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## **An experience sampling and cross-cultural investigation of the relation between pleasant and unpleasant affect**

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The present study examined whether the relation between pleasant and unpleasant emotion varies across cultures and level of analysis (i.e., within-person vs. between-person). A total of 386 participants included European Americans, Asian Americans, Japanese, Indian, and Hispanic students. Momentary mood was assessed up to 7 times daily for one week. At the between-persons level, pleasant and unpleasant mood were positively correlated among Asian Americans and Japanese, but were uncorrelated among the other groups. Factor correlations at the within-person level were strongly negative in all cultures, suggesting that pleasant and unpleasant feelings are rarely experienced at the same time. Implications for dialectical experiences are discussed.

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Portions of these data that examine memory for affective experiences (Scollon, Diener, Oishi, & Biswas-Diener, 2004) and situational consistency across cultures (Oishi, Diener, Scollon, & Biswas-Diener, 2004) are reported elsewhere. However, these papers are concerned with conceptually distinct issues from the one discussed in the present paper, and therefore, there is no conceptual overlap with the current paper.

Theorists have long debated the relation between pleasant and unpleasant emotion, with some researchers suggesting that pleasantness and unpleasantness are independent dimensions (Bradburn, 1969; Watson & Tellegen, 1985), others showing that they are opposites or bipolar (Green, Goldman, & Salovey, 1993; Russell & Carroll, 1999), and yet others demonstrating both independence and bipolarity depending on the time frame of the questions (Diener & Emmons, 1984). Recently, this debate has moved into the cross-cultural realm with Bagozzi, Wong, and Yi (1999) introducing a “dialectical” model which posits positive covariation between pleasant and unpleasant feelings in Asian cultures. Notably, the psychological research on dialecticism has focused primarily on cultural differences in cognitive style, and has only recently been extended to conceptions of emotion (Bagozzi et al., 1999).

Peng and Nisbett (1999) define dialectical thinking as a “cognitive tendency toward acceptance of contradiction” (p. 742). According to Peng and Nisbett, Eastern and Western cultures are fundamentally rooted in different systems of thought and reason (e.g., Nisbett, Peng, Choi, & Norenzayan, 2001; Peng & Nisbett, 1999). Whereas Asian philosophies, such as Taoism, Buddhism, and Hinduism, emphasise tolerance for the paradox, Western thinking, with its roots in Aristotelian logic, tends to polarise contradictory perspectives, such as good versus bad, and pleasant versus unpleasant (Peng & Nisbett, 1999). Chinese philosophy often features examples of dialectical reasoning. For example, the philosopher Chuangtse wrote, “Division is the same as creation; creation is the same as destruction. There is no such thing as creation or destruction, for these conditions are again levelled [sic] together into One” (as cited in Lin, 1948, p. 50). In contrast, the law of noncontradiction exemplifies Aristotelian formal logic. For example, A cannot equal not-A (see Peng & Nisbett, 1999). These different and longstanding intellectual traditions are maintained by culture and can be seen in folk wisdom and preferences (Peng & Nisbett, 1999).

In terms of emotions, a dialectic relation is exemplified by the tendency to compensate positive and negative emotion with their opposites (Bagozzi et al., 1999). Although the notion of pleasantness and unpleasantness being positively related may seem counterintuitive from a Western standpoint, there is moderate support for the dialectical model in East Asian cultures. Using a single-moment report of affect, Bagozzi et al. (1999) found that among Chinese respondents, love and sadness correlated as high as .63, joy and guilt correlated as high as .55. In a study of 40 nations, Schimmack, Oishi, and Diener (2002) found the correlation between frequency of pleasant affect and frequency of unpleasant affect was strongly negative among individuals from countries such as the United States and Australia. However, this correlation was less negative, and in some cases positive, among individuals from countries, such as Japan and China. Kitayama, Markus, and Kurokawa (2000) also reported correlations as high as .40 between pairs of positive and negative emotions in their study of Japanese.

Although the above studies are important demonstrations of cultural variation in affect structure, it should be noted that most of the evidence for

dialectical emotions has been based on global or recalled measures of emotion, although Bagozzi et al. (1999) also assessed a single occasion of momentary mood (i.e., “right now”), a point to which we will return later. Despite the importance of these previous studies in understanding cultural differences, the use of global or recalled reports limits our understanding of the relation between pleasant and unpleasant emotion for at least two reasons. First, global reports might reflect implicit beliefs, rather than actual experience. For example, a positive correlation among positive and negative mood might indicate a general belief that pleasant and unpleasant feelings go together and therefore are remembered together. Likewise, an inverse relation between pleasant and unpleasant affect might be based on an implicit belief that the two types of emotion are opposites. Second, retrospective reports are vulnerable to memory biases, including a tendency to incorporate one’s overall self-beliefs or self-concept into recalled reports (Feldman Barrett, 1997; Robinson, Johnson, & Shields, 1998; Scollon, Diener, Oishi, & Biswas-Diener, 2004; Schimmack et al., 2000). As Ross (1989) and Levine (1997) have argued, the recall of emotions is a highly reconstructive process. People rarely engage in an effortful retrieve-and-aggregate strategy, but rather rely on heuristics, such as general self-beliefs to estimate the past (Robinson & Clore, 2002). Thus, when limited to global reports, the meaning of the relation between pleasant and unpleasant emotion remains ambiguous.

The use of experience sampling measures provides a more accurate test of the relation between pleasant and unpleasant affect because the data can be examined at the within- or between-person level, whereas global or retrospective reports are limited to the latter. Depending on the level of analysis, different conclusions may be reached. Correlations computed at the within-person level inform us of emotion states, while between-person correlations inform us of trait-level affect (see Zelenski & Larsen, 2000, pp. 180–181, for a detailed explanation). In other words, at the within-person level, we are primarily interested in what *states* go together at a given moment. For example, do people feel both happy and guilty simultaneously? On the other hand, at the between-person level, we can examine the “long-term structure” of affect (Diener & Emmons, 1984). For example, do people who experience a lot of pleasant affect overall also experience a lot of unpleasant affect? Because the two levels are logically independent, pleasant and unpleasant feelings can be negatively correlated at one level and yet independent or positively correlated at another level, as shown by Diener and Emmons (1984). Whether some individuals experience dialectical emotions remains inconclusive without evidence from both levels of analysis.

