information on the levels of attention and memory, which SST researchers subsequently referred to as the *positivity effect* (see Carstensen & Mikels, 2005; Reed & Carstensen, 2012).

Emotional Experiences Across Cultures

People in most modern cultures are motivated to maintain their well-being (Diener, 2000; Inglehart & Baker, 2000; Suh, Diener, Oishi, & Triandis, 1998). This aspect of SST is likely to be universal, equally applicable to people across many cultures. However, cultures differ in dominant strategies to maintain their well-being. If negative experiences are perceived as a key barrier to well-being (as is the case in the United States; Uchida, Norasakkunkit, & Kitayama, 2004), the dominant strategy might involve distancing oneself from these negative experiences (D'Andrade, 1984; Grossmann, Ellsworth, & Hong, 2012; Grossmann & Kross, 2010; Heine, Lehman, Markus, & Kitayama, 1999; Lee, Aaker, & Gardner, 2000; Wierzbicka, 1986). In contrast, consider a situation in which one focuses on a negative experience, simultaneously adding a positive interpretation to it. Even though this dialectical strategy does not necessarily generate positive emotions, it helps to maintain one's well-being by reducing distress in unpleasant situations (Folkman & Moskowitz, 2000). Past work suggests that this strategy—also described as *positive reappraisal*—can be effective in bolstering well-being (Folkman & Moskowitz, 2000; Sears, Stanton, & Danoff-Burg, 2003; Tugade & Fredrickson, 2004).[1] Adaptive effects have also been observed for a conceptually related strategy of *cognitive reappraisal*, which involves changing the way one thinks about emotional experiences (John & Gross, 2004). Note that positive reappraisal is distinct from cognitive reappraisal, because the latter does not specify whether the change entails a positive interpretation of the experience or rather detachment from the emotional aspects of the same experience (Shiota & Levenson, 2009).

Comparison of prior research on distancing and positive reappraisal indicates that Americans generally report more distancing than positive reappraisal (Folkman, Lazarus, Pimley, & Novacek, 1987). Moreover, older Americans distance from negative experiences more than their younger counterparts (Blanchard-Fields, 2007; Blanchard-Fields, Chen, & Norris, 1997; Blanchard-Fields, Mienaltowski, & Seay, 2007), and a large representative study suggests that older Americans report using positive reappraisal less than younger adults (Nolen-Hoeksema & Aldao, 2011).[2] In contrast, in some non-Western cultural traditions well-being is defined as a dialectical interaction of positive and negative experiences (as is the case in some East Asian cultures, such as China or Japan; Mesquita & Markus, 2004; Spencer-Rodgers, Williams, & Peng, 2010; Williams & Aaker, 2002). For instance, Taoist beliefs prevalent in parts of East Asia suggest that an individual must adapt to flow with the rhythms of nature, like water, which adapts itself to fit its terrain. Rather than distancing oneself from negative experiences, in cultures characterized by dialecticism, people prefer working through the negative experiences with help of positive reappraisal, and they do so to a greater extent than individuals in the Western cultures (O'Connor & Shimizu, 2002; Tweed, White, & Lehman, 2004).

To the extent that people strive to maintain their well-being in line with dominant strategies afforded in a given culture, it is possible that the aging-related tendency of distancing oneself from negative experiences, which has been documented across multiple American studies, may not be a reliable phenomenon across cultures. Specifically, we predicted that older individuals in East Asian cultures may be less likely to shift their focus away from negative experiences as compared with their American counterparts.

Previous Cross-Cultural Research on Emotional Experiences Across the Life Span

Little published work has examined how culture influences aging-related differences in emotional experiences directly. Akiyama, Antonucci, Takahashi, and Stover (2003) examined reports of social experiences in the United States and Japan and found no age differences for positive interpersonal experiences. However, they found a substantial cultural difference in age effects for negative interpersonal experiences: Older (compared with younger) Americans reported less negative interpersonal experiences with their spouses, children, and best friends than their Japanese counterparts (Akiyama et al., 2003).

Several studies have focused on the positivity effect in visual attention and memory, which has been conceptually linked to SST (Reed & Carstensen, 2012). One of these studies failed to find positivity effects among Chinese older adults; in fact, unlike their American counterparts, older Chinese showed a negativity effect for attention-related focus on emotional stimuli (Fung et al., 2008). Yet, three other studies suggested that the positivity effect in cognitive processes might extend to non-Western cultures. For instance, older Chinese and older Koreans showed an age-related positivity effect in visual attention and memory that is comparable in magnitude to previous findings on American samples (Fung, Isaacowitz, Lu, & Li, 2010; Ko, Lee, Yoon, Kwon, & Mather,

[1] It is possible that positive reappraisal is particularly effective for older adults (Shiota & Levenson, 2009); yet, corresponding empirical evidence is ambiguous. In Shiota and Levenson's (2009) report older (vs. younger) Americans showed greater baseline reactivity to initial three emotion-inducing videos and no age difference after the instruction to use positive reappraisal when watching another two videos. Given this repeated-nature design, the null effect could also reflect different patterns of habituation.

[2] John and Gross (2004) reported that older women use cognitive reappraisal strategy more than their younger counterparts. Sampling and methodological differences might have contributed to this different pattern of results. First, positive reappraisal is distinct from cognitive reappraisal. Second, Nolen-Hoeksema and Aldao (2011) used a random sampling for subject recruitment, resulting in an economically and ethnically diverse sample of various ages, whereas John and Gross (2004) compared college students with a selective sample of highly educated and well-off women in their early 60s who previously had graduated from an elite college.

2011; Kwon, Scheibe, Samanez-Larkin, Tsai, & Carstensen, 2009). However, cognitive processing of emotions may not necessarily correspond to emotional experiences (Diener, 2000; Isaacowitz & Blanchard-Fields, 2012). Thus, past research suggests an incomplete picture with respect to cross-cultural universality of the aging-related shifts toward positive and away from negative experiences.

Overview of the Current Research

To examine how cultural context influences positive and negative emotional experiences across the life span, the present work compared younger, middle-aged, and older adults from two disparate cultural groups, Americans and Japanese. To increase generality of our findings beyond convenience samples (e.g., college students or older adults from nursing homes), we compared randomly sampled adults from communities that varied in predominant social class standing. The selected tasks captured both positive and negative experiences, which also ensured that the observed cultural and aging effects were not due to differences in emotional intensity per se (Tsai, Knutson, & Fung, 2006). Because Americans and Japanese were found to differ in their relative preference for independent versus interdependent social orientation (Grossmann & Na, 2014; Markus & Kitayama, 1991; Varnum, Grossmann, Kitayama, & Nisbett, 2010), we included a diverse set of tasks measuring both types of experience. Two of these tasks included intrapersonal emotional experiences, ranging from trait-level self-reflection on negative experiences to emotions during such self-focused tasks as "thinking about one's appearance." Two other tasks exclusively focused on interpersonal experiences, dealing with reports of pleasant versus annoying negative relations in one's life as well as the state-level focus on a negative interpersonal experience. The use of these tasks may maximize the chance of observing cultural or aging differences in emotional experiences, because aging-related differences may be masked when examining tasks mainly relevant to Americans versus Japanese. In addition, we included tasks dealing with trait-level reports of emotional experiences (e.g., general tendencies and retrospective reports of emotional experiences; Robinson & Clore, 2002), as well as online reports of emotional experiences, because past research has suggested differential effects of culture on retrospective versus online emotional experiences (Oishi, 2002).

Method

Samples

We recruited age-stratified random samples of community-dwelling adults: 403 Japanese in the Tokyo metropolitan area and 226 Americans in Michigan, with a comparable number of participants of both genders and of each of three age groups (25–40 years, 41–59 years, 60–79 years; see Table 1) and a comparable number of adults from lower educated and lower income strata. American participants were recruited by randomly selecting names from a telephone directory of Washtenaw County (population ~340,000), situated in a southern-eastern corner of the State of Michigan. Two major cities in the county, Ann Arbor and Ypsilanti, have quite divergent demographic characteristics. Whereas Ann Arbor is predominantly middle or upper middle class, Ypsilanti is in large part working class. This research was conducted in the period 2006–2009, a time at which a large majority of individuals in Washtenaw County had landlines.

In Japan, a survey company randomly selected names from a municipal registry of two wards in the metropolitan Tokyo area, of which Arakawa was predominantly working class and Suginami was predominantly middle class. These Japanese participants received a survey composed of demographic and emotional experience questionnaires. Participants responded to the survey at home and mailed it back. Participants who responded to the survey were further invited to participate in subsequent lab sessions, similar to the U.S. procedure. Participants were compensated with $70/7,000 yen per each of the three 2-hr individual experimental sessions. Of the recruited people eligible for participation (i.e., age and health criteria), 54% in the United States and 53% in Japan agreed to participate in the laboratory sessions.

