EMOTIONS ACROSS CULTURES AND METHODS

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Participants included 46 European American, 33 Asian American, 91 Japanese, 160 Indian, and 80 Hispanic students ($N = 416$). Discrete emotions, as well as pleasant and unpleasant emotions, were assessed: (a) with global self-report measures, (b) using an experience-sampling method for 1 week, and (c) by asking participants to recall their emotions from the experience sampling week. Cultural differences emerged for nearly all measures. The inclusion of indigenous emotions in India and Japan did not alter the conclusions substantially, although pride showed a pattern across cultures that differed from the other positive emotions. In all five cultural groups and for both pleasant and unpleasant emotions, global reports of emotion predicted retrospective recall even after controlling for reports made during the experience sampling period, suggesting that individuals' general conceptions of their emotional lives influenced their memories of emotions. Cultural differences emerged in the degree to which recall of frequency of emotion was related to experience sampling reports of intensity of emotions. Despite the memory bias, the three methods led to similar conclusions about the relative position of the groups.

Keywords: culture; emotion; experience sampling methodology; memory for emotions

A consistent and intriguing finding in the subjective well-being (SWB) literature is that individuals from Asian cultures tend to report lower levels of life satisfaction, less pleasant emotion, and greater negative emotion compared to North Americans (e.g., E. Diener, Diener, & Diener, 1995; Kitayama, Markus, & Kurokawa, 2000). Even within the United States, differences among ethnic groups mirror cross-national findings, with Asian Americans reporting lower SWB than European Americans (e.g., Okazaki, 1997, 2000; Schkade & Kahneman, 1998). Notably, however, most cross-cultural comparisons of emotion have been based on global measures or recalled reports of emotion, making it difficult to disentangle the meaning of cultural differences. Do cultural differences in global or retrospective reports reflect differences in everyday emotional experience? Or do cultures differ in their memory for emotions, or both? Because global and retrospective reports of emotion are vulnerable to memory reconstruction (Kahneman, 1999), a deeper understanding of the emotional lives of individuals from different cultures requires a study of online emotion or measures of emotion as they occur (Flannery, 1999).

The aims of the present study were twofold. First, this research represents an exploratory effort at quantifying the frequency of specific emotions, including indigenous emotions, across cultures. Thus far, these topics have traditionally received treatment in ethnographic and retrospective self-report studies (Flannery, 1999), whereas the present study sought to document whether cultural differences exist in online or momentary reports of emotion compared to global and retrospective measures. Although this may be a straightforward descriptive goal, it is of fundamental importance because little is currently known about online emotional experience across cultures. Empirically establishing the base rates of specific emotions is necessary because it is possible for cultures to have identical antecedents and components of an emotion, and yet differ only in their frequency of experience (Flannery, 1999; Mesquita & Frijda, 1992). Because the present study used multiple measures, we were also able to examine whether the different measures converged on the same conclusions. This is an important question for the measurement of emotions within and between cultures, because the convergence and divergence of multiple measurement methods can help us understand the processes underlying cultural differences. For example, if Culture A scores higher than Culture B on a global measure of x, but there are no differences between A and B using an online measure of x, this would suggest that memory processes influence cultural differences in the global measures.

In addition, we explored the contribution of indigenous emotion terms to the measurement of emotion in two of our samples (Japan and India). The indigenous emotions address an important concern that often arises in culture and emotion research. Do indigenous emotion terms capture the emotional lives of non-Westerners in ways that the "standard" Western emotion terms do not? To answer this question, we used cluster analyses that included indigenous emotions to determine whether indigenous emotions form distinct clusters from the traditional clusters of pleasant and unpleasant affect that are often found in studies of Western emotions. We describe these indigenous emotions and the analyses in greater detail in the Method section.

Another objective was to move beyond the descriptive level and explore the influences on memory for emotion across cultures. This goal was guided by previous research showing that memory for emotion is a reconstructive process with systematic influences that can explain memory biases. One source that may guide memory for emotions is a person's self-concept. E. Diener, Larsen, and Emmons (1984), for instance, found that when asked to recall their emotions, individuals scoring high on trait measures of happiness overestimated the amount of positive emotion they had experienced, whereas unhappy individuals overestimated the amount of negative emotion they had experienced. Similarly, Feldman Barrett (1997) found that neurotic individuals remembered more negative emotion, whereas extraverts remembered more positive emotion compared to their online reports. Other influences on memory have been identified, such as implicit theories (Ross, 1989), current appraisals (Levine, 1997), stereotypes (Robinson, Johnson, & Shields, 1998), and cultural theories (Oishi, 2002). However, in the present study, we chose to focus on the influence of self-concept across cultures.