Watson, Clark, and Tellegen (1984) were the first to combine idiographic and nomothetic methods with cross-cultural sampling in their investigation of affect structure. They examined the daily mood of 18 Japanese respondents over 90 consecutive days. Separate factor analyses were performed on each person’s mood ratings, revealing a strong two-dimensional structure of emotion,

replicating US results. Although Watson et al.'s study serves as an excellent model for cross-cultural research on emotion, the present study adds several contributions. First, Watson et al. (1984) did not report correlations between pleasant and unpleasant emotion because the authors used varimax-rotation which, by definition, produces uncorrelated dimensions. Second, participants in Watson et al.'s study reported their mood over a 5 hour time span once a day (e.g., from 7am to 12pm, with slightly alternating time periods over the course of the study, see p. 131). Undoubtedly, these daily mood reports are less susceptible to implicit theories of emotion and memory revision than retrospective reports, but still they involve some degree of retrospection, more so than moment-to-moment reports made several times each day. The present study was designed to minimise memory biases by having participants record their emotions up to seven times daily within 30 minutes of being signalled. Third, we included multiple cultural groups. By comparing collectivists from cultures that endorse Asian dialectical philosophy (Japanese, Asian Americans, and Indians) with collectivists from cultures that do not endorse Asian dialectical philosophy (Hispanics), we could replicate Schimmack's et al. (2002) finding that Asian dialectical philosophy, rather than collectivism per se, is a better predictor of positive correlations between pleasantness and unpleasantness.

## Overview and predictions

In short, a representative sampling of people's emotions is needed—one that relies on people's current feelings as they occur, and one that is not influenced by memory bias. In addition, dialectical emotions need to be examined at both within- and between-person levels of analysis. Although previous studies have increased our understanding of affect structure across cultures the present study is the first, to our knowledge, that uses experience sampling to examine the correlation between pleasant and unpleasant mood at both within- and between-person levels. Not only does experience sampling reduce the influence of memory bias and implicit beliefs that recalled reports contain, it also provides a better assessment than a sampling of one instance of emotion as in Bagozzi et al.'s (1999) study, in which respondents reported their current mood in a classroom setting. Schimmack (2001) noted that single-moment affect reports confound variance in affect with variance in response style, and furthermore restrict the range of affective experience if conducted in artificial or neutral settings, such as laboratories, because such situations might not elicit emotional responses in the same way and to the same degree as real-life situations. A more reliable measure would depend on the aggregate of several moments, not just one instance because people's emotions can vary from moment to moment and day to day (Diener & Larsen, 1984). The present study sought to address these issues by using an experience sampling procedure.

Participants spanned five different cultural groups, including three US samples (European Americans, Asian Americans, and Hispanics), and two outside the US (Japanese and Indian). Among European Americans, we expected to find a strong negative correlation between pleasant and unpleasant mood at the within-person level, following Diener and Emmons (1984) and Diener and Iran-Nejad (1986) who studied American college students. Those studies demonstrated that pleasantness and unpleasantness rarely occur within the same person at the same time, and furthermore, their co-occurrence becomes less probable with greater intensity. Following Diener and Emmons's (1984) finding that within-person correlations tend to be strongly negative while between-person correlations tend to be close to zero, we predicted independence between pleasant and unpleasant emotion for European Americans at the between-person level.

Although Hispanic culture is largely collectivistic (e.g., Suh, Diener, Oishi, & Triandis, 1998; Triandis, 1995; cf. Oyserman, Coon, & Kemmelmeier, 2002), we predicted that Hispanic respondents would also show negative within-person correlations between pleasant and unpleasant affect. This prediction was guided by Schimmack et al.'s (2002) finding that Asian dialectical philosophy, rather than the individualism-collectivism factor, is a better predictor of positive correlations between pleasantness and unpleasantness. Additionally, the structure of emotion in Latin countries, such as Brazil and Colombia, was found to be very similar to the US structure in between-persons analyses (Schimmack et al., 2002). Diener and Suh (1999) and Eid and Diener (2001) found that both Latinos/Latinas and North Americans rated positive emotional experiences as very desirable, while rating negative emotional experiences as very undesirable. Such cultural norms differed strikingly from those of East Asians who rated negative and positive emotional experiences as neutral (neither desirable nor undesirable). Thus, given the similarities in affect structure among Latin and European American cultures, we also predicted that pleasant and unpleasant emotion would be unrelated at the between-persons level in our Hispanic American sample.

Predictions for the Asian American, Japanese, and Indian samples were more tentative. According to Bagozzi et al. (1999), Asians should display positive within-person correlations between pleasant and unpleasant mood. On the other hand, Larsen, McGraw, and Cacioppo (2001) showed that most people in typical situations do not experience both pleasant and unpleasant emotion, but rather these mixed feelings emerge under distinct emotional conditions, such as after watching *Life is Beautiful* (a film about a comedic father's struggle to protect, and yet entertain, his young son in a Nazi concentration camp) or at graduation. Similarly, Diener and Iran-Nejad (1986) found that the co-occurrence of pleasantness and unpleasantness was more likely at low intensity levels than at greater intensity levels. Further support for the notion that positive and negative emotion are competing processes at the experiential level comes from Schimmack, Colcombe, and Crites's (2001) research on attention and emotion,

which suggests that attention mediates our emotional experience, and thus the more a person is experiencing one type of emotion, the less likely he or she will experience the other. Indeed, if this is the case, we have little reason to believe that within-person correlations between pleasant and unpleasant emotion would differ much across cultures unless some cultures are better at dividing their attention (although this may very well be the case, see research on attention to field vs. foreground, e.g., Masuda & Nisbett, 2001).

Another possibility is that pleasant and unpleasant mood are positively correlated at the between-person level in Asian cultures. In fact, findings from Kitayama et al. (2000) and Schimmack et al. (2002) that relied on global or retrospective reports may be more consistent with the mean levels of affect conceptualised at the between-person level because, over time, a person can frequently experience both pleasant and unpleasant emotions. At the between-person level, positive and negative experiences do not compete for attention because the two types of affect can occur on separate occasions. Because in the present study mean level affect was based on the aggregate of experience sampling moments, the between-person correlations logically should not be influenced by cultural beliefs as they may be with retrospective reports. Positive covariation between pleasant and unpleasant affect at the between-person level might instead reflect the cultural notion that neither positive nor negative emotion has privileged status in that society, but rather the vicissitudes of daily life are comprised of both pleasant and unpleasant experiences. We hesitate to label this condition as dialectical, because there is nothing contradictory about feeling pleasant feelings one moment and unpleasant feelings the next.

## METHOD

### Participants

Over 11,000 moments were sampled among 386 college student participants. Participation was completely voluntary, although all participants received \$25 compensation (or the equivalent). Volunteers responded to advertisements for the study posted on or near campus. All materials were in English except for those presented to Japanese respondents. Following completion of the study, participants were thanked and fully debriefed. Portions of these data that examine other issues are also reported elsewhere (see Oishi, Diener, Scollon, & Biswas-Diener, 2004, on cross-situational consistency across cultures; Scollon et al., 2004, on memory for emotions across cultures).

### Sample descriptions

*European American.* A total of 46 European American students (82.6% female) from the University of Illinois participated. Their mean age was 20.9 ( $SD = 4.3$ ) years, and 91% were undergraduates.

*Hispanic.* A total of 81 students (77.8% female) from California State University at Fresno participated. They were recruited only if they “spoke Spanish at home”. Their mean age was 21.7 ( $SD = 5.5$ ) years, and 86% were undergraduates.