Table 1
Characteristics of the Samples in Japan and the United States

Category	Japan survey	Japan lab	United States
Total *N*	435	187	226
Gender, % female	49.1	52.9	51.8
Mean (*SD*) age (year)	46.60 (13.87)	46.93 (13.99)	47.22 (14.63)
Age group, %			
25–40	41.9	40.1	40.2
41–59	35.5	34.2	32.1
60–75	22.6	25.7	27.7
Education, %			
High school or less	22.7	21.4	11.1
Some college	24.7	23.5	30.6
Completed college	47.9	50.8	31.9
Postsecondary education	4.7	4.3	26.4
Mean (*SD*) occupational status	56.86 (1.00)	56.86 (1.00)	56.89 (1.02)
Attrition by measure, %			
Relational experiences		7.5	24.8
Trait-level focus on negative experience		6.9	18.1
State-level focus on negative experience		14.4	27.4

Procedure

The current study is part of a large-scale project of cultural differences in cognition and emotion (Grossmann, Karasawa, et al., 2012; Grossmann et al., 2010). Relevant to the present study, we focused on tasks measuring past emotional experiences (Session $1_{\text{U.S.}}$/survey$_{\text{Japan}}$) and social experiences (i.e., people in one's life; Session $2_{\text{U.S. \& Japan}}$), as well as trait- and state-level measures of focus on past negative experiences (Session $2_{\text{U.S. \& Japan}}$). Multiple sessions reduced the cognitive demand for older participants in the study and lowered the likely carryover effects from one task to the next, yet it also resulted in some attrition between sessions (see Table 2). For each session, participants completed a large battery of social, cognitive, and personality measures, including measures examining various aspects of emotional processing. We describe these measures below.

Measures

All materials were back-translated from English into Japanese (Brislin, 1970). Participants completed the following tasks on their own, guided by written instructions.

Emotional experiences. Using an instrument developed by Kitayama, Mesquita, and Karasawa (2006), we gave participants 10 probes specifying various social situations and asked them to recall one situation for each type. Some of these episodes involved social relations (e.g., having a positive interaction with friends), some were related to study and work (e.g., being overloaded with work), and some concerned daily hassles and bodily conditions of the self (e.g., being caught in a traffic jam). Participants were instructed to recall the latest occasion when each of the 10 situations happened to them. They were asked to report the extent to which they experienced a series of emotion-related terms in each situation. The list of emotion-related terms contained six positive (*pride*, *elated*, *happy*, *feeling of closeness*, *calm*, *friendly feeling*; Cronbach's $\text{alpha}_{\text{U.S.}} = .91$, Cronbach's $\text{alpha}_{\text{Japan}} = .92$) and five negative emotions (*ashamed*, *frustrated*, *guilty*, *angry*, *unhappy*; Cronbach's $\text{alpha}_{\text{U.S.}} = .83$, Cronbach's $\text{alpha}_{\text{Japan}} = .81$). Six-point scales that ranged from 1 (*not at all*) to 6 (*very strongly*) were used in rating emotional experience. Whereas Japanese participants completed this questionnaire as part of the initial survey, American participants completed the same questionnaire in the initial lab session. This resulted in a cross-sample difference in the total number of participants who completed the measure (see Table 1).

Because the episodes included in this instrument were emotionally ambivalent, we determined the general affective tone of the episodes as positive versus negative on the basis of the participant's report of emotional experience in a given episode. For example, Situation A could be positive for one participant if he reported feeling happy more than feeling unhappy in this situation, but the same situation could be negative for another subject if she reported feeling unhappy more in this situation. Knowing the general affective tone of the experience, we classified positive and negative emotions that matched the general affective tone of the experience as *congruent* emotions. To examine the congruent positive and negative experiences, we focused on average intensity of positive emotions in happy episodes and average intensity of negative emotions in unhappy episodes, respectively. For supplementary analyses, we also classified positive and negative emo-

Table 2
Descriptives and Regressions With Measures of Positive, Negative, and Ambiguous Experiences as a Function of Culture, Age, and Culture × Age Interaction: Unstandardized Coefficients, Standard Errors and t Scores

Type	Measure	Descriptives		Model Fit		Culture		Age		Culture × Age	
		$M\ (SD)_{\text{Japan}}$	$M\ (SD)_{\text{U.S.}}$	$F\ (df_1, df_2)$	R^2	*B* (*SE*)	|*t*|	*B* (*SE*)	|*t*|	*B* (*SE*)	|*t*|
Pos	1. Intensity of positive emotions in pleasant episodes	3.46 (0.66)	3.79 (0.83)	8.96 (3, 517)***	.049	.330 (.066)	5.05***	.002 (.002)	1.04	.002 (.005)	0.50
	2. Positive relationships/$N_{\text{social network}}$	0.23 (0.24)	0.23 (0.21)	0.62 (3, 276)	.007	.0007 (.019)	0.039	.0001 (.0007)	0.22	−.002 (.001)	1.34
Neg	1. Intensity of negative emotions in unpleasant episodes	2.77 (0.75)	2.98 (0.75)	6.31 (3, 520)***	.035	.217 (.067)	3.25***	−.0007 (.002)	0.29	−.014 (.005)	2.87**
	2. Negative relationships/$N_{\text{social network}}$	0.07 (0.10)	0.09 (0.11)	3.06 (3, 280)*	.032	.016 (.010)	1.60	−.0006 (.0004)	1.60	−.002 (.0007)	2.02*
	3. Trait-level focus on negative experiences	2.46 (0.54)	2.11 (0.59)	18.19 (3, 294)***	.157	−.351(.064)	5.47***	−.008 (.002)	3.52***	−.017 (.005)	3.65***
	4. State-level focus on a negative interpersonal experience	4.36 (1.64)	4.14 (1.61)	1.79 (3, 269)	.020	−.226 (.197)	1.15	−.0008 (.007)	0.92	−.029 (.015)	2.01*
Incongruent	1. Intensity of positive emotions in unpleasant episodes	1.62 (0.51)	1.62 (0.54)	4.98 (3, 520)**	.028	−.0002 (.046)	0.005	.005 (.002)	3.33***	−.007 (.003)	2.07*
	2. Intensity of negative emotions in pleasant episodes	1.45 (0.38)	1.27 (0.37)	12.78 (3, 517)***	.069	−.186 (.033)	5.57***	−.002 (.001)	1.89†	−.005 (.002)	1.86†

Note. To normalize skewed distributions, relationship scores+1 were log-transformed prior to regression analyses. Incongruent experiences are defined through the incongruence between type of emotions (positive vs. negative) and subjective rating of the episode as pleasant vs. unpleasant.
† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

tions in situations that did not match the general affective tone of the experience as *incongruent* emotions. To examine the incongruent emotions, we examined incongruent ratings' (a) average intensity of positive emotions in unpleasant episodes and (b) average intensity of negative emotions in pleasant episodes.

Trait-level focus on past negative experiences. Participants completed the five-item Brooding subscale of the Ruminative Response Scale (Treynor, Gonzalez, & Nolen-Hoeksema, 2003), which measures participants' tendency to repeatedly focus on past negative experiences. For instance, one of the questions asked them to indicate how often they think "What am I doing to deserve this?" on a rating scale ranging from 1 (*almost never*) to 4 (*almost always*). Various Western studies have shown brooding to be implicated in the onset and prolonging of depression (Treynor et al., 2003) and suicidality (Crane, Barnhofer, & Williams, 2007). In the present study, this scale has shown acceptable reliability, which was comparable to previous research (Cronbach's $\text{alpha}_{\text{U.S.}} = .69$; Cronbach's $\text{alpha}_{\text{Japan}} = .66$).

Relational experiences. We asked participants to consider their social network that includes people "who are important in your life right now" (Kahn & Antonucci, 1980). Participants were then asked to report the initials of such people, ranging from "people to whom you feel so close that it is difficult to imagine life without them" to "people who are close enough and important enough in your life that they should be placed in your personal network." We counted the number of people participants recalled. Next, we asked participants to remember those network members who "have given you advice and social support during the last month." We counted the number of such individuals as an index of positive relational experiences. Further, we asked them to recall those members who "have caused annoyances and troubles during the last month," which we counted as an index of negative relational experiences. Because social networks are smaller in older age (Cornwell, Laumann, & Schumm, 2008), we controlled for size of the social network by dividing the positive and negative scores by the total number of people in one's social network. To normalize the positively skewed distribution, we square-root-transformed the resulting network size scores and we log-transformed scores of positive and negative relations.

State-level focus on a negative interpersonal experience. We examined self-reported intensity of a relived interpersonal conflict. To this end, we used an emotion-reflection paradigm (Study 2 in Grossmann & Kross, 2010). Participants were asked to recall and analyze their "deepest thoughts and feelings" surrounding a recent negative interpersonal experience with a romantic partner or close friend, a time when they became truly enraged at this person. They were further instructed to pick an experience that was relatively recent and unresolved and still highly upsetting. After they picked the experience, participants were instructed to focus on the causes and reasons underlying the thoughts and feelings they experienced. To facilitate this process, participants wrote down their stream of thoughts that flowed through their mind as they thought about their past experience. After a few filler questions, participants indicated the extent to which (a) they relived the emotions they originally felt during the conflict when they were asked to think about it and (b) their emotions and physical reactions to the conflict were still intense as they thought about the event on a scale ranging from 1 (*strongly disagree*) to 7 = (*strongly agree*). These ratings were correlated ($r_{\text{U.S.}} = .69$; $r_{\text{Japan}} = .64$) and averaged into a reactivity index.

Sociodemographics and control variables. Participants provided information relevant to their cognitive abilities. At the end of the study, they also provided demographic information including their age, gender, education, and the occupation for both themselves and their spouses.