Although past studies demonstrated that the self-concept influences memory for emotions, the present study extends this work by investigating whether this relation holds across cultures. To this end, we asked participants to record their emotions online and later asked them to recall their emotions from the online sampling period. We also included a global self-report measure of emotions that served as an approximation of the individual's emotional self-concept. If the self-concept contributes to emotional recall, we would expect there

to be a sizable relation between the global measure and the recall measure, controlling for online experience.

The relation between online and recalled reports of emotion raises additional questions that have not been examined in previous research. For instance, is recalled frequency of emotion related to the online intensity of emotions?[1] Because intense emotions seem more memorable, we predicted that intensity would be associated with the recall of frequency of emotions. In addition, if some cultures value or attend to intense emotions more than others, emotion memory for individuals in those cultures may be more influenced by intense experiences.

SEMANTIC KNOWLEDGE USE IN THE
RECALL OF LARGE TIME FRAMES

According to Robinson and Clore (2002a), individuals rely on different strategies for estimating their past emotional experience, depending on the frame of reference. In recalling short, discrete time frames such as momentary recall (e.g., "How happy were you in the past 30 minutes?"), individuals are able to draw on episodic knowledge. That is, they recall specific instances to inform their judgment of how happy they were. In contrast, when people recall longer, more abstract time frames (e.g., "How happy are you in general?" or "How happy were you in the past month?"), they abandon a retrieve-and-aggregate strategy, favoring instead the use of heuristic information or semantic knowledge (e.g., general beliefs about the self) to "fill in" where specific episodic memories are not accessible or are too difficult to retrieve or calculate (Robinson & Clore, 2002a).

In a series of reaction time studies, Robinson and Clore (2002b) found strong support for their model. Their studies capitalized on the fact that reliance on heuristic information is less effortful and allows for quicker responding in recall. Importantly, if heuristic information is implicated in recalling longer, but not shorter, time frames, then speed of recall should reflect a curvilinear pattern, not a linear increase (e.g., greater time to recall longer time frames). Indeed, Robinson and Clore (2002b) found that participants were as quick at making recalled judgments about the past year as they were about the past hour. Robinson and Clore's (2002b) findings are important because they suggest that distortions in memory for emotion can be accounted for in systematic ways by identifying the heuristic sources of information (e.g., self-concept, implicit theories, or current appraisals) on which people rely.

Based on Robinson and Clore's (2002a, 2002b) theory and findings, in the present study we chose to treat retrospective reports of emotion that referenced the past month as a measure that approximates a person's self-concept. We do not claim that this measure captures all aspects of individuals' complex self-concepts. Indeed, one common conception of self-concept—self-esteem—is notably absent from our definition. However, we chose to focus on global beliefs about one's emotions as self-concept rather than self-esteem. We were interested in what influences memory for emotions; thus, it was appropriate and necessary to use a global measure that referenced emotions rather than global good feelings about the self. In fact, Christensen, Wood, and Feldman Barrett (2003) found that global self-esteem predicted memory for state self-esteem (controlling for online state self-esteem), but only in a few instances did global self-esteem predict memory for emotions. Our theoretical question was whether beliefs about one's own emotions influence the recall of them.

PREDICTIONS

Frequency of specific emotions across cultures. Past research has shown that Hispanic and European American cultures tend to emphasize good feelings, and individuals in these cultures are more likely to engage in self-enhancement, including the enhancement of positive feelings (Heine, Lehman, Markus, & Kitayama, 1999; Triandis, Marin, Lisansky, & Betancourt, 1984). This tendency is clearly reflected in the cultural norms for these groups. Hispanics and European Americans consider pleasant feelings to be much more desirable and appropriate than unpleasant emotions (e.g., E. Diener, Scollon, Oishi, Dzokoto, & Suh, 2000; E. Diener & Suh, 1999; M. Diener, Fujita, Kim-Prieto, & Diener, 2003). In contrast, Asian cultures emphasize pleasant and unpleasant feelings nearly equally (E. Diener & Suh, 1999).

An added dimension that has been studied by Kitayama and Markus and colleagues is social disengagement versus engagement. This dimension captures the degree to which an emotion affirms the identity of an individual as a distinct, separate entity (disengaged) versus the individual as part of a social group (engaged). Using retrospective reports, Kitayama et al. (2000) showed that Japanese indicated feeling more engaged emotions of positive and negative valence, whereas Americans reported feeling more engaged and disengaged positive emotions. Menon and Shweder (1994) have also noted the significance of the engagement dimension in India. For instance, Indians are more likely to view shame and happiness as more similar than shame and anger, because anger is an emotion that is divisive and separates people. On the other hand, North Americans consider anger and shame to be more similar because of valence.