*Asian American.* A total of 33 Asian students (66.7% female) from the University of Illinois participated. Their mean age was 20.6 ( $SD = 1.9$ ) years, 76% of this sample were undergraduates.

*Japanese.* A total of 94 students (60.6% female) participated from the International Christian University and Meisei University, both in Tokyo. Their mean age was 20.2 years ( $SD = 2.3$ ), 81% were undergraduates, mostly in their sophomore, junior, and senior years of college. The remainder consisted of graduate students, individuals with advanced degrees, or individuals not reporting their educational status.

*Indian.* A total of 61 students (63.6% female) were recruited from Utkal University in Bhubaneswar, a city in the state of Orissa, and several universities in and around Calcutta, a city in the state of West Bengal.<sup>1</sup> Their mean age was 21.4 years ( $SD = 2.6$ ). Given India’s diversity of languages and the fact that English is one of the country’s official languages, translation of materials was not necessary. Approximately 70% of this sample had either completed or were working on an undergraduate degree.

## Measures

We sampled four positive emotions (proud, affectionate, joyful, and happy) and four negative emotions (irritated, guilty, sad, and worried).<sup>2</sup> These emotions were selected to represent the major forms of pleasant and unpleasant emotion (Diener, Smith, & Fujita, 1995) and served as a compromise between an exhaustive list of emotions and a quick, short list for the experience sampling. Furthermore, the sampled emotions were selected because they appear in many established theories emotion, such as Ortony, Clore, and Collins (1988), Shaver, Wu, and Schwartz (1992), Plutchik (1980), and Izard (1977). In addition, these emotions directly appeared in Bagozzi et al.’s (1999) study and thus allow for a comparison of findings.

<sup>1</sup> Indian Institute of Management, President’s College, Jadavpur University, Indian Institute of Social Welfare and Business Management, Calcutta University- Raja Bazaar, St. Xavier’s College, Ramakrishna Mission at Narendrapur.

<sup>2</sup> *Proud, affectionate, joyful, happy, irritated, guilty, sad, and worried* were translated into Japanese by Shigehiro Oishi. The Japanese emotion terms were *hokori, aijo, ureshii, shiawase, iraira, zaiakukan, kanashii, and sinpai*, respectively.



*Experience sampling week.* With the exception of our Indian participants, for the experience sampling portion of the study participants carried a handheld computer with them during their waking hours (either 9am–9pm or 10am–10pm) for 7 days. The device was preset to sound an alarm at random moments throughout a 2–3 hour interval five times a day, at which point the participant was instructed to complete a mood report directly on the handheld computer. In addition, participants completed mood reports upon waking and before going to bed each day, for a possible total of seven reports per day. When signalled, participants reported how they were feeling “right before the alarm went off”. We specified the time “right before the alarm” in order to remove any reactive effects of the alarm itself (e.g., participant felt embarrassed because alarm went off in class). Although in most instances respondents could complete the mood form immediately after being signalled, if it was impossible to do so at the moment (e.g., during a test), participants were allowed to complete the form up to 30 minutes after the alarm sounded. Participants were explicitly told not to complete the reports beyond the half hour time frame due to inaccuracies in memory.

Participants in India completed identical measures in paper-pencil form. A watch that stored multiple alarm times per day served as the signalling device. The experimenter set the alarms to occur roughly once every 2–3 hours five times a day. In addition, all watches were set for unique times, which allowed participants to exchange watches with one another daily (e.g., in class), thereby obtaining a different alarm schedule each day. This procedure ensured that respondents would not anticipate the alarms and gave us an ecological sampling of their daily affect and situations encountered. Participants in the Indian sample turned in their mood forms each day.

The response rate ranged from 55% for Indian respondents to 97% for European American respondents, with a mean response rate of 84% across the entire sample. Although the response rate for Indians was considerably lower, more than 80% of Indians completed at least three reports per day. The lower response rate is likely due to the paper-and-pencil measures and watch alarms, which were not as convenient as the handheld computers. This underscores the importance of constructing measures that are convenient for participants in experience sampling studies (see Scollon, Kim-Prieto, & Diener, 2003).

*Emotion ratings.* When signalled, participants recorded to what degree they were feeling four positive and four negative emotions on a scale from 0 = not at all to 6 = with maximum intensity. The order of presentation (e.g., joyful, happy, affectionate, proud, sad, worried, guilty, and irritated) was the same for all groups on all measurement occasions.

RESULTS AND DISCUSSION<sup>3</sup>

## Within-person analyses

The total number of occasions across all cultures was 11,839. The first step was to remove between-person variance so that all correlations between pleasantness and unpleasantness would be based entirely on within-person variation. We followed a procedure used by Diener and Emmons (1984) and Zelenski and Larsen (2000) that involved first standardising the momentary ratings within each person so that each respondent had a mean of zero and a standard deviation of one on all measures of affect. Standardisation thereby removed any between-person variability, such as some participants experiencing more intense emotions than others. The remaining variance, then, is only due to differences in reporting occasions.

Table 1 presents the observed within-person correlations for each culture. A quick observation of the within-person correlations reveals remarkable similarity across the different groups. All like-valenced emotions were positively correlated with each other. Of particular interest are the opposite-valenced emotions (i.e., pleasant and unpleasant pairings), shown in italics, because these speak to the issue of dialecticism. All pairings of opposite-valenced emotions were negatively correlated in all five groups. Out of 80 different cross-valenced *rs*, none correlated in the positive direction, as the dialectical hypothesis would predict. Of course, as expected, some correlation pairs were larger than others, for instance happy-irritated (*rs* ranging from  $-.34$  to  $-.48$ ) versus pride-guilt (*rs* ranging from  $-.00$  to  $-.14$ ). In general, pride correlated less negatively with unpleasant emotions than the other pleasant emotions did.

Next, we submitted the standardised affect ratings to a maximum likelihood factor analysis with oblique rotation, constraining the model to two factors. Separate analyses were performed for each culture. Table 2 summarises the variance accounted for and fit of the two-factor model for each culture. Together, these two factors explained 54–59% of the variance in emotional experience (Mean = 56.4%). Although the chi-squareds were significant in all five cases due to the large *Ns*, an examination of the discrepancies between observed and fitted correlations indicated excellent fit for each group.<sup>4</sup> Additionally, an examination of the factor loadings (shown in Table 3) reveal striking similarity across cultures, especially for the pleasantness factor. In this case, the

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<sup>3</sup> Unfortunately, we were unable to examine any sex differences due to the small sample size and fewer males in our samples.

<sup>4</sup> McDonald (1999) and McDonald and Ho (2002) recommend examining the discrepancy between observed and fitted correlations to determine the fit of a model, rather than relying on fit indices. The discrepancies across all five samples were in the acceptable range of .10 or less, indicating very good model fit. Discrepancy matrices are available from the first author upon request.