Cognitive abilities. To ensure the comparability of samples in the United States and Japan, we measured several facets of cognitive abilities. First, we measured crystallized or knowledge-based intelligence using the normed Comprehension and vocabulary subtests of the Wechsler Adult Intelligence Scale (WAIS) and its Japanese equivalent. Second, we measured fluid or working memory and speed-related intelligence using the Digit Span subtest of WAIS and two tasks designed to test speed on processing in East Asian and Western cultures (pattern matching and dot matching; Hedden et al., 2002). These tests were correlated (fluid cognitive abilities: $.19 < r_{\text{U.S.}} \leq .67$, $.23 < r_{\text{Japan}} \leq .65$; crystallized cognitive abilities: $r_{\text{U.S.}} = .33$, $r_{\text{Japan}} = .37$). Further, structural equation analysis using AMOS (Arbuckle, 2006) with pattern matching ($\beta = .789$), dot matching ($\beta = .830$), digit $\text{span}_{\text{forward}}$ ($\beta = .384$), and digit $\text{span}_{\text{backward}}$ ($\beta = .314$) as indicators of a latent construct of fluid abilities (G_f; $R^2 = .477$) and WAIS Vocabulary ($\beta = .915$) and WAIS Comprehension ($\beta = .543$) as indicators of a latent construct of crystallized abilities (G_c; $R^2 = .462$) indicated an acceptable model fit, $\chi^2(30) = 67.982$, normed fit index = .935, nonnormed fit index = .915, comparative fit index = .961, root mean square error of approximation = .056. Subsequent analyses controlled for cognitive abilities by using the fluid (G_f) and crystallized (G_c) factor scores from this structural equation analysis.

Social class. Prior work on emotional experiences across adulthood mainly has focused on middle-class samples of convenience. To increase generalizability of the inferences from the present project, we controlled for social class. We coded occupations using the International Socioeconomic Index of Occupational Status (on a scale from 16 to 90; Ganzeboom & Treiman, 1996), and used the larger score in the family as an indicator of occupational status. We conceptualized this measure of occupational status as well as the measure of education (1 = no college, 2 = some college/vocational training, 3 = completed college, 4 = postgraduate degree) as proxies for social class (Grossman et al., 2010; Grossmann & Huynh, 2013; Grossmann & Varnum, 2011; Stephens, Markus, & Townsend, 2007; see Table 1 for sample distributions on these variables). These two measures were significantly correlated ($r_{\text{U.S.}} = .46$, $p < .001$; $r_{\text{Japan}} = .20$, $p = .009$).

Results

Descriptive Statistics

We performed subsequent analyses on all available data.[3] As indicated in Table 1, the Japanese and American samples were comparable in terms of age distribution and sex ratio. Occupational

[3] Preliminary analyses indicated similar patterns of results among Japanese participants who completed only the initial survey as compared with those who completed lab sessions. In addition, supplementary analyses with Monte-Carlo simulated multiple imputations (Rubin, 1996; Schafer & Graham, 2002) on all participants versus lab sessions yielded very similar results.

status was also comparable across countries, $F(1, 317) = 1.10$, *ns*. Both samples included a comparable proportion of adults without a college degree (41.5% in the United States and 48.3% in Japan). Consistent with previous research (e.g., Park & Reuter-Lorenz, 2009; Schaie, 1994), age was significantly related to lower performance on fluid cognitive ability tasks, $r(200)_{\text{U.S.}} = -.48$, $p = .001$, $r(131)_{\text{Japan}} = -.77$, $p < .001$, but there was no age effect for the crystallized cognitive ability tasks, $r(200)_{\text{U.S.}} = .03$, *ns*, $r(131)_{\text{Japan}} = .08$, *ns*. The magnitude of the association between older age and poorer performance on fluid ability tasks was somewhat greater in Japan compared with the United States: Culture × Age interaction, $B = .063$, $SE = .023$, $t(331) = 2.71$, $p = .007$. There was no significant Culture × Age interaction for crystallized abilities, $B = -.001$, $SE = .002$, $t(331) = 0.33$, *ns*. Consistent with prior work on social class and cognitive abilities (Carroll & Maxwell, 1979; Nisbett et al., 2012), social class was positively related to cognitive abilities: education, $r_{\text{fluid}}(326) = .29$, $p < .001$; $r_{\text{crystallized}}(326) = .53$, $p < .001$; occupational prestige, $r_{\text{fluid}}(316) = .27$, $p < .001$; $r_{\text{crystallized}}(316) = .33$, $p < .001$. These analyses suggest that the samples in the present study were comparable to the other large-scale studies on cognitive abilities and aging.

Culture-wise descriptive statistics for each measure of emotional experience are shown in Table 2. To understand what aspects of emotional experience are particularly sensitive to cultural and aging effects, we performed separate analyses for positive experiences, negative experiences, and dialectical experiences. Gender, social class, and cognitive abilities did not systematically interact with predictors and are not discussed further.[4] Including the quadratic effect of age (Age^2) or the Age^2 × Culture interaction in subsequent models did not yield a significant improvement of model fit, and neither Age^2 nor the Age^2 × Culture interaction showed significant effects on the dependent variables.

Analyses of Positivity Scores

We explored cultural and age effects on the measures representing positive experiences: (a) experience of positive emotions in subjectively pleasant episodes and (b) positive relational experiences (i.e., number of people in one's social network viewed in positive terms). We performed regressions to examine how culture, age, and Culture × Age interaction influence recall of pleasant experiences. All predictors were mean-centered. Results of statistical analyses are summarized in Rows 3 and 4 of Table 2, indicating that Americans reported significantly greater intensity of positive emotions in subjectively pleasant episodes than Japanese. We did not observe significant main effects for the positive relational experiences. Further, there were no significant Culture × Age interactions.

Analyses of Negativity Scores

Next, we explored cultural and age effects on the variables representing negative experiences: (a) intensity of negative emotions in subjectively unpleasant episodes, (b) negative relational experiences, (c) trait-level focus on negative experiences, and (d) state-level focus on a negative interpersonal experience. Examining these negativity measures, we found that Americans reported significantly greater intensity of negative emotions in unpleasant episodes than Japanese (see Table 2). The overall finding that Americans report greater intensity of both past pleasant and unpleasant episodes than Japanese is consistent with earlier cross-cultural work suggesting greater value of high-arousal emotions among Americans compared with East Asians (Tsai et al., 2006).

In addition, we observed significant Culture × Age interactions, for which we subsequently tested simple slopes. Figure 1 and Table 2 indicate that older Americans reported lower intensity of negative emotions in subjectively unpleasant episodes than younger Americans, $B = -.009$, $SE = .004$, $t(520) = 2.47$, $p = .014$, whereas there was a nonsignificant reversal trend in Japanese, $B = .005$, $SE = .003$, $t(520) = 1.52$, *ns*. Similarly, Figure 2 indicates that older Americans recalled a significantly smaller proportion of negative relationships than younger Americans, $B = -.001$, $SE = .0005$, $t(280) = 2.52$, $p = .012$, whereas there was no significant effect of age in Japanese, $B = .0002$, $SE = .0005$, $t(280) = 0.41$, *ns*.

We next examined cultural and age differences for trait-level focus on past negative experiences. Japanese reported significantly higher trait-level focus on past negative experiences than Americans (see Table 2), which is consistent with emerging cross-cultural work on emotion regulation in independent versus interdependent cultures (Bonanno, Papa, Lalande, Zhang, & Noll, 2005; Grossmann & Kross, 2010). In addition, we observed a significant Culture × Age interaction. As Figure 3 shows, older Americans reported less focus on past negative experiences than younger Americans, $B = -.015$, $SE = .003$, $t(294) = 4.97$, $p < .001$, which replicates previous findings by Nolen-Hoeksema and Aldao (2011), whereas there was no significant effect of age in Japanese, $B = .001$, $SE = .003$, $t(294) = 0.40$, *ns*.

We also observed a significant Culture × Age interaction for self-reported intensity of unpleasant interpersonal experience, which participants were instructed to visualize and reflect on. As Figure 4 shows, this pattern was driven both by Americans reporting somewhat lower intensity of negative emotions in older age, $B = -.014$, $SE = .010$, $t(269) = 1.42$, *ns*, and by Japanese showing somewhat greater intensity of negative emotions in older age, $B = .016$, $SE = .011$, $t(269) = 1.42$, *ns*. Moreover, a cultural difference in intensity was significant for older adults: at $M_{\text{age}} + 1$ *SD*, $B = -.623$, $SE = .279$, $t(269) = 2.23$, $p = .026$, with older Japanese reporting greater intensity of a relived negative interpersonal experience than older Americans. However, there was no significant cultural difference between middle-aged—at M_{age}, $B = -.226$, $SE = .197$, $t(269) = 1.15$, *ns*—or younger adults—at $M_{\text{age}} - 1$ *SD*, $B = .172$, $SE = .280$, $t(269) = 0.61$, *ns*—from the two cultures.