In the present study, although we did not sample all of the same emotions as Kitayama et al. (2000), we were able to compare across cultures on two relevant emotions: pride and guilt. In many ways, pride serves as a prototypical disengaged, positive emotion because pride often results from accomplishing one's goals or affirming some internal attribute (e.g., "I am special"), which reinforces the separateness of the self from others (Kitayama, Markus, & Matsumoto, 1995).[2] In contrast, guilt serves as a prototypical engaged emotion because it strengthens the bonds between people (e.g., remorse leading to remedy leading to forgiveness); but guilt is also an unpleasant feeling. Accordingly, we expected Hispanics and European Americans to report more pride and less guilt than Asian Americans, Japanese, and Indians in global and retrospective reports because pride is pleasant and guilt is unpleasant. In fact, we expected European Americans and Hispanics to report overall higher levels of pleasant emotion and lower levels of unpleasant emotion (replicating previous studies). Because guilt is engaging and pride is disengaging, we expected Asian Americans, Japanese, and Indians to report more guilt and less pride. Given that this is the first study to our knowledge that uses online measures of specific emotions, predictions for online measures were more tentative. On one hand, Oishi (2002) found no cultural differences in online emotion between Asian Americans and European Americans, which might lead us to expect no cultural differences for the online measure. On the other hand, evidence from retrospective reports indicates clear differences in the frequency of experience of specific emotions, particularly pride and guilt, across cultures.

What influences memory? We hypothesized that self-concept would predict memory for emotions across cultures, even after controlling for online emotion. However, we did not have any theoretical formulations about how this process would vary by culture or specific emotion. We also predicted that intensity of emotions might be associated with the recall of

frequency of emotions—especially for cultures that highly value one type of emotional experience over another. Because Hispanic and American cultural norms emphasize positive feelings, we predicted that intense pleasant experiences would be implicated in the recall of frequency of pleasant feelings for these groups, whereas intense negative experiences would not be implicated in recall of amount of unpleasant feelings. Because Asian cultures tend to equally value positive and negative (E. Diener & Suh, 1999), we predicted that either intensity information would have no relation to their recall of frequency, or intensity of pleasant and unpleasant feelings would equally predict memory.

METHOD

PARTICIPANT SAMPLES

We examined three cultural samples within the United States (European American, Asian American, and Hispanic) and two societies outside of the mainstream Western tradition (India and Japan). Through these five cultural groups, we hoped to have a diverse sample of subcultures within one Western nation, as well as two non-Western cultures. We studied college students so that each culture would be represented by individuals of approximately the same age, education, and relative income. Thus, these factors would not be confounded with culture. In addition, we included cultural groups that have largely been ignored in the culture and emotion literature. Latinos and Indians have received little attention (Biswas-Diener & Diener, 2001), despite the fact that India is the second largest nation in the world and is leading the world in population growth, and Latino Americans make up nearly 12% of the U.S. population and are on the verge of being the largest ethnic minority group in the United States.

A total of 416 college students participated in this study. Although small in comparison to some international surveys, our samples were quite respectable by the standards of experience sampling studies. Some participants did not have experience sampling data due to technical failures; others did not complete the memory measures. Analyses were computed on available data; therefore, different analyses reflect slightly different sample sizes. Participants volunteered and received $25 compensation, or the equivalent monetary incentive for Japanese and Indian students (not a direct exchange of U.S.$25). Volunteers responded to advertisements for the study posted on or near campus. At the end of the study, participants were fully debriefed. Table 1 describes the samples. Portions of the data that examined other questions are presented elsewhere (on cross-situational consistency across cultures, see Oishi, Diener, Scollon, & Biswas-Diener, in press; on dialectical emotions, see Scollon, Diener, Oishi, & Biswas-Diener, in press).