TABLE 1  
Observed within-person correlations by cultural group

<i>Emotion</i>	<i>Affection</i>	<i>Happiness</i>	<i>Joy</i>	<i>Pride</i>	<i>Guilt</i>	<i>Irritation</i>	<i>Sadness</i>	<i>Worry</i>
European American <sup>a</sup>								
Affection	–							
Happiness	.58	–						
Joy	.53	.69	–					
Pride	.35	.39	.37	–				
Guilt	–.04	–.13	–.07	–.06	–			
Irritation	–.32	–.42	–.32	–.17	.15	–		
Sadness	–.17	–.38	–.29	–.18	.19	.31	–	
Worry	–.21	–.34	–.26	–.13	.25	.36	.36	–
Hispanic <sup>b</sup>								
Affection	–							
Happiness	.61	–						
Joy	.52	.71	–					
Pride	.49	.56	.51	–				
Guilt	–.08	–.18	–.16	–.14	–			
Irritation	–.27	–.38	–.33	–.23	.24	–		
Sadness	–.17	–.32	–.28	–.21	.30	.27	–	
Worry	–.23	–.30	–.26	–.21	.37	.37	.36	–
Asian American <sup>c</sup>								
Affection	–							
Happiness	.50	–						
Joy	.43	.65	–					
Pride	.32	.42	.38	–				
Guilt	(–.02)	–.11	–.14	(0.0)	–			
Irritation	–.23	–.34	–.33	–.17	.22	–		
Sadness	–.10	–.24	–.22	–.06	.25	.26	–	
Worry	–.21	–.29	–.25	–.14	.32	.31	.30	–
Japanese <sup>d</sup>								
Affection	–							
Happiness	.57	–						
Joy	.51	.67	–					
Pride	.38	.37	.33	–				
Guilt	(.02)	–.10	–.09	–.03†	–			
Irritation	–.21	–.36	–.32	–.12	.29	–		
Sadness	–.06	–.20	–.18	–.04	.29	.32	–	
Worry	–.09	–.25	–.24	–.06	.34	.36	.34	–

(Continued)

TABLE 1  
(Continued)

<i>Emotion</i>	<i>Affection</i>	<i>Happiness</i>	<i>Joy</i>	<i>Pride</i>	<i>Guilt</i>	<i>Irritation</i>	<i>Sadness</i>	<i>Worry</i>
Indian <sup>c</sup>								
Affection	–							
Happiness	.47	–						
Joy	.44	.71	–					
Pride	.27	.30	.27	–				
Guilt	–.07	–.19	–.16	(0.0)	–			
Irritation	–.27	–.48	–.42	–.13	.27	–		
Sadness	–.20	–.43	–.37	–.11	.30	.48	–	
Worry	–.23	–.38	–.36	–.12	.35	.44	.46	–

Note: All correlations are significant at the  $p = .05$  level, unless in parentheses or indicated by † ( $p < .10$ ). Cross-valenced correlations are shown in italics.

<sup>a</sup>For European Americans,  $N = 2073$ . <sup>b</sup>For Hispanics,  $N = 2595$ . <sup>c</sup>For Asian Americans,  $N = 1252$ . <sup>d</sup>For Japanese,  $N = 3158$ . <sup>e</sup>For Indians,  $N = 2761$ .

ordering of item factor loadings was exactly the same across all five cultures. However, the size of the loadings differed slightly, particularly for the emotion pride. Although pride loaded the least strongly on the pleasantness factor for all groups, for Hispanics pride loaded .65, but for Indians this loading was only .40. For unpleasantness there was still greater similarity than dissimilarity. The magnitude of the loadings was consistent, but the ordering varied slightly. Notably, the loading for guilt was particularly small among European Americans.

TABLE 2  
Summary of fit of the two-factor model across cultures

<i>Culture</i>	<i>Within-person analyses</i>		<i>Between-person analyses<sup>a</sup></i>			
			<i>Frequency</i>		<i>Intensity</i>	
	<i>VAF</i>	<i>Fit <math>\chi^2_{13}</math></i>	<i>VAF</i>	<i>Fit <math>\chi^2_{13}</math></i>	<i>VAF</i>	<i>Fit <math>\chi^2_{13}</math></i>
European American	55.11	61.57	71.74	13.18 (n.s.)	66.97	17.16 (n.s.)
Hispanic	59.14	76.65				
Asian American	53.78	22.73	72.35	24.55	66.75	27.54
Japanese	56.35	44.00				
Indian	57.44	61.96				

Note: VAF = Variance accounted for by model. All  $\chi^2$ -values are significant unless otherwise indicated with n.s. (not significant)

<sup>a</sup> $N$  for non-Asian group (i.e., European American + Hispanic) = 116;  $N$  for Asian group (i.e., Japanese + Indians + Asian Americans) = 270.

TABLE 3  
Within-person factor loadings

<i>Emotion</i>	<i>European</i>		<i>Asian</i>		<i>Indian</i>
	<i>American</i>	<i>Hispanic</i>	<i>American</i>	<i>Japanese</i>	
Affection	.69	.71	.60	.72	.55
Happiness	.80	.86	.81	.81	.78
Joyful	.79	.77	.71	.72	.74
Pride	.47	.65	.54	.48	.40
Guilt	.40	.58	.58	.57	.53
Irritation	.41	.41	.40	.51	.55
Sadness	.49	.50	.49	.55	.64
Worry	.64	.69	.56	.62	.64

Next, we created pleasant emotion (PE) and unpleasant emotion (UE) scores for each occasion by collapsing across like-valenced discrete emotions for each occasion (e.g., averaging affection, happiness, joy, and pride for PE). We then computed within-person correlations between the PE and UE indices.<sup>5</sup> As shown in the first column of Table 4, across cultures these correlations were all strongly negative. Interestingly, among Asian Americans and Japanese, the magnitude of the correlation was somewhat smaller than for European Americans and Hispanics (albeit a nonsignificant difference), but negative nonetheless. This finding suggests that at the momentary level of emotional experience, PE and UE tend not to co-occur.

Because the correlation does not answer the question of whether certain emotions are mutually exclusive (Schimmack, 2001), we also computed minimum values (MIN) for pleasantness and unpleasantness. A MIN value is the smallest of two values, in this case PE versus UE. If pleasant and unpleasant feelings are indeed mutually exclusive, then we would expect that as intensity of one affect increases, the intensity of the other affect should decrease, as demonstrated by Diener and Iran-Nejad (1986). Such patterning would be reflected in MIN values being close to zero. Column 3 of Table 4 presents the average MIN values for the five cultural groups. Consistent with Diener and Iran-Nejad (1986) and Schimmack (2001), these values are close to zero (recall the scale was from 0 to 6) and therefore are evidence of mutual exclusion.

Furthermore, we observed extremely few occasions on which PE and UE were both rated strongly. There were no occasions in any sample in which mean PE and mean UE were both "5" (very strongly). The percentage of occasions

<sup>5</sup>The same information is also provided by the factor correlations ( $\phi$ ) that are automatically generated by factor analyses programs using oblique rotation methods. Factor correlations produced virtually the same results ( $\phi = -.43, -.47, -.37, -.26,$  and  $-.44$ , for European Americans, Hispanics, Asian Americans, Japanese, and Indians, respectively).