[4] Consistent with earlier work on social class and dialecticism (Grossmann & Varnum, 2011), in both cultures higher social class was linked with lower intensity of dialectical emotions in unpleasant episodes: education, $r_{\text{U.S.}}(193) = -.18$, $p = .014$, $r_{\text{Japan}}(319) = -.12$, $p = .04$; occupational prestige, $r_{\text{U.S.}}(195) = -.24$, $p = .001$, $r_{\text{Japan}}(122) = .008$, *ns*. Americans ($M = 5.19$, $SD = 1.34$) also reported larger social networks than Japanese ($M = 4.14$, $SD = 1.43$), $F(1, 291) = 41.71$, $p < .001$. Older adults reported somewhat smaller social networks than their younger counterparts, $r_{\text{U.S.}}(161) = -.10$, *ns*; $r_{\text{Japan}}(128) = -.20$, $p = .02$. U.S. women recalled a greater number of relationships than men: U.S., $M_{\text{women}} = 5.43$, $SD_{\text{women}} = 1.35$ vs. $M_{\text{men}} = 4.92$, $SD_{\text{men}} = 1.29$, $F(1, 161) = 6.20$, $p = .014$; Japan, $M_{\text{women}} = 4.25$, $SD_{\text{women}} = 1.19$ vs. $M_{\text{men}} = 4.01$, $SD_{\text{men}} = 1.65$, $F(1, 128) = 0.93$, *ns*.

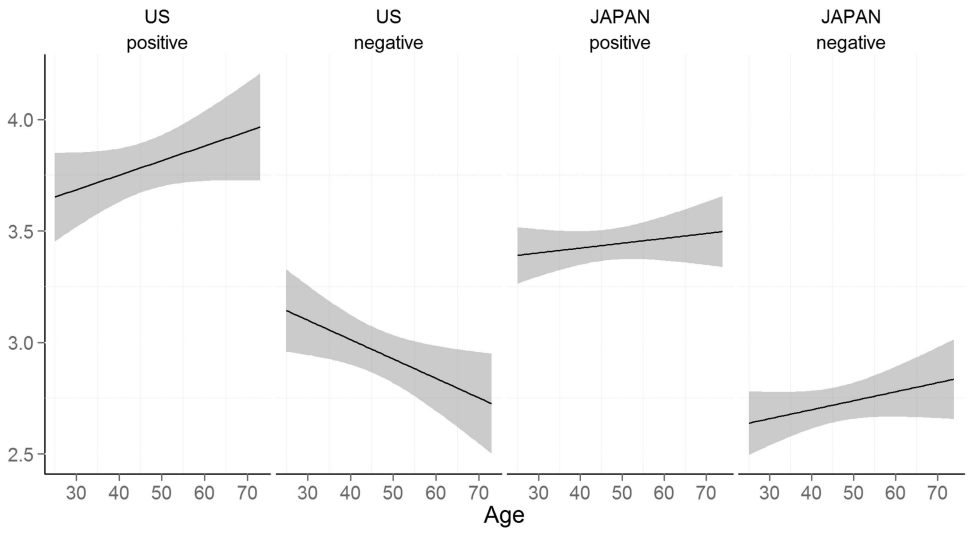

Figure 1. Intensity of positive versus negative emotions in two cultures (United States vs. Japan) when recalling subjectively congruent experiences. Black line = robust linear regression; gray area = 95% confidence interval.

Factor Structure and Analysis on the Negativity Components

In light of the systematic Culture × Age interactions on the negativity-related measures, we sought to explore the comparability of the latent factor structure of these measures. Separate principal component analyses (PCAs) on the negativity measures suggested a two-component solution in both countries.[5] Both components had an eigenvalue greater than 1.00, and together explained about two thirds of the variance in the data (U.S.: 62.65%; Japan: 65.98%). Table 3 indicates the loadings (in bold font) and zero-order correlations in each country. Loading structure matrices with direct oblimin rotation showed that in both countries the intensity of a diverse set of negative experiences (U.S.: .81; Japan: .82) and trait-level focus on negative experiences (U.S.: .79; Japan: .73) loaded on the first component, suggesting that in both cultures this component reflects general experiences. In contrast, recalled negative relationships (U.S.: .82; Japan: .88) and intensity of relived interpersonal negative experience (U.S.: .71; Japan: .66) mainly loaded on the second component, suggesting that in both cultures this component reflects interpersonal experiences. As Table 3 shows, cross-loadings on the opposite components were fairly low in both cultures.

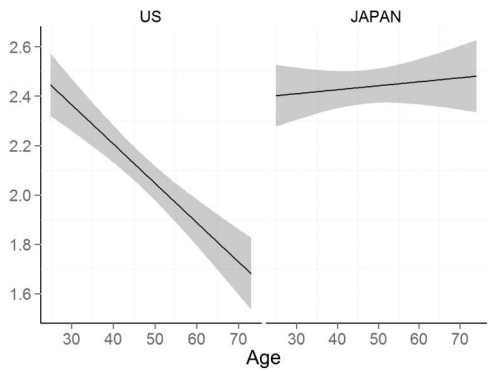

Figure 2. Trait-level focus on negative experiences (brooding) by age and culture. Black line = robust linear regression; gray area = 95% confidence interval.

To test the relationship between the two components across cultures, we performed a comparable PCA on the total sample across both cultures, which yielded a similar set of loadings, and examined the obtained factor scores from this PCA. The results on a general model with culture (United States vs. Japan) as a between-subjects factor and type of principal component factor score (general vs. interpersonal) as a within-subject factor indicated a significant Culture × Type of Score interaction, $F(1, 255) = 28.09$, $p < .001$. Subsequent analysis of zero-order correlations indicated that the two components were significantly correlated in Japan, $r(119) = .19$, $p = .04$, but only marginally correlated in the United States, $r(135) = .14$, $p = .10$, which is consistent with earlier cross-cultural work on greater centrality of socially engaging experiences in Japan versus the United States (Kitayama et al., 2006; Markus & Kitayama, 1991; Mesquita & Karasawa, 2002). Examining the zero-order correlations in Table 3 suggests that in Japan (but not in the United States) one of the interpersonal experience tasks, concerning intensity of a relieved interpersonal negative experience, was significantly correlated with the two tasks reflecting general emotional experiences.

Subsequently, we examined the aging-related effects on each of the components in the United States and in Japan. For each of the components, we observed a significant Culture × Age interaction—first PCA component, $B = -.031$, $SE = .009$, $t(253) = 3.53$, $p < .001$; second PCA component, $B = -.022$, $SE = .009$,

[5] Intensity of positive emotions when recalling subjectively unpleasant experiences was significantly related to proportion of recalled positive relationships in Japan, $r(127) = .36$, $p < .001$, but not in the United States, $r(105) = -.13$, *ns*.

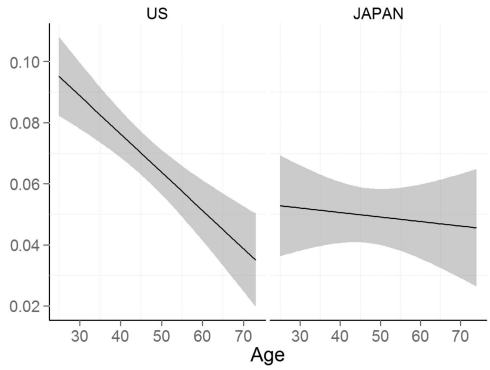

Figure 3. Log($N_{\text{negative relationships}}/N_{\text{social network}}$ + 1) by age and culture. Black line = robust linear regression; gray area = 95% confidence interval.

$t(253) = 2.40$, $p = .017$—suggesting a similar pattern of results for the general and interpersonal experiences. Figure 5 shows simple slope visualization and statistics for both PCA components. On both components, older Americans demonstrated less negativity than their younger counterparts. However, there was no significant age effect in Japanese.

Probing Aging-Related Effects in Japan: Supporting Analyses of Dialectical Experiences

Analyses so far suggest that there are substantial aging-related differences on tasks related to focus on negative experiences in the United States, but no such differences in Japan. Does it means that Japanese do not show any aging-related differences with respect to their emotional experiences? We believe that is not necessarily the case. Rather, it is possible that the aging-related effects in Japan may manifest themselves in a different form: Older Japanese may orient themselves toward emotional goals via a dialectical reinterpretation (vs. avoidance) of negative experience.

Our data allowed us to perform an initial step toward addressing this alternative account of aging-related differences in Japan. To this end, we focused on the first task, which allowed us to examine intensity of incongruent experiences—positive experiences that were subjectively viewed by participants in a negative light and negative experiences that were subjectively viewed by participants in a positive light.

We performed general linear model analyses with contrast-coded culture (Japan vs. United States), age and Culture × Age interaction as between-subjects factors and standardized scores of incongruent emotional experience (positive vs. negative) as a within-subject valence factor. Japanese reported greater intensity of incongruent emotions than Americans, $F(1, 517) = 9.60$, $p = .002$. This cultural difference in intensity of dialectical emotions was qualified by a significant Culture × Valence interaction, $F(1, 517) = 32.28$, $p < .001$. As Table 2 and Figure 6 show, the main effect of culture was mainly observed for pleasant rather than unpleasant situations, which is consistent with prior cross-cultural research (Miyamoto, Uchida, & Ellsworth, 2010). Moreover, as Figure 6 shows, this cultural difference was more pronounced for older as compared with younger adults: Culture × Age interaction, $F(1, 517) = 4.55$, $p = .033$.