MEASURES

At the beginning of the study, participants completed global report measures concerning emotions, after which they began the week-long experience sampling portion of the study. At the end of the week, participants recalled their emotions from the experience sampling week. All materials were in English, except for those presented to Japanese respondents. 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 for the Indian college students.[3]

TABLE 1
Participant Samples

Culture	n	Female (%)	Age M	SD
Japanese[a]	91	63	20.2	2.3
Indian[b]	160	64	21.4	2.6
Asian American[c]	33	67	20.6	1.9
Hispanic[d]	80	79	21.7	5.5
European American[c]	46	83	20.9	4.3
Total	416	68	21.1	3.5

a. Recruited from International Christian University and Meisei University, both in Tokyo.
b. From Utkal University in Bhubeneswar, a city in the state of Orissa, 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, and Ramakrishna Mission at Nurendrapur, all in and around Calcutta.
c. From the University of Illinois.
d. From California State University at Fresno. Hispanic respondents were recruited only if they spoke Spanish at home.

Global measure. Before beginning the experience sampling portion of the study, participants indicated how much of the time they typically felt eight specific emotions (described later) during the past month on a scale ranging from 1 (*never*) to 7 (*always*). As Robinson and Clore (2002b) have shown, when participants are asked to reference a large time frame, they rely on heuristic information to respond to the question, rather than careful retrieval and aggregation of affective memories. Thus, this measure can be considered a general measure of affect that approximates a person's self-concept. Importantly, this measure bears no overlap in time with the experience sampling or recalled measures.

Experience sampling of the week. During their waking hours, participants carried a device that was preset to sound an alarm at random moments throughout a 2- to 3-hour interval 5 times a day for 7 days.[4] When signaled, participants completed mood ratings according to how they were feeling "right before the alarm sounded." We specified the time "right before the alarm" to remove any effects of the alarm itself. Although in most instances respondents could complete the mood form immediately after being signaled, if it were 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 mood ratings beyond the half-hour time frame. The average response rate was 75%. Participants completed additional mood ratings when they first woke up and before going to bed each day. When signaled, participants recorded to what degree they were feeling the specific emotions on a scale ranging from 0 (*not at all*) to 6 (*with maximum intensity*).

Proportion or frequency of emotions. Ratings for each occasion were transformed into dichotomous variables indicating whether the emotion was currently being experienced (i.e., any nonzero response) or not (i.e., any zero response). We then computed the proportion of time each specific emotion was reported over the entire week. These values specifically reflect the amount of time various emotions were experienced and do not take into account the intensity of those emotions.

Intensity of emotions. We computed the (week-long) mean level of intensity for each of the eight emotions by summing a person's ratings on each emotion and dividing by the total number of occasions on which the emotion rating was nonzero. In other words, this score reflects the mean level of intensity for a particular emotion only when that emotion was felt (for a detailed discussion of the rationale for this procedure, see E. Diener, Larsen, Levine, & Emmons, 1985).

Retrospective measure. On the last day of the experience sampling week, participants recalled the percentage of time they experienced each of the specific emotions during the week in which they carried the signaling device. Responses could range from 0% to 100% of the time for each emotion. Instructions specified that the percentages did not need to sum to 100% because participants may have felt more than one emotion at the same time. Note that this is a measure of the proportion of time a person experienced specific emotions.

Choice of emotions. For each type of assessment (global, online frequency, online intensity, and recall), we sampled four positive emotions (pride, affection, joy, and happiness) and four negative emotions (irritation, guilt, sadness, and worry).[5] These emotions were selected to represent major forms of pleasant and unpleasant emotion (E. Diener, Smith, & Fujita, 1995) and served as a compromise between an exhaustive list of emotions and the quick, short list required by the experience sampling method (for a practical review of experience sampling methodology, see Kim-Prieto, Fujita, & Diener, 2004). Recognizing that we could not sample all the emotions, these eight emotion terms were selected because they are diverse and appear in many emotion systems such as Ortony, Clore, and Collins (1988); Shaver, Wu, and Schwartz (1992); Plutchik (1980); and Izard (1977). In addition, we avoided extreme emotions such as "rage" and "elation" because they are infrequent, and we were interested in everyday common emotions.

One caveat to this selection of emotions is that these terms are established meaningful terms in Western theories of emotion (although Shaver et al. [1992] found these emotions in the Chinese emotion lexicon). Conceivably, the English emotion lexicons might not adequately represent the emotional lives of non-Western individuals. Therefore, we also performed hierarchical cluster analyses on the frequency of online emotions which included two pleasant indigenous emotions (*shitashimi* and *fureai*) and two unpleasant indigenous emotions (*oime* and *rettokan*) in the Japanese sample, and one pleasant (*sukhi*) and one unpleasant (*aviman*) indigenous emotion in the Indian sample, in addition to the previously mentioned eight emotions. The cluster analyses should reveal whether indigenous emotions form distinct clusters from the traditional clusters of pleasant and unpleasant affect commonly found in studies of Western emotion.