TABLE 4  
Relation between pleasant and unpleasant emotion across cultures

Culture	Within-person <i>r</i>	MIN (PE, UE)	Between-person <i>r</i>	
			Frequency	Intensity
European American	-.41**	.65	.03	.09
Hispanic	-.41**	.70		
Asian American	-.34**	.64	.27**	.26**
Japanese	-.27**	.72		
Indian	-.45**	.73		

Note: PE = pleasant emotion; UE = unpleasant emotion; \*  $p < .05$ ; \*\*  $p < .01$ .

on which PE and UE were rated on average as both higher than “3” (moderately) was less than 0.5% total. In comparison, on 26% of occasions participants rated only one affect (either PE or UE) as 3 or higher. An alternative computation compares ratings on the discrete emotions. Even so, in only 0.2% of the cases did participants rate at least one positive emotion as a “6” (with maximum intensity) while rating at least one negative emotion as a “6”. Of course, in general, extreme emotions were rare. Out of 11, 839 total occasions, respondents rated at least one emotion as a 6 less than 7% of the time. Nevertheless, when intense emotions were reported, 39% of the time at least two like-valenced emotions were rated as 6, whereas less than 4% of the time two cross-valenced emotions were rated as 6. Thus, across the five samples it appeared that as intensity of one affect increased, intensity of the other affect became more restricted. Additionally, no clear pattern emerged as to which cultural groups tended to experience strong mixed feelings since these rarely occurred.

### Between-person analyses

*Frequency vs. intensity.* At the between-persons level, we examined both frequency and intensity of emotions. (Note that conceptually it does not make sense to compute frequency and intensity scores at the within-person level because those scores reflect a single instance of reporting.)

To compute the frequency of specific emotions, we summed the number of occasions on which an emotion was reported (i.e., all non-zero ratings). Thus, if a respondent reported feeling happy (i.e., rated happiness as greater than “not at all”) on every occasion during the experience sampling week, then this person was given a score of 100% for happiness because she reported feeling happy 100% of the time. Furthermore, frequency scores specifically reflect the frequency/duration with which various emotions were experienced and do not take into account the intensity of those emotions. Thus, a person who reported feeling

TABLE 5  
Means (and standard deviations) for frequency of online emotions

<i>Emotion</i>	<i>European American</i>	<i>Hispanic</i>	<i>Asian American</i>	<i>Japanese</i>	<i>Indian</i>
Affection	70.2 (27.2)	79.8 (23.5)	56.2 (31.3)	57.9 (32.6)	74.4 (27.5)
Happiness	90.6 (14.1)	93.4 (7.7)	77.8 (22.9)	76.2 (22.1)	85.0 (16.9)
Joy	75.1 (25.4)	91.1 (10.5)	67.6 (28.7)	70.5 (25.0)	80.5 (20.2)
Pride	60.2 (31.9)	81.0 (23.7)	43.5 (28.3)	51.8 (37.6)	36.1 (32.5)
Guilt	25.9 (25.0)	28.4 (27.3)	33.8 (26.5)	37.4 (28.2)	23.0 (24.8)
Irritation	45.0 (24.3)	46.6 (27.5)	55.2 (26.1)	52.7 (28.6)	46.7 (24.9)
Sadness	37.6 (28.0)	37.7 (26.9)	36.7 (29.6)	37.9 (30.4)	40.1 (29.6)
Worry	66.0 (28.7)	57.5 (28.9)	70.4 (27.2)	70.3 (25.1)	60.5 (27.8)

low levels of happiness (e.g., “very slightly”) on every occasion would receive the same score as a person who reported feeling intense happiness (e.g., “strongly”) on the same number of occasions. Table 5 shows the means and standard deviations for frequency of on-line emotions.

In order to compute the mean level of intensity of emotion, we summed each person’s ratings on each emotion and divided by the total number of occasions on which reports for that emotion were non-zero. In other words, this score reflects the mean level of intensity for a particular emotion *only when that emotion was felt* (see Schimmack & Diener, 1997 for a detailed discussion of rationale for this procedure). Table 6 presents the means and standard deviations for intensity of on-line emotions. In general, analyses based on frequency scores converged with analyses based on intensity scores.

Within each culture, we computed the correlation between participants’ frequency (intensity) scores on the four pleasant and four unpleasant emotions. The upper triangle of Table 7 presents the observed between-person correlations

TABLE 6  
Means (and standard deviations) for intensity of online emotions

<i>Emotion</i>	<i>European American</i>	<i>Hispanic</i>	<i>Asian American</i>	<i>Japanese</i>	<i>Indian</i>
Affection	2.77 (.90)	2.86 (.76)	2.24 (.64)	2.31 (.80)	2.78 (.88)
Happiness	2.96 (.73)	3.34 (.67)	2.43 (.61)	2.56 (.70)	2.94 (.76)
Joy	2.61 (.76)	3.09 (.65)	2.31 (.63)	2.50 (.64)	2.81 (.75)
Pride	2.36 (.71)	3.00 (.80)	1.85 (.52)	2.16 (.84)	2.07 (.83)
Guilt	1.58 (.53)	1.81 (.75)	1.79 (.57)	2.04 (.80)	2.18 (1.1)
Irritation	1.97 (.57)	2.08 (.59)	2.03 (.46)	2.23 (.67)	2.35 (.88)
Sadness	1.76 (.54)	1.92 (.67)	1.76 (.51)	2.01 (.73)	2.20 (.83)
Worry	2.30 (.65)	2.09 (.68)	2.28 (.69)	2.42 (.81)	2.35 (.84)