Further analyses of incongruent emotional experiences represent the bottom two rows in Table 2. Older adults were more likely to report higher intensity of positive emotions in a subjectively unpleasant episode (see Table 2). Importantly, this age effect was qualified by a significant Culture × Age interaction. As Figure 6 shows, older Japanese recalled significantly greater intensity of positive emotions in unpleasant episodes than younger Japanese, $B = .008$, $SE = .002$, $t(520) = 3.84$, $p < .001$, whereas there was no age difference in the Americans, $B = .001$, $SE = .003$, $t(520) = 0.47$, *ns*.

Next, we examined the intensity of negative emotions in subjectively pleasant episodes. Japanese reported experiencing greater intensity of negative emotions in pleasant episodes than Americans (see Table 2). Moreover, Table 2 and Figure 6 show a marginal Culture × Age interaction. Whereas older Americans reported lower intensity of negative emotions in pleasant episodes than younger Americans, $B = -.005$, $SE = .002$, $t(517) = 2.68$, $p = .008$, there was no significant age difference among the Japanese, $B = -.0005$, $SE = .002$, $t(517) = 0.33$, *ns*.[6]

Summary

Using a broad range of measures associated with positive and negative experiences, we observed that older Americans report lower intensity across a diverse set of past unpleasant experiences than younger Americans and that older Americans tend to focus on negative experiences less than younger Americans. In addition, we observed comparable effects when specifically examining interpersonal experiences: Older Americans recalled fewer negative social relationships than younger Americans and when asked to recall a recent negative interpersonal experience, older Americans reported lower emotional intensity than their younger counterparts. At the same time, younger Americans showed the same level of positive experiences as the older Americans, suggesting an age-related maintenance of positive experiences. These findings are consistent with prior North American research (Scheibe & Carstensen, 2010). In addition, we provide evidence that the relative focus on the positive versus negative emotional experiences is embedded in a meaningful nomological network (Cronbach & Meehl, 1955), as suggested by the extension of the focus on the positive versus negative experiences to trait- and state-level personality variables (Mischel & Shoda, 1995): trait-level tendency to ruminate on past negative experiences and state-level intensity of a relived negative interpersonal experience. Together, U.S. data suggest that older Americans seek to maintain the present emotional well-being by avoiding negative experiences.

In contrast to the U.S. data, aging-related differences on the same socioemotional tasks were absent in Japan. In addition, supplementary analyses of incongruent emotional experiences revealed that both younger and older Japanese reported greater

[6] Curve estimation analyses indicated an additional quadratic effect of age for intensity of positive emotions in unpleasant episodes in Japan, $F(2,319) = 10.92$, $p < .001$, suggesting an exponential relationship between aging and the intensity of positive emotions in unpleasant episodes. There was no effect on this measure in the United States, $F(2,199) = 0.17$, ns. In contrast, there was no quadratic effect of age for intensity of negative emotions in pleasant episodes in Japan, $F(2,316) = 1.08$, *ns*., whereas there was a significant exponential relationship between aging and (lower) intensity of negative emotions in pleasant episodes in the United States, $F(2,199) = 3.77$, $p = .03$.

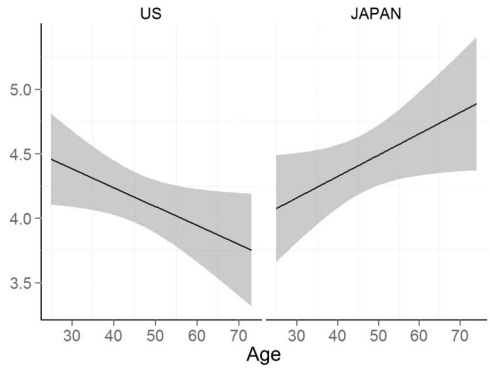

Figure 4. State-level intensity of relived negative interpersonal experience by age and culture. Black line = robust linear regression; gray area = 95% confidence interval.

intensity of dialectical emotions than Americans, whereas older Japanese reported greater intensity of positive emotions when reflecting on unpleasant episodes than their younger counterparts.

Discussion

We started this article by pointing out that the motivational account of emotional experiences across the life span (i.e., SST) suggests that in older age individuals become more interested in maintaining their emotional well-being over future investments by maximizing their positive experiences and minimizing their negative experiences. Building on insights from cultural psychological work, we proposed that culture modulates the type of strategies attributed to older adults to achieve these goals. For older Americans, who view negative experiences as an obstacle to well-being (D'Andrade, 1984; Grossmann, Ellsworth, et al., 2012; Grossmann & Kross, 2010; Heine et al., 1999; Lee et al., 2000; Wierzbicka, 1986), a primary strategy to minimize their negative experiences may involve distancing themselves from these experiences. In contrast, this strategy may not be common among the older Japanese, whose culture promotes the view of working through negative experiences as an essential part of well-being (Uchida & Kitayama, 2009; Uchida et al., 2004). Our data support this hypothesis, demonstrating that older Americans show less focus on negative experiences than their younger counterparts, yet corresponding aging-related effects are absent among the Japanese.

Previous cross-cultural research suggests that Japanese view interpersonally engaging emotions (vs. interpersonally disengaging emotions) as more central for their general well-being than Americans do (Kitayama et al., 2006; Mesquita & Karasawa, 2002). Our data provide convergent evidence to this point by showing greater positive relationships between tasks reflecting interpersonal and general emotional experiences among the Japanese than among the Americans. However, the effect of culture on the aging-related differences in emotional experiences is independent of this observation. Older Americans show a reduced focus on negative experiences if the tasks concern general and mainly interpersonal experiences. Further, older and younger Japanese report comparable levels of negative emotional experiences on both types of tasks.

Other research suggests stronger cultural differences in reports of past emotional experiences as compared with state-level reports of emotional experiences (Oishi, 2002), in part because explicit cultural scripts are more likely to influence abstract judgments and retrospective evaluation of one's experiences as compared with state-level reports (Robinson & Clore, 2002). Our findings dovetail with this work, showing a larger effect of the Culture × Age interaction for general and trait-level rather than state-level reports of negative experiences (see Table 2). In line with prior theory of self-reports of emotional experiences (Robinson & Clore, 2002), it is likely that the majority of the cultural differences we observed mainly reflect subjective reconstruction of emotional experiences rather than Culture × Aging Differences in online emotional intensity. This observation notwithstanding, it is important to point out that we found a significant Culture × Age effect on the state level of relived emotional experience, suggesting that the impact of culture on the aging-related differences in emotional experiences

Table 3
Zero-Order Correlations Between Negativity Measures and Principal Component Analysis Loadings

Task	1	2	3	4
United States				
1. Intensity of negative emotions in unpleasant episodes	—	.31***	.04	.15†
2. Trait-level focus on negative experiences		—	.09	.13
3. Log($N_{\text{negative relationships}}/N_{\text{social network}} + 1$)		—	—	.18*
4. State-level focus on a negative interpersonal experience				—
PCA loadings (1st component)	**.81**	**.82**	.16	.27
PCA loadings (2nd component)	.10	−.001	**.79**	**.71**
Japan				
1. Intensity of negative emotions in unpleasant episodes	—	.32***	−.06	.26**
2. Trait-level focus on negative experiences		—	.04	.17†
3. Log($N_{\text{negative relationships}}/N_{\text{social network}} + 1$)			—	.23**
4. State-level focus on a negative interpersonal experience				—
PCA loadings (1st component)	**.82**	**.88**	.11	.49
PCA loadings (2nd component)	.01	−.10	**.73**	**.66**

Note. Loadings on each component are in bold font, as compared to cross-loadings on the other component.
† $p < .1$. * $p < .05$. ** $p < .01$. *** $p < .001$.