The indigenous emotions are unique in that they do not have English equivalents. Nevertheless, we will try to give the reader a general sense of what it means to feel these emotions, keeping in mind that there is no one-to-one translation of these emotions. For example, the Indian term *aviman* is best described as a feeling of prideful loving anger, and the term *sukhi* is similar to peace and happiness. A Japanese individual might use the term *fureai* when she feels a sense of connectedness to someone else. *Shitashimi* is used to describe a sense of familiarity. *Oime* refers to a feeling of indebtedness, and *rettokan* means to feel inferior. A noted similarity among these indigenous emotions is that they tend to implicate the person's social world. This is consistent with Mesquita's (2001) notion that in collectivist cultures, an emotion reflects the self in relation to others, whereas in individualist cultures, emotions
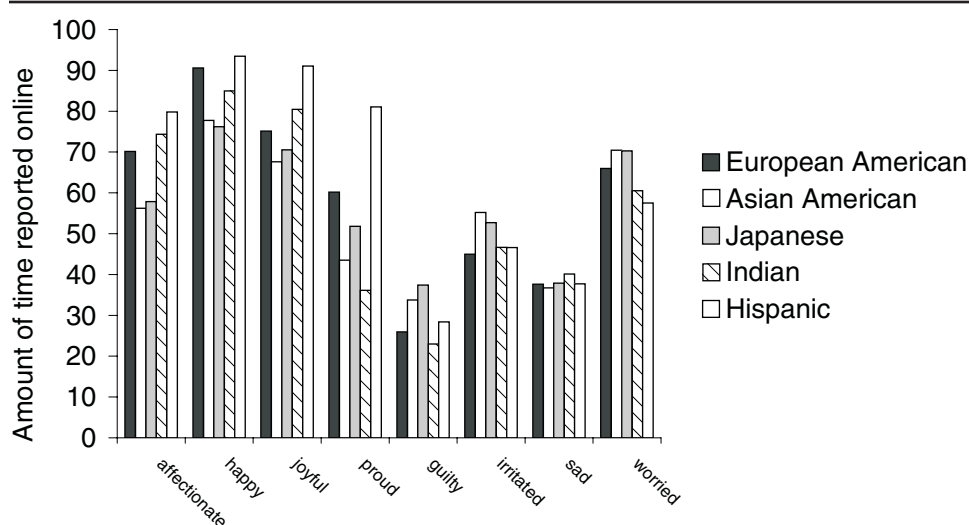
Figure 1: Amount of Specific Emotions Reported Online by Cultural Group

refer to the self as a separate, bounded entity. Unfortunately, indigenous emotion ratings for Japanese and Indians were not available in the global and recall measures.

RESULTS

DO CULTURES DIFFER IN FREQUENCY OF SPECIFIC EMOTIONS?

A one-way multivariate analysis of variance (MANOVA) performed on the frequency of specific emotions revealed significant differences between cultures, Wilks's Lambda = .50, $F(32, 1,381) = 8.98$, $p < .001$, $\eta^2 = .16$. Univariate tests revealed significant cultural differences for all emotions, Fs$(4, 381) > 3$, ps $< .02$.[6] Figure 1 shows the mean levels of frequency of specific emotions for each cultural group. Several interesting points are worth noting about this figure. First, there is considerably more cultural variability in the pleasant emotions than in unpleasant emotions, a finding that replicates Eid and Diener (2001). As expected, the largest difference between cultures was in reports of pride, $F(4, 381) = 25.07$, $p < .001$, $\eta^2 = .21$. Hispanic Americans felt the most pride ($M = 81.0\%$, $SD = 23.7$), and the three Asian cultures reported the lowest frequency of pride, with Indians reporting the least pride ($M = 36.1\%$, $SD = 32.5$). These findings are consistent with previous formulations about pride in Asian societies (M. Diener et al., 2003; Kitayama et al., 1995, 2000; Menon & Shweder, 1994)—that pride is not highly valued because it separates individuals from others. Interestingly, because Hispanic culture is also purportedly collectivistic (e.g., Triandis et al., 1984), collectivism alone cannot explain cultural differences in mean levels of pride. If it did, we would expect Hispanics to be very low in pride, but instead they are the highest.