TABLE 7  
Observed between-person correlations by cultural group

<i>Emotion</i>	<i>Affection</i>	<i>Happiness</i>	<i>Joy</i>	<i>Pride</i>	<i>Guilt</i>	<i>Irritation</i>	<i>Sadness</i>	<i>Worry</i>
European American <sup>a</sup>								
Affection	–	.53	.66	.71	(–.14)	(–.10)	(.20)	(.18)
Happiness	.72	–	.69	.58	(–.08)	(–.24)	(.02)	(–.15)
Joy	.66	.87	–	.75	(–.18)	(–.22)	(.01)	(–.06)
Pride	.53	.54	.60	–	(.06)	(.03)	.29†	(.22)
Guilt	(.11)	(–.07)	(.03)	(.21)	–	.64	.61	.54
Irritation	(.21)	(.14)	(.12)	(.15)	.54	–	.55	.60
Sadness	(.19)	(.09)	(.01)	(–.04)	(.21)	.51	–	.57
Worry	(–.03)	(.00)	(.08)	(.05)	.27†	.48	.30	–
Hispanic <sup>b</sup>								
Affection	–	.59	.69	.43	(.06)	(–.01)	(.18)	(.03)
Happiness	.58	–	.88	.54	(–.19)	(–.06)	(.01)	(–.09)
Joy	.66	.88	–	.50	(–.12)	(0.0)	(.12)	(0.0)
Pride	.64	.65	.71	–	(.14)	(–.03)	(.11)	(.12)
Guilt	(.09)	(–.05)	(.07)	(–.05)	–	.50	.66	.60
Irritation	(.13)	(.07)	.20†	.22†	.49	–	.68	.64
Sadness	(.10)	(–.05)	(.03)	(–.03)	.44	.55	–	.61
Worry	(–.02)	(–.13)	(–.07)	(–.01)	.67	.38	.49	–
Asian American <sup>c</sup>								
Affection	–	.52	.68	.67	(.13)	(.12)	(.30)	.31†
Happiness	.48	–	.90	.71	(.26)	(.28)	.50	(.28)
Joy	.47	.89	–	.81	(.25)	(.22)	.51	(.29)
Pride	(.30)	(.23)	(.23)	–	.34†	.42	.59	.45
Guilt	.49	(.04)	(.05)	(.21)	–	.58	.74	.52
Irritation	.47	(–.08)	(.06)	.42	.44	–	.58	.65
Sadness	(.25)	(.02)	(.12)	(.18)	.41	.36†	–	.61
Worry	(.24)	(–.20)	(–.10)	(.25)	.43	.44	.62	–
Japanese <sup>d</sup>								
Affection	–	.73	.76	.78	.26	.23	.34	.30
Happiness	.74	–	.87	.58	(.03)	(.08)	(.11)	(.08)
Joy	.73	.83	–	.66	(.15)	(.12)	.20†	(–.12)
Pride	.62	.60	.63	–	.36	.27	.44	.29
Guilt	.31	.26	.22†	(.15)	–	.58	.68	.56
Irritation	.18†	.24	(.12)	.25	.53	–	.57	.70
Sadness	(.17)	(.01)	(.13)	(.10)	.33	.26	–	.54
Worry	.31	.23	(.12)	.19†	.65	.63	.51	–

(Continued)



TABLE 7  
(Continued)

<i>Emotion</i>	<i>Affection</i>	<i>Happiness</i>	<i>Joy</i>	<i>Pride</i>	<i>Guilt</i>	<i>Irritation</i>	<i>Sadness</i>	<i>Worry</i>
Indian <sup>c</sup>								
Affection	–	.55	.60	.46	<i>(.12)</i>	.13†	.24	<i>(.12)</i>
Happiness	.60	–	.87	.34	<i>(.04)</i>	<i>(–.08)</i>	<i>(.08)</i>	<i>(–.02)</i>
Joy	.61	.86	–	.35	<i>(.05)</i>	<i>(0.0)</i>	.17	<i>(.04)</i>
Pride	.31	.24	.25	–	.25	.28	.38	.29
Guilt	<i>(.01)</i>	<i>(.05)</i>	<i>(.08)</i>	.23	–	.57	.53	.53
Irritation	.19	.14†	.15†	.43	.45	–	.67	.64
Sadness	<i>(.13)</i>	<i>(.13)</i>	.20	.31	.59	.54	–	.71
Worry	.20	<i>(.01)</i>	<i>(.10)</i>	.29	.52	.58	.58	–

*Note:* Intensity of affect correlations are shown in the lower triangle. Frequency of affect correlations are shown in the upper triangle. All correlations are significant at the  $p = .05$  level, unless in parentheses or indicated by † ( $p < .10$ ). Cross-valenced correlations are shown in italics.

<sup>a</sup>For European Americans,  $N = 46$ . <sup>b</sup>For Hispanics,  $N = 70$ . <sup>c</sup>For Asian Americans,  $N = 31$ . <sup>d</sup>For Japanese,  $N = 87$ . <sup>e</sup>For Indians,  $N = 152$ .

for frequency; correlations for intensity are shown in the lower triangle. Of particular interest are the cross-valenced correlations (shown in italics). For European Americans and Hispanics, none of these correlations reached significance, regardless of whether we computed affect scores based on frequency or intensity. These findings replicate those of Diener and Emmons (1984), who found that individual differences in pleasant and unpleasant emotion were unrelated in non-Asian samples. For Asian Americans, however, five of the frequency correlations and three of the intensity correlations were significant and positive. In particular, affection and pride tended to correlate with unpleasant emotions, while sadness correlated with pleasant emotions. Similarly, for Japanese respondents, eight of the cross-valenced frequency correlations were positive (six were positive for intensity). Frequency of pride and affection correlated with frequency of all the unpleasant emotions in this case. Among Indians, six frequency and seven intensity cross-valenced correlations were positive. Again pride consistently correlated with unpleasant affect, and sadness correlated with pleasantness among Indians.

Unfortunately, each culture group did not contain enough individuals to conduct a between-persons factor analysis within each culture. However, because the European American and Hispanic samples were very similar in their covariance structure while the three Asian groups were quite similar, we combined these groups to form two new comparison groups (Asian vs. non-Asian participants). Additionally, past research (e.g., Diener & Suh, 1999; Eid & Diener, 2001; Schimmack et al., 2002) suggests that European Americans and Hispanics would be more similar, while Asian Americans, Japanese, and Indians

would be more similar to each other. Thus, we conducted two-factor analyses comparing Asians versus non-Asians by submitting the frequency scores for each of the four pleasant and four unpleasant emotions to a maximal likelihood factor analysis with oblique rotation, constraining the model to two factors. We repeated these analyses using intensity scores as well.

As shown in Table 2, the two factors accounted for an even greater amount of variance at the between-person level, 72% (frequency) and 67% (intensity) for both Asians and non-Asians. The model fit the non-Asian group very well ( $\chi^2 = 13.18, p = .43$  for frequency,  $\chi^2 = 17.16, p = .19$  for intensity). Model fit was less good, though still acceptable, for the Asian group ( $\chi^2 = 24.55, p = .03$  for frequency,  $\chi^2 = 27.54, p = .01$  for intensity). Furthermore, an examination of the discrepancies between observed and fitted correlations revealed a good fit for both cultural groups. Table 8 (top panel) shows the factor loadings from the between-person factor analyses using frequency scores. Interestingly, pride loaded on both pleasant and unpleasant factors in the Asian group, a finding which possibly explains why the model did not fit this group as well. We discuss the problem with pride in later sections. Table 8 (lower panel) shows the factor loadings from analyses using intensity scores. In this case, pride did not load on both pleasant and unpleasant factors, instead worry loaded on both factors.