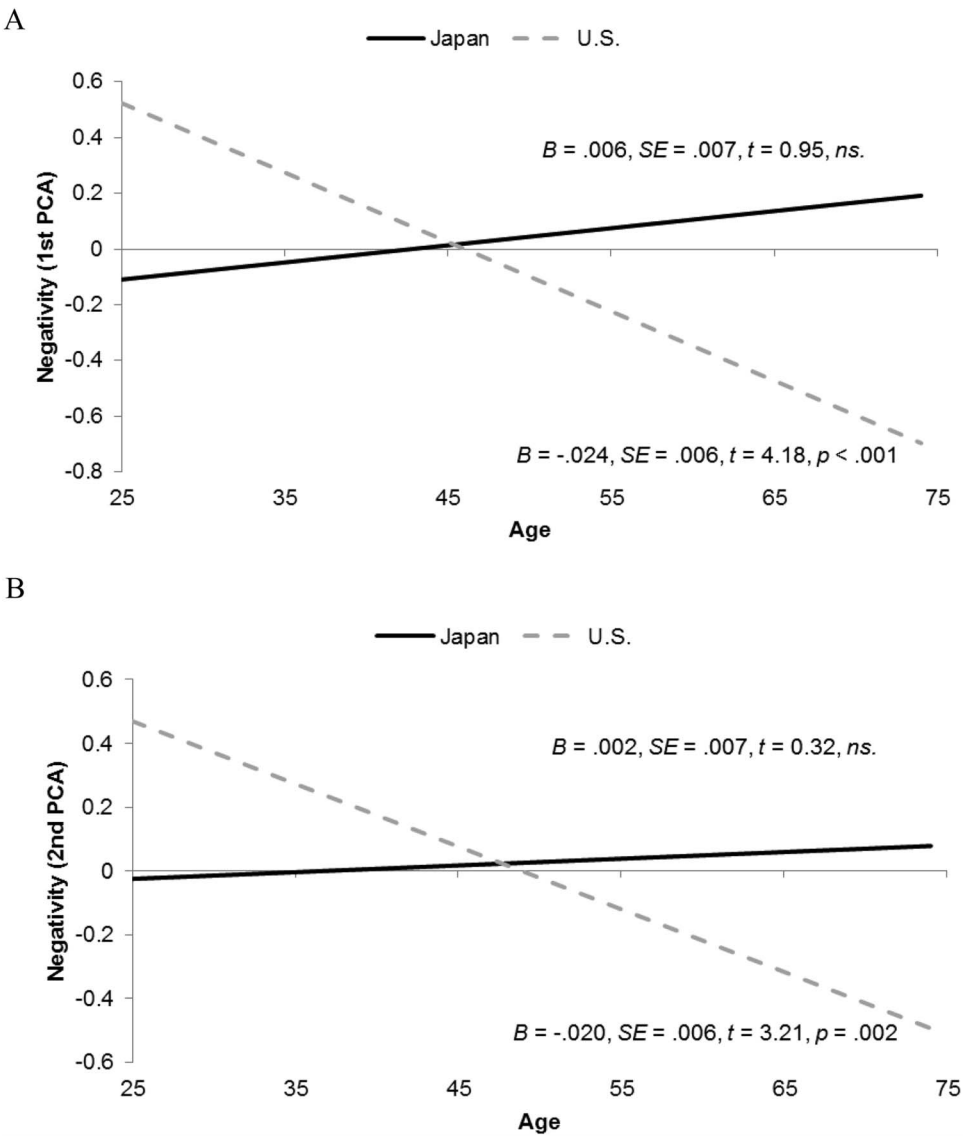

Figure 5. Conditional effects of age on the principal components analysis (PCA) components of negativity by culture. (A) First PCA component. (B) Second PCA component. Estimates from a linear regression analyses.

extend beyond trait-level and retrospective reports. Future work should explore whether these differences also manifest themselves when examining online physiological changes in face of emotional experiences.

Even though we did not observe differences between younger and older Japanese on tasks associated with the focus on negative experiences, our supplementary analyses suggest that in subjectively unpleasant situations older Japanese show a greater focus on positive experiences than their younger counterparts (see Figure 6). What is the nature of the relationship between aging and emotional experiences in Japan? Our preliminary observation suggests that in a culture that views negative experiences as part of one's well-being (e.g., Japan), aging-related shifts toward present emotional well-being may take a form of a positive reinterpretation of negative experiences. Such interpretation would be consistent with previous research, which indicates that Japanese view dialectical experiences more favorably than their American counterparts (Bagozzi, Wong, & Yi, 1999; Miyamoto et al., 2010; Spencer-Rodgers et al., 2010; Williams & Aaker, 2002). Future work is needed to directly test the boundary conditions of this preliminary cross-cultural observation, simultaneously measuring both emotion regulatory strategies: relative focus on negative experiences, which we observed among older versus younger Americans, and the reevaluation of negative experiences in positive light among older versus younger Japanese.

Our finding of aging-related differences in dialectical emotional experiences among the Japanese also suggests that the general picture of Culture × Aging Differences in emotional experiences is not likely to be due to Japanese generally valuing lower emotional intensity than Americans. Even though Americans in general

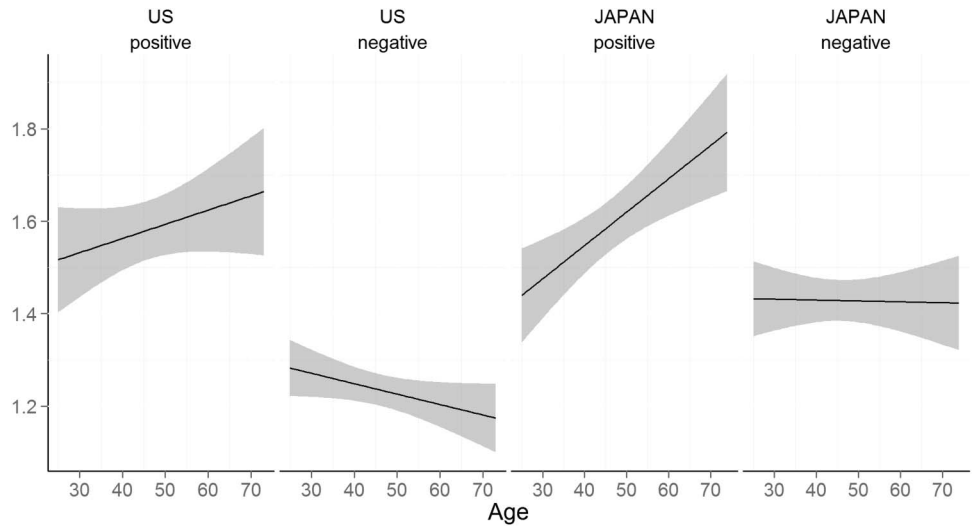

Figure 6. Intensity of positive versus negative emotions in two cultures (United States vs. Japan) when recalling incongruent experiences. Black line = robust linear regression; gray area = 95% confidence interval.

reported greater intensity of both positive and negative experiences than the Japanese (see Figure 1), and Japanese on average reported greater intensity of dialectical experiences than Americans (see Figure 6), these observations are independent of the aging-related effects in the United States and in Japan.[7] In addition, we observed Culture × Age interactions for tasks involving both high-arousal emotional experiences (i.e., reliving of a recent situation in which you were "enraged") and low-arousal emotional experiences (i.e., recall of interpersonal experiences involving feeling "annoyed").

Several caveats are in order before concluding. First, older (compared with younger) Americans showed less focus on negative experiences, suggesting aging-related effects of minimizing negative experiences. However, emotional goals could also take a form of maximizing positive experiences. We did not observe aging-related effects on tasks reflecting positive experiences. These results are consistent with the other cross-cultural study of aging-related effects on social experiences by Akiyama and colleagues (2003), which indicated age differences in reports of negative but not positive interactions. In addition, analysis of the data reported by Akiyama and colleagues suggests an interaction between age and culture: Comparison of the effect sizes between age and the negative interactions with spouses, children, and best friends in their study (see Table 2 in Akiyama et al., 2003) indicates a larger effect of age in the United States ($r = .24$) than in Japan ($r = .16$). Although speculative, it possible that the stronger motivation to avoid negative experiences compared with the motivation to seek pleasant experiences (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001) might play a role in this process. If "bad" is stronger than "good," emotional goals in older age may first take a shape of minimizing the "bad"—a speculation that is consistent with the overall motivational SST account. Future work is needed to replicate this valence-specific effect, sampling a larger number of tasks reflecting positive emotional experiences than in the present study.

Second, longitudinal inferences from the present work have to be interpreted with caution, as the data may partially reflect possible cohort effects. Not all cohort explanations are equally likely. For instance, one may wonder whether older Japanese had more negative experience in the post-World War II period, which in turn might have made them more vigilant about negative experiences. The 60-year-old Japanese were 20 in 1970, by which time Japan showed a recovery from WWII. Their youth corresponded to the 1960s—the period of rapid economic recovery and growth. Thus, a cohort effect is unlikely in this case. Nevertheless, the question of cohort effects should be further assessed in future work with a longitudinal research design.

Third, aging-related trends may also depend on the type of emotional experience. In recent work exploring longitudinal and cross-sectional data from a German sample, Kunzmann, Richter, and Schmukle (2013) observed aging-related decline in frequency of anger, yet also an aging-related stability in the frequency of sadness among the "younger old" (60–75 years) and an increase in frequency of sadness among the "older old" (75–90 years). This work dovetails with experimental work on Westerners, suggesting that emotional reactivity for sadness-inducing stimuli may look different compared with anger- or disgust-inducing stimuli (Kunzmann & Grühn, 2005; Labouvie-Vief, Lumley, Jain, & Heinze,

[7] Additional analyses of our data concerning reports of emotional experience across 10 episodes indicated that the relative preference to coreport feeling "happy" and "calm" over feeling "happy" and "elated" was greater among older (compared with younger) Americans, $r = .11$, which is consistent with recent reports of greater aging-related preference for low-arousal emotions among the Americans (Scheibe, English, Tsai, & Carstensen, 2013). However, the preference to associate well-being with lower versus higher arousal emotions was lower among older (compared with younger) Japanese, $r = -.09$, Culture × Age interaction, $F(1, 503) = 4.86$, $p = .03$. Importantly, in neither country was the relative magnitude of association between well-being and reports of low- versus high-arousal emotions related to any of the main emotion tasks discussed in the present study, $-.056 < r_{U.S.} \leq .08$, average $r_{U.S.} = .008$, and $-.024 < r_{Japan} \leq .009$, average $r_{Japan} = -.01$, suggesting that cultural and age differences in preference for low- versus high-arousal emotions are not likely to account for the main findings in the present article.

2003; Shiota & Levenson, 2009). Insights from the study by Kunzmann and colleagues have implications for the cross-cultural perspective advocated in the present study, which did not include explicit reports of sadness. Future research should systematically explore cross-cultural generalization versus specificity of aging-related trajectories in frequency of various discrete emotional experiences.