Another notable feature of Figure 1 is that cultural variability for sadness was virtually zero, as indicated by nearly identical means for the different groups but also $F(4, 381) = .18$, $p = .95$, $\eta^2 = .002$, whereas the cultures varied more in terms of guilt, $F(4, 381) = 4.64$, $p <$

.01, $\eta^2 = .05$. Consistent with Kitayama et al. (1995, 2000), Japanese ($M = 37.4\%$, $SD = 28.2$) and Asian Americans ($M = 33.8\%$, $SD = 26.5$) reported more guilt than European Americans ($M = 26.0\%$, $SD = 25.0$) and Hispanics ($M = 28.4\%$, $SD = 27.3$). Unexpectedly, however, Indians reported the least amount of online guilt ($M = 23.0\%$, $SD = 24.8$).

In general, the ordering of the cultural groups remained relatively consistent across the specific emotions, with Hispanic and European Americans feeling the most pleasant and least unpleasant in online reports. The three Asian cultures were consistently lower in pleasant affect and higher in unpleasant affect, although their ordering varied slightly depending on the specific emotion. The pattern of cultural differences resonates with previous studies using global and retrospective reports (e.g., E. Diener, Diener, et al., 1995) and echoes the finding that European American and Hispanic cultures tend to place greater emphasis on good feelings (e.g., E. Diener et al., 2000; Heine et al., 1999; Kitayama et al., 2000; Triandis et al., 1984) and rate pleasant emotions as more desirable and appropriate than individuals in Asian societies (E. Diener & Suh, 1999; Eid & Diener, 2001).

As expected, cultural differences also emerged in global and recalled reports of pride, $F(4, 406) = 22.97$, $p < .001$, $\eta^2 = .19$, and $F(4, 373) = 21.72$, $p < .001$, $\eta^2 = .19$, respectively. Specifically, Hispanic ($M = 4.62$, $SD = 1.7$) and European Americans ($M = 3.69$, $SD = 1.3$) reported the highest levels of pride, whereas Indians ($M = 2.71$, $SD = 1.5$) reported the lowest pride in global measures. Hispanic and European Americans also recalled the most amount of pride (Ms = 46.8 and 27.0, SDs = 32.0 and 26.2, respectively), and Asian Americans recalled the least amount of pride ($M = 13.2$, $SD = 13.4$), followed by Indians ($M = 16.4$, $SD = 19.4$). Cultural differences emerged in global reports of guilt, $F(4, 406) = 8.80$, $p < .001$, $\eta^2 = .08$, with Japanese scoring the highest ($M = 3.04$, $SD = 1.5$), followed by Hispanics ($M = 2.48$, $SD = 1.2$) and Asian Americans ($M = 2.45$, $SD = 1.0$). European Americans scored lowest in global reports of guilt ($M = 2.09$, $SD = .78$). No significant group differences emerged for recall of guilt, $F(4, 374) = 2.09$, $p = .08$, $\eta^2 = .02$, although the Japanese again scored the highest ($M = 17.0$, $SD = 22.2$).

DO INDIGENOUS EMOTIONS ADD TO CONCLUSIONS ABOUT AVERAGE EMOTIONAL WELL-BEING?

To answer this question, we submitted dissimilarity matrices of emotion terms to a hierarchical cluster analysis using complete linkage.[7] As shown in Figures 2 and 3, for the Japanese and Indians, two clusters of pleasantness and unpleasantness emerged at the highest level. Importantly, the indigenous emotions did not form separate clusters in either sample. Instead, the indigenous emotions simply clustered with the expected pleasant and unpleasant clusters. Interestingly, pride clustered with the negative emotions for Indians, and was closest to the indigenous emotion aviman. The proximity of pride to aviman makes sense, given the definition of aviman ("prideful loving anger"). For the Japanese, however, pride clustered with the positive emotions, although of all the positive emotions, pride was the closest to the negative emotions. For the Japanese sample, the pleasant cluster was bifurcated into happy-joyful versus shitashimi-fureai-affectionate-proud and the unpleasant cluster split into irritated-worried versus sad-rettokan-oime-guilt at the second highest level.