With regard to the relation between the factors, differences emerged across the cultural groups. Replicating what we found at the level of specific emotions

TABLE 8  
Factor loadings: Non-Asians and Asians

<i>Emotion</i>	<i>Non-Asians</i>	<i>Asians</i>
Between-person factor loadings (frequency)		
Affection	.73	.71
Happiness	.77	.93
Joyful	.91	.98
Pride	.77	.44
Guilt	.76	.73
Irritation	.76	.81
Sadness	.82	.76
Worry	.75	.81
Between-person factor loadings (intensity)		
Affection	.95	.95
Happiness	.92	.94
Joyful	.72	.67
Pride	.65	.84
Guilt	.71	.72
Irritation	.68	.70
Sadness	.66	.66
Worry	.62	.31

for the five groups, for non-Asians, the correlation between frequency of pleasant and unpleasant emotion was .03 ( $p = \text{n.s.}$ ),<sup>6</sup> while this correlation was .27 ( $p < .001$ ) among Asians. Similarly, the correlation between intensity of pleasant and unpleasant emotion was .09 ( $p = \text{n.s.}$ ) among non-Asians and .26 ( $p < .01$ ) among Asians. Thus, in Asian cultures, those individuals who more frequently (or more intensely) experience pleasant emotion also experience unpleasant emotion more frequently (or more intensely). However, among European and Hispanic American respondents, average levels of positive and negative affect were uncorrelated. Thus, knowing how much pleasant emotion a European American or Hispanic experiences does not tell us anything about how much unpleasant emotion that person experiences.

### The problem of pride

Pride loaded on both the pleasant and unpleasant factors in the factor analysis combining the three Asian groups. In addition, frequency of pride correlated positively with nearly all the negative emotions among Asian Americans, Japanese, and Indians. Among Indians, intensity of pride also correlated with intensity of all the unpleasant emotions. One striking difference in our samples is that these three groups reported notably lower levels of pride compared to their own reports of other positive emotions. This was especially noticeable among Indians who exhibited lower frequency of pride ( $M = 36.1\%$ ) relative to mean levels of affection ( $M = 74.4\%$ ), happiness ( $M = 85.0\%$ ), and joy ( $M = 80.5\%$ ). Not surprisingly, Asian cultures tend to view pride as an undesirable, inappropriate emotion, and undoubtedly this is reflected to some degree in their reporting (see Eid & Diener, 2001). Similarly, in a recent study of 46 nations, Kim-Prieto, Fujita, and Diener (2004) found that pride (measured as frequency reported retrospectively over the past week) clustered with negative emotions in India. Interestingly, the “inappropriateness” of pride was reflected only in the between-persons analyse, while at the within-person level, correlations among discrete pleasant and unpleasant emotions were all significant and in the negative direction.

Similarly, frequency and intensity of sadness tended to covary with pleasant emotions and intensity of affection correlated with unpleasant emotions among the three Asian groups. The correlations for affection are particularly interesting because affection was the most social of the four positive emotions we sampled, and some researchers have argued that individuals in collectivist societies tend to experience emotions as “self in relation to others” (Kitayama et al., 2000;

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<sup>6</sup> This correlation was computed by first computing an index of the pleasant emotion terms and an index of the unpleasant emotion terms. The two indices were then correlated to determine the relation between pleasant and unpleasant emotion. Virtually the same results were found with the factor correlations of frequency scores ( $\phi = .0005$  and  $.22$  for non-Asians and Asians, respectively) and intensity scores ( $.12$  and  $.32$  for non-Asians and Asians, respectively).

Mesquita, 2001; Mesquita & Frijda, 1992). Possibly, “tight” cultures promote feelings of affection but, at the same time, are more punitive and critical (see Triandis, 2000, for a discussion of cultural tightness).

One possibility is that the positive correlation between PE and UE for the Asian samples might be due to pride. If this were the case, then removing pride from PE scores would eliminate the relation between PE and UE among Asians. To test this, we rescored PE without pride. Not surprisingly, the correlation between frequency of PE and UE remained unchanged and nonsignificant for non-Asians ( $r = -.02$ , n.s., compared to  $r = .03$ , n.s.). However, for Asians, removing pride attenuated this correlation, but the relation between PE and UE remained significant and positive nonetheless ( $r = .15$ ,  $p < .02$ , compared to  $r = .27$ ,  $p < .001$ ). Similarly, the correlation between intensity of PE and UE remained unchanged and nonsignificant for non-Asians ( $r = .08$ , n.s., compared to  $r = .09$ , n.s.). For Asians, this correlation dropped slightly to  $r = .21$ ,  $p < .01$  (compared to  $r = .26$ ,  $p < .001$ ). Thus, the relation between PE and UE cannot entirely be explained by cultural variations in pride.

## DISCUSSION

Do people experience good and bad feelings simultaneously? Does culture influence the dialectical experience of emotions? Our findings point to both cultural differences and universals in affective experience.

### Momentary level

Across all five samples, the dimensions of pleasant and unpleasant affect accounted for more than half the variance in emotion reports at both within-person and between-person levels of analysis. Additionally, the negative within-person correlations indicated that at the momentary level of experience, pleasant and unpleasant feelings were inversely related in all cultures. Within-person correlations among the discrete emotions also converged on this same finding, lending further support to the idea that the more a person is experiencing one type of emotion (positive or negative), the less likely he or she is experiencing the other type of emotion. Another important finding is that, across cultures, positive emotions tend to be experienced together and negative emotions tend to be experienced together at the momentary level. This effect was weaker for affection and pride than for happiness and joy, suggesting that the latter may be more universally representative of good feelings than the former. Of note, pride did not correlate positively with the negative emotions in the Asian samples, nor did pride load with the negative emotions in a factor analysis at the within-person level, suggesting that the experience of pride at the momentary level is at least not unpleasant.

In essence, the reported *experience* of emotions across cultures appears more similar than not. This is important in cross-cultural research because it suggests,

first, that we can measure affect in different cultures by adequately sampling along the pleasantness and unpleasantness dimensions (i.e., by selecting a few emotions that are representative of each type of affect). Second, the translated English terms performed reasonably well in that factor loadings and correlations among discrete emotions were similar across Japanese and other samples. Third, focusing on global pleasant and unpleasant affect rather than on the discrete emotions appears an acceptable practice *at this level*, although we might not make this same recommendation at the between-person level, given the different cultural interpretations of pride.

One explanation for the rare co-occurrence of high levels of both pleasant and unpleasant emotion is that our participants mostly experienced situations that were clearly either positive or negative. In fact, most events in daily life tend not to elicit strong ambivalent feelings. At the same time, attentional resources are limited, and this influences our scope of emotional processing at any given moment. In a series of experiments, Schimmack et al. (2001) demonstrated that when individuals encounter both appealing and appalling stimuli, attention is distributed across both, such that mixed feelings are only possible at low to moderate levels of intensity. As intensity of one affect increases, so does attention to the corresponding stimulus, leading to less intense feelings of the opposite affect. This view is highly consistent with the position of biological researchers who postulate two separate and independent systems of the brain (Cacciopo, Gardner, & Berntson, 1999; Davidson, 1992; Watson, Wiese, Vaidya, & Tellegen, 1999). These systems may be inhibitory such that the activation of one system may suppress the other. However, these inhibitory processes may operate at very short, specific instances in time. The result is that the experience of one type of affect is not likely to suppress the experience of the other type of affect at a later point in time, which allows for pleasant and unpleasant affect to be independent or even positively correlated at the between-persons level.