Fourth, the present work did not control for accuracy of recalled socioemotional experiences. It is, thus, possible that some of the observed differences between younger and older Americans reflect both the genuine differences in emotional experiences across the age groups as well as motivation-driven memory bias in recall of pleasant and unpleasant experiences. Indeed, some related work suggests that the age-related positivity effect in memory among North Americans is weaker or absent when controlling for accuracy (e.g., Fernandes, Ross, Wiegand, & Schryer, 2008). It would, thus, be interesting to explore the effect of accuracy on the age-related shifts in emotional experiences across cultures.

To conclude, by demonstrating how culture modulates aging-related differences in strategies used to maintain well-being, the present study raises the issue of generalizability of aging or cultural effects observed on limited populations (Henrich, Heine, & Norenzayan, 2010). Whereas most of the theories of aging research are based on Western data, most of the cultural psychological findings are based on comparisons of younger adults. Focusing on socioemotional experiences, the current study demonstrates that it is increasingly important to examine both culture and aging within the same research design, and consider cultural factors (e.g., avoidance of the negative vs. value of the negative as central components of well-being), when examining social motivational theories of human development.

References

Akiyama, H., Antonucci, T. C., Takahashi, K., & Stover, E. (2003). Negative aspects of close relationships across the lifespan. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 58,* 70–79.

Arbuckle, J. L. (2006). Amos 18.0 [Computer software]. Chicago, IL: SPSS.

Bagozzi, R. P., Wong, N., & Yi, Y. (1999). The role of culture and gender in the relationship between positive and negative affect. *Cognition & Emotion, 13,* 641–672. doi:10.1080/026999399379023

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology, 5,* 323–370. doi:10.1037/1089-2680.5.4.323

Blanchard-Fields, F. (2007). Everyday problem solving and emotion. *Current Directions in Psychological Science, 16,* 26–31. doi:10.1111/j.1467-8721.2007.00469.x

Blanchard-Fields, F., Chen, Y., & Norris, L. (1997). Everyday problem solving across the adult life span: Influence of domain specificity and cognitive appraisal. *Psychology and Aging, 12,* 684–693. doi:10.1037/0882-7974.12.4.684

Blanchard-Fields, F., Mienaltowski, A., & Seay, R. B. (2007). Age differences in everyday problem-solving effectiveness: Older adults select more effective strategies for interpersonal problems. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 62,* P61–P64. doi:10.1093/geronb/62.1.P61

Bonanno, G. A., Papa, A., Lalande, K., Zhang, N., & Noll, J. G. (2005). Grief processing and deliberate grief avoidance: A prospective comparison of bereaved spouses and parents in the United States and the People's Republic of China. *Journal of Consulting and Clinical Psychology, 73,* 86–98. doi:10.1037/0022-006X.73.1.86

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology, 1,* 185–216. doi:10.1177/135910457000100301

Carroll, J. B., & Maxwell, S. E. (1979). Individual differences in cognitive abilities. *Annual Review of Psychology, 30,* 603–640. doi:10.1146/annurev.ps.30.020179.003131

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist, 54,* 165–181. doi:10.1037/0003-066X.54.3.165

Carstensen, L. L., & Mikels, J. A. (2005). At the intersection of emotion and cognition: Aging and the positivity effect. *Current Directions in Psychological Science, 14,* 117–121.

Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselroade, J. R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology, 79,* 644–655. doi:10.1037/0022-3514.79.4.644

Charles, S. T., & Carstensen, L. L. (2010). Social and emotional aging. *Annual Review of Psychology, 61,* 383–409. doi:10.1146/annurev.psych.093008.100448

Cornwell, B., Laumann, E. O., & Schumm, L. P. (2008). The social connectedness of older adults: A national profile. *American Sociological Review, 73,* 185–203. doi:10.1177/000312240807300201

Crane, C., Barnhofer, T., & Williams, J. M. G. (2007). Reflection, brooding, and suicidality: A preliminary study of different types of rumination in individuals with a history of major depression. *British Journal of Clinical Psychology, 46,* 497–504. doi:10.1348/014466507X230895

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52,* 281–302. doi:10.1037/h0040957

D'Andrade, R. G. (1984). Cultural meaning systems. In R. A. Shweder & R. A. LeVine (Eds.), *Culture theory: Essays on mind, self, and emotion* (pp. 88–119). Cambridge, England: Cambridge University Press.

Diener, E. (2000). Subjective well-being: The science of happiness, and some policy implications. *American Psychologist, 55,* 34–43. doi:10.1037/0003-066X.55.1.34

Fernandes, M., Ross, M., Wiegand, M., & Schryer, E. (2008). Are the memories of older adults positively biased? *Psychology and Aging, 23,* 297–306. doi:10.1037/0882-7974.23.2.297

Folkman, S., Lazarus, R. S., Pimley, S., & Novacek, J. (1987). Age differences in stress and coping processes. *Psychology and Aging, 2,* 171–184. doi:10.1037/0882-7974.2.2.171

Folkman, S., & Moskowitz, J. T. (2000). Stress, positive emotion, and coping. *Current Directions in Psychological Science, 9,* 115–118. doi:10.1111/1467-8721.00073

Fung, H. H., & Carstensen, L. L. (2006). Goals change when life's fragility is primed: Lessons learned from older adults, the September 11 attacks and SARS. *Social Cognition, 24,* 248–278. doi:10.1521/soco.2006.24.3.248

Fung, H. H., Isaacowitz, D. M., Lu, A. Y., & Li, T. (2010). Interdependent self-construal moderates the age-related negativity reduction effect in memory and visual attention. *Psychology and Aging, 25,* 321–329. doi:10.1037/a0019079

Fung, H. H., Lu, A. Y., Goren, D., Isaacowitz, D. M., Wadlinger, H. A., & Wilson, H. R. (2008). Age-related positivity enhancement is not universal: Older Chinese look away from positive stimuli. *Psychology and Aging, 23,* 440–446. doi:10.1037/0882-7974.23.2.440

Ganzeboom, H. B. G., & Treiman, D. J. (1996). Internationally comparable measures of occupational status for the 1988 International Standard Classification of Occupations. *Social Science Research, 25,* 201–239. doi:10.1006/ssre.1996.0010

Grossmann, I., Ellsworth, P. C., & Hong, Y.-y. (2012). Culture, attention, and emotion. *Journal of Experimental Psychology: General, 141,* 31–36. doi:10.1037/a0023817

Grossmann, I., & Huynh, A. C. (2013). Where is the culture in social class? *Psychological Inquiry, 24,* 112–119.

Grossmann, I., Karasawa, M., Izumi, S., Na, J., Varnum, M. E. W., Kitayama, S., & Nisbett, R. E. (2012). Aging and wisdom: Culture matters. *Psychological Science, 23,* 1059–1066. doi:10.1177/0956797612446025

Grossmann, I., & Kross, E. (2010). The impact of culture on adaptive versus maladaptive self-reflection. *Psychological Science, 21,* 1150–1157. doi:10.1177/0956797610376655

Grossmann, I., & Na, J. (2014). Research in culture and psychology: Past lessons and future challenges. *Wiley Interdisciplinary Reviews: Cognitive Science, 5,* 1–14. doi:10.1002/wcs.1267

Grossmann, I., Na, J., Varnum, M. E. W., Kitayama, S., & Nisbett, R. E. (2013). A route to well-being: Intelligence versus wise reasoning. *Journal of Experimental Psychology: General, 142,* 944–953. doi:10.1037/a0029560

Grossmann, I., Na, J., Varnum, M. E., Park, D. C., Kitayama, S., & Nisbett, R. E. (2010). Reasoning about social conflicts improves into old age. *Proceedings of the National Academy of Sciences, 107,* 7246–7250.

Grossmann, I., & Varnum, M. E. W. (2011). Social class, culture, and cognition. *Social Psychological and Personality Science, 2,* 81–89. doi:10.1177/1948550610377119

Heckhausen, J., & Schulz, R. (1995). A life-span theory of control. *Psychological Review, 102,* 284–304. doi:10.1037/0033-295X.102.2.284

Hedden, T., Park, D. C., Nisbett, R. E., Ji, L., Jing, Q., & Jiao, S. (2002). Cultural variation in verbal versus spatial neuropsychological function across the lifespan. *Neuropsychology, 16,* 65–73. doi:10.1037/0894-4105.16.1.65

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. doi:10.1037/0033-295X.106.4.766

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33,* 61–83. doi:10.1017/S0140525X0999152X

Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review, 65,* 19–51. doi:10.2307/2657288

Isaacowitz, D. M., & Blanchard-Fields, F. (2012). Linking process and outcome in the study of emotion and aging. *Perspectives on Psychological Science, 7,* 3–17. doi:10.1177/1745691611424750

John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of Personality, 72,* 1301–1334.

Kahn, R. L., & Antonucci, T. C. (1980). Convoys over the life course: Attachment, roles, and social support. In P. B. Baltes & O. G. Brim (Eds.), *Life-span development and behavior* (pp. 254–283). New York, NY: Academic Press.