Examination of the amount of time Japanese and Indians reported feeling the indigenous emotions showed that these emotions were either uncommon or experienced to the same degree as the other eight emotions. For example, the most frequently experienced indigenous emotion among the Japanese was shitashimi ($M = 63\%$, $SD = 27.3$), whereas happiness was reported, on average, 76% of the time ($SD = 22.1$). The negative indigenous emotions
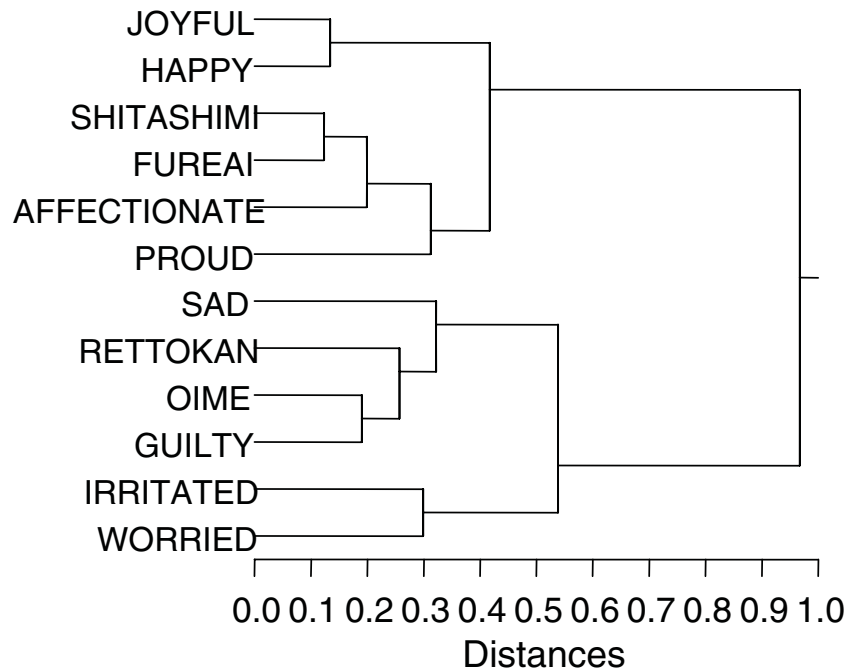
Figure 2: Dendogram From Cluster Analysis of Japanese Indigenous Emotions With Translated English Emotions

NOTE: Clustering method was complete linkage. *Shitashimi*, *fureai*, *rettokan*, and *oime* are indigenous Japanese terms.

(oime and rettokan) were even less frequently reported (Ms = 29% and 31%, SDs = 27.2 and 29.3, respectively), whereas the least frequently reported nonindigenous negative emotion for the Japanese was sadness (M = 38%, SD = 30.4). Indians reported feeling sukhi 78% (SD = 27.4) of the time, whereas they felt happy, on average, 85% of the time (SD = 16.9). Aviman was reported only 32% of the time (SD = 32.4). Although this was more frequent than guilt (23%, SD = 24.8), it was much less frequent than worry, which was reported 61% of the time (SD = 27.4). In sum, the present analyses indicate that these specific indigenous emotions are fairly well-represented by Western emotion words.

Cluster analyses were also conducted on the other three cultural groups. Again, the highest level of clusters divided pleasant and unpleasant emotions in each culture, suggesting that there is a tendency for individuals who experience one pleasant emotion to experience the other pleasant emotions as well, over time. Likewise, individuals who frequently felt one unpleasant emotion also felt the other unpleasant emotions. It is important to note that the general clustering of pleasant and unpleasant emotions together in all five cultural groups does not contradict the idea that people in different cultures might classify different emotions as desirable or undesirable (or positive or negative in the narrative sense). Our data do not speak to the perceived normative desirability of the emotions. Instead, our cluster analyses point to a general individual difference tendency such that some individuals are prone to a spectrum of pleasant emotions, and some individuals are predisposed to a variety of unpleasant emotions, and these two dispositions are separable across cultures.
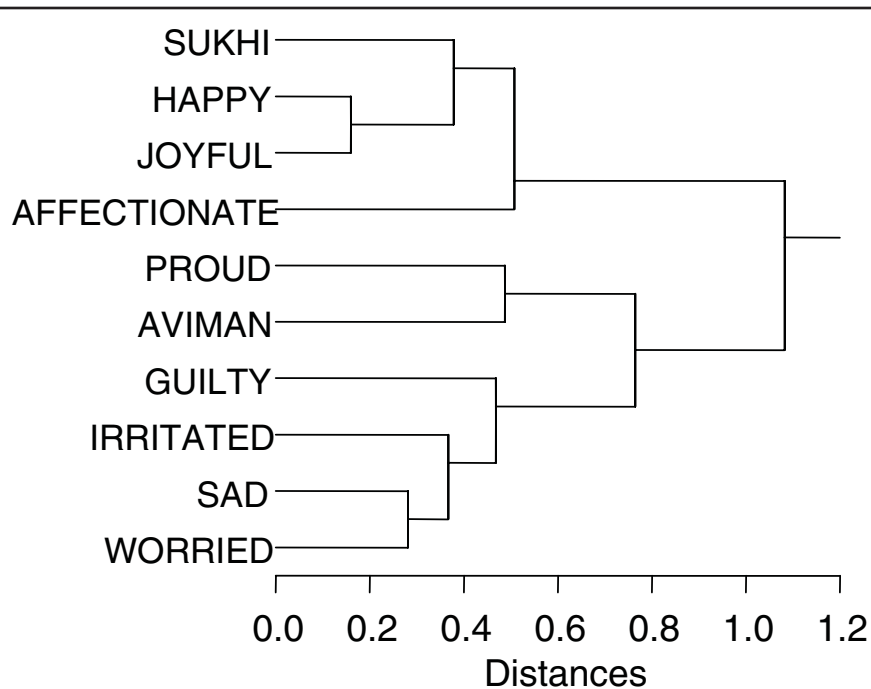
**Figure 3:   Dendogram From Cluster Analysis of Indian Indigenous Emotions With Translated English
              Emotions**
NOTE: Clustering method was complete linkage. *Aviman* and *sukhi* are indigenous Indian emotion terms.