### Between-person level

Despite remarkable similarity at the within-person level, analyses at the between-person level revealed strong cultural differences. Among European Americans and Hispanics, pleasant and unpleasant feelings were uncorrelated, while among Asian Americans, Japanese, and Indians, this relation was positive. This cultural difference was particularly pronounced for the emotion of pride which positively correlated with the negative emotions in the three Asian samples. Asians who frequently experienced pride also tended to experience more negative emotions, such as worry and guilt. Interestingly, the Asian American sample proved to be more similar in their emotional experience to Japanese and Indians than to their fellow (European) Americans drawn from the very same university campus. This finding supports the notion that culture may

not be neatly packaged according to geographical boundaries (Eid & Diener, 2001).

The more intriguing question is why, over time, positive and negative emotions are positively related in some cultures but not in others. Because between-person correlations were computed based on aggregates of moment reports, and because moment reports are less susceptible to implicit beliefs about emotion (McFarland, Ross, & DeCourville, 1989; Oishi, 2002; Robinson et al., 1998; Wirtz, Krueger, Scollon, & Diener, 2003), these correlations cannot be due to cultural beliefs about emotion.

There are several possible interpretations. One explanation is that a prevention-focused orientation might be a contributing factor to the positive correlation between positive and negative emotion among Asian cultures. Previous research (Elliot, Chirkov, Kim, & Sheldon, 2001; Lee, Aaker, & Gardner, 2000) found that Asians are more prevention-focused than North Americans. That is, they are more concerned with avoiding mistakes or losses rather than gaining positive outcomes. In this sense, even when individuals attain a preventive goal (e.g., not to disappoint parents in an upcoming mid-term exam), the positive experience (e.g., pride) can easily lead to another worry (but what about a final exam?). Thus, even if a positive event may make Asians feel positive emotions and no negative emotions at the moment of the experience, later memories or thoughts about the same event can lead to other negative emotions.

Alternatively, goal structure may mediate the positive correlations between pleasant and unpleasant emotions. Emmons and King (1988) found negative implications of goal conflicts for subjective well-being. Those who have goals that conflict with one another tend to experience more negative emotions. Similarly, Pomerantz, Saxon, and Oishi (2000) found that those who pursue multiple important goals tend to experience negative emotions as well as positive emotions. Considering Oishi and Diener's (2001) findings that Asians' well-being is related to progress toward interdependent goals, Asians may place importance on a wider variety of goals (e.g., to have fun, to make parents happy), compared to European Americans. Such goal structures might be prone to goal conflict. For those who have diverse goals, some of which are conflicting with one another, attainment of one goal (e.g., have fun) is likely to interfere with another goal (to make parents proud). Thus, the positive correlations between pleasant and unpleasant mood among Asians might be due to the divergent goal structure and/or the conflicting goal structure.

Finally, the positive correlations between pleasantness and unpleasantness might suggest that Asians who experience a lot of negative emotion are frequently consoled by friends, and therefore, they tend to experience both valences of emotion frequently. Asians who do not frequently experience negative emotion perhaps receive less sympathy from friends. Thus, they may feel neither good nor bad frequently. Indeed, Uchida, Kitayama, Mesquita, and Reyes (2001)

found sympathy played a central role in the link between social support and subjective well-being among Japanese. These researchers did not find the mediating role of sympathy among European Americans. Thus, there is the possibility that: (a) Asians' positive emotional experiences often come from friends or family members' sympathy; (b) sympathy is provided only when one experiences a negative emotional experience; and (c) therefore, those who frequently experience negative emotion frequently also experience positive emotion frequently.

Clearly, there are a number of viable explanations for the finding that positive and negative emotions are positively related in some cultures. Whether the covariation of pleasantness and unpleasantness at the between-person level are the result of dialectical processes is open to debate. After all, there is nothing contradictory about feeling happy at one moment and sad the next, and our explanations certainly leave open the possibility of other nondialectical processes driving this effect. Future research needs to explore these alternative hypotheses.

Although intriguing cultural differences emerged in the relation between pleasant and unpleasant emotion, we should point out that there were clear similarities as well. First, not all cross-valenced correlations were significant in the Asian samples. Rather, cultural differences were most pronounced for the emotion of pride. Second, like-valenced correlations were remarkably similar across the samples. In particular, the relation between happiness and joy was highly consistent across the different groups. Importantly, we did not find an inverse relationship between pleasant and unpleasant emotion at the between-person level for any of the cultural groups. In terms of research on happiness (e.g., Myers, 1992), this finding is important because it suggests that the mere absence of negative emotion is not the same as positive emotion. Consequently, researchers need to measure both positive and negative emotions, not simply global happiness. Finally, the cross-cultural differences at the between-person level point to important theoretical considerations in defining emotional well-being across cultures. Is the happy person someone who experiences a wide range of emotions or only pleasant emotions?

### Extending previous research

The present findings reiterate Diener and Emmons's (1984) point on the importance of distinguishing between momentary mood and long-term affect in examining the structure of emotions. The current study extends their argument to the cross-cultural arena; depending on the nature of the question and the level of analysis, the structure of affect can be both similar and different across cultures.

### Independence vs. bipolarity revisited?

The controversial debate over the independence of pleasant and unpleasant affect has been mired in disagreements over definitions and statistical procedures. Several researchers (e.g., Diener & Iran-Nejad, 1986; Russell & Carroll, 1999; Schimmack, 2001) have noted the limitations of the correlation coefficient as a pure test of independence. We agree with this body of research, however, such limitations are less relevant for the present analyses. First and foremost, our goal was to examine differences and similarities in the relation between pleasant and unpleasant affect across samples, not to test for independence or bipolarity *per se*. To this end, although we used the correlation coefficient in our analyses, we do not make the strong claim that correlations weaker than  $-1$  indicate that pleasantness and unpleasantness do not lie at opposite ends of a spectrum. Rather, cross-cultural comparisons of these correlations are interesting and informative about the relative association of pleasantness and unpleasantness. Furthermore, as a test of mutual exclusivity, we use the MIN statistic (Schimmack, 2001) rather than relying entirely on the correlation coefficient.

### Conclusion

The present investigation revealed cultural invariance in the structure of emotional experiences at the within-person level. Immediate emotional reactions appear to be either positive or negative for most individuals across cultures. On the other hand, the present findings suggest that the characteristics of persons who frequently experience positive emotions differed substantially across cultures. Specifically, Asian Americans, Japanese, and Indians who frequently (or intensely) experience pleasant emotion also experience more unpleasant emotion. Given that the correlations were computed based on the aggregates of momentary reports (unlike previous studies), the present finding cannot be readily explained by cultural difference in beliefs about emotional experiences. Rather, the positive correlations found in our study reflect the nature of positive and negative emotional experiences in daily lives among Asians. In this regard, we outlined several key factors such as the cultural orientation of being prevention-focused, goal structure, and interpersonal structure based on sympathy. The future examination of these factors will certainly increase an understanding of the nature of emotional experiences and well-being across cultures.

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