Karel, M. J., Gatz, M., & Smyer, M. A. (2012). Aging and mental health in the decade ahead: What psychologists need to know. *American Psychologist, 67,* 184–198. doi:10.1037/a0025393

Kitayama, S., Mesquita, B., & Karasawa, M. (2006). Cultural affordances and emotional experience: Socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology, 91,* 890–903. doi:10.1037/0022-3514.91.5.890

Ko, S.-G., Lee, T.-H., Yoon, H.-Y., Kwon, J.-H., & Mather, M. (2011). How does context affect assessments of facial emotion? The role of culture and age. *Psychology and Aging, 26,* 48–59. doi:10.1037/a0020222

Kunzmann, U., & Grühn, D. (2005). Age differences in emotional reactivity: The sample case of sadness. *Psychology and Aging, 20,* 47–59. doi:10.1037/0882-7974.20.1.47

Kunzmann, U., Richter, D., & Schmukle, S. C. (2013). Stability and change in affective experience across the adult life span: Analyses with a national sample from Germany. *Emotion, 13,* 1086–1095. doi:10.1037/a0033572

Kwon, Y., Scheibe, S., Samanez-Larkin, G. R., Tsai, J. L., & Carstensen, L. L. (2009). Replicating the positivity effect in picture memory in Koreans: Evidence for cross-cultural generalizability. *Psychology and Aging, 24,* 748–754. doi:10.1037/a0016054

Labouvie-Vief, G. (2003). Dynamic integration: Affect, cognition, and the self in adulthood. *Current Directions in Psychological Science, 12,* 201–206. doi:10.1046/j.0963-7214.2003.01262.x

Labouvie-Vief, G., & Blanchard-Fields, F. (1982). Cognitive ageing and psychological growth. *Ageing & Society, 2,* 183–209. doi:10.1017/S0144686X00009429

Labouvie-Vief, G., Lumley, M. A., Jain, E., & Heinze, H. (2003). Age and gender differences in cardiac reactivity and subjective emotion responses to emotional autobiographical memories. *Emotion, 3,* 115–126. doi:10.1037/1528-3542.3.2.115

Lee, A. Y., Aaker, J. L., & Gardner, W. L. (2000). The pleasures and pains of distinct self-construals: The role of interdependence in regulatory focus. *Journal of Personality and Social Psychology, 78,* 1122–1134. doi:10.1037/0022-3514.78.6.1122

Lutz, W., Sanderson, W., & Scherbov, S. (2008, February 7). The coming acceleration of global population ageing. *Nature, 451,* 716–719. doi:10.1038/nature06516

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98,* 224–253. doi:10.1037/0033-295X.98.2.224

Mesquita, B., & Karasawa, M. (2002). Different emotional lives. *Cognition & Emotion, 16,* 127–141. doi:10.1080/0269993014000176

Mesquita, B., & Markus, H. R. (2004, April). *Culture and emotion*. Paper presented at Feelings and Emotions: The Amsterdam Symposium, (p. 341).

Mischel, W., & Shoda, Y. (1995). A cognitive–affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structures. *Psychological Review, 102,* 246–268. doi:10.1037/0033-295X.102.2.246

Miyamoto, Y., Uchida, Y., & Ellsworth, P. C. (2010). Culture and mixed emotions: Co-occurrence of positive and negative emotions in Japan and the United States. *Emotion, 10,* 404–415. doi:10.1037/a0018430

Moskowitz, G. B. (2002). Preconscious effects of temporary goals on attention. *Journal of Experimental Social Psychology, 38,* 397–404. doi:10.1016/S0022-1031(02)00001-X

Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect: A developmental perspective on happiness. *Journal of Personality and Social Psychology, 75,* 1333–1349. doi:10.1037/0022-3514.75.5.1333

Neisser, U. (1979). The control of information pickup in selective looking. In A. D. Pick (Ed.), *Perception and its development: A tribute to Eleanor J. Gibson* (pp. 201–219). Hillsdale, NJ: Erlbaum.

Nisbett, R. E., Aronson, J., Blair, C., Dickens, W., Flynn, J., Halpern, D. F., & Turkheimer, E. (2012). Intelligence: New findings and theoretical developments. *American Psychologist, 67,* 130–159. doi:10.1037/a0026699

Nolen-Hoeksema, S., & Aldao, A. (2011). Gender and age differences in emotion regulation strategies and their relationship to depressive symptoms. *Personality and Individual Differences, 51,* 704–708. doi:10.1016/j.paid.2011.06.012

O'Connor, D. B., & Shimizu, M. (2002). Sense of personal control, stress and coping style: A cross-cultural study. *Stress and Health, 18,* 173–183. doi:10.1002/smi.939

Oishi, S. (2002). The experiencing and remembering of well-being: A cross-cultural analysis. *Personality and Social Psychology Bulletin, 28,* 1398–1406. doi:10.1177/014616702236871

Park, D. C., & Reuter-Lorenz, P. (2009). The adaptive brain: Aging and neurocognitive scaffolding. *Annual Review of Psychology, 60,* 173–196. doi:10.1146/annurev.psych.59.103006.093656

Reed, A. E., & Carstensen, L. L. (2012). The theory behind the age-related positivity effect. *Frontiers in Psychology, 3,* 339.

Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin, 128,* 934–960. doi:10.1037/0033-2909.128.6.934

Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review, 5,* 296–320. doi:10.1207/S15327957PSPR0504_2

Rubin, D. B. (1996). Multiple imputation after 18+ years. *Journal of the American Statistical Association, 91,* 474–489. doi:10.1080/01621459.1996.10476908

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7,* 147–177. doi:10.1037/1082-989X.7.2.147

Schaie, K. W. (1994). The course of adult intellectual development. *American Psychologist, 49,* 304–313. doi:10.1037/0003-066X.49.4.304

Scheibe, S., & Carstensen, L. L. (2010). Emotional aging: Recent findings and future trends. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 65,* 135–144. doi:10.1093/geronb/gbp132

Scheibe, S., English, T., Tsai, J. L., & Carstensen, L. L. (2013). Striving to feel good: Ideal affect, actual affect, and their correspondence across adulthood. *Psychology and Aging, 28,* 160–171. doi:10.1037/a0030561

Sears, S. R., Stanton, A. L., & Danoff-Burg, S. (2003). The yellow brick road and the emerald city: Benefit finding, positive reappraisal coping and posttraumatic growth in women with early-stage breast cancer. *Health Psychology, 22,* 487–497. doi:10.1037/0278-6133.22.5.487

Shiota, M. N., & Levenson, R. W. (2009). Effects of aging on experimentally instructed detached reappraisal, positive reappraisal, and emotional behavior suppression. *Psychology and Aging, 24,* 890–900. doi:10.1037/a0017896

Spencer-Rodgers, J., Williams, M. J., & Peng, K. (2010). Cultural differences in expectations of change and tolerance for contradiction: A decade of empirical research. *Personality and Social Psychology Review, 14,* 296–312. doi:10.1177/1088868310362982

Statistics Japan. (2011). *Population census*. Tokyo, Japan: Ministry of Internal Affairs and Communications. Retrieved from http://www.stat.go.jp/data/jinsui/

Stephens, N. M., Markus, H. R., & Townsend, S. S. M. (2007). Choice as an act of meaning: The case of social class. *Journal of Personality and Social Psychology, 93,* 814–830. doi:10.1037/0022-3514.93.5.814

Suh, E., Diener, E., Oishi, S., & Triandis, H. C. (1998). The shifting basis of life satisfaction judgments across cultures: Emotions versus norms. *Journal of Personality and Social Psychology, 74,* 482–493. doi:10.1037/0022-3514.74.2.482

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research, 27,* 247–259. doi:10.1023/A:1023910315561

Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology, 90,* 288–307. doi:10.1037/0022-3514.90.2.288

Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86,* 320–333. doi:10.1037/0022-3514.86.2.320

Tweed, R. G., White, K., & Lehman, D. R. (2004). Culture, stress, and coping: Internally- and externally-targeted control strategies of European Canadians, East Asian Canadians, and Japanese. *Journal of Cross-Cultural Psychology, 35,* 652–668. doi:10.1177/0022022104270109

Uchida, Y., & Kitayama, S. (2009). Happiness and unhappiness in East and West: Themes and variations. *Emotion, 9,* 441–456. doi:10.1037/a0015634

Uchida, Y., Norasakkunkit, V., & Kitayama, S. (2004). Cultural constructions of happiness: Theory and empirical evidence. *Journal of Happiness Studies, 5,* 223–239. doi:10.1007/s10902-004-8785-9

Urry, H. L., & Gross, J. J. (2010). Emotion regulation in older age. *Current Directions in Psychological Science, 19,* 352–357. doi:10.1177/0963721410388395

Varnum, M. E. W., Grossmann, I., Kitayama, S., & Nisbett, R. E. (2010). The origin of cultural differences in cognition: The social orientation hypothesis. *Current Directions in Psychological Science, 19,* 9–13. doi:10.1177/0963721409359301

Wierzbicka, A. (1986). Human emotions: Universal or culture specific? *American Anthropologist, 88,* 584–594. doi:10.1525/aa.1986.88.3.02a00030

Williams, P., & Aaker, J. L. (2002). Can mixed emotions peacefully coexist? *Journal of Consumer Research, 28,* 636–649. doi:10.1086/338206

Received January 6, 2013
Revision received January 16, 2014
Accepted January 17, 2014 ■