DO CULTURES DIFFER ACROSS DIFFERENT TYPES OF MEASURES?[8]

Because the online frequency and recall scores were based on a 100-point scale whereas the other ratings were based on a 7-point scale, it was first necessary to standardize the measures so they would be in the same metric. We then performed a repeated measures MANOVA on the standardized emotion terms (with the four methods of assessment serving as the within-subjects factor). Table 2 shows the results of the MANOVAs, which were conducted separately for each emotion to aid in interpretation. Method $\times$ Culture interactions emerged for all emotions (indicating nonparallel profiles), but effect sizes for these interactions were miniscule—the largest effect size being .06 for joyful and irritated. No main effects for method emerged. However, a main effect for culture emerged for every emotion. Most of the effect sizes for culture were small, but in a few instances this culture effect was larger. Specifically, the effect sizes (η^2) for culture were .14 for happiness and .10 for joy, and the largest effect size for culture was for the emotion pride ($\eta^2 = .27$).

Aggregation of emotion terms. In the interest of brevity, we do not present all 160 means for each emotion for each method of assessment for each cultural group (i.e., $8 \times 4 \times 5$). Instead, we created composite scores from the specific emotions, and describe the convergence of measures based on these aggregated terms.

For all measures, happiness and joy were averaged to create a pleasant emotion (PE) score, and guilt, irritation, sadness, and worry formed an unpleasant emotion (UE) score.

TABLE 2
Multivariate Tests and Effect Sizes

	Method	*Culture*	*Method × Culture*
Affectionate	$\Lambda = 1.0$, $F(3, 346) = .26$, $\eta^2 = .00$	$F(4, 348) = 7.47^{**}$, $\eta^2 = .08$	$\Lambda = .94$, $F(12, 916) = 1.96^{**}$, $\eta^2 = .02$
Happy	$\Lambda = 1.0$, $F(3, 351) = .32$, $\eta^2 = .00$	$F(4, 353) = 14.90^{**}$, $\eta^2 = .14$	$\Lambda = .91$, $F(12, 929) = 2.76^{**}$, $\eta^2 = .03$
Joyful	$\Lambda = 1.0$, $F(3, 348) = .45$, $\eta^2 = .00$	$F(4, 350) = 10.15^{**}$, $\eta^2 = .10$	$\Lambda = .84$, $F(12, 921) = 5.36^{**}$, $\eta^2 = .06$
Proud	$\Lambda = .97$, $F(3, 327) = 3.27^{**}$, $\eta^2 = .03$	$F(4, 329) = 29.86^{**}$, $\eta^2 = .27$	$\Lambda = .93$, $F(12, 865) = 2.13^{**}$, $\eta^2 = .03$
Guilty	$\Lambda = .96$, $F(3, 307) = 4.29$, $\eta^2 = .04$	$F(4, 309) = 4.52^{**}$, $\eta^2 = .06$	$\Lambda = .92$, $F(12, 813) = 2.19^{**}$, $\eta^2 = .03$
Irritated	$\Lambda = .98$, $F(3, 348) = 2.14$, $\eta^2 = .02$	$F(4, 350) = 2.62^{**}$, $\eta^2 = .03$	$\Lambda = .83$, $F(12, 921) = 5.64^{**}$, $\eta^2 = .06$
Sad	$\Lambda = 98$, $F(3, 335) = 2.01$, $\eta^2 = .02$	$F(4, 337) = 1.55^{**}$, $\eta^2 = .02$	$\Lambda = .92$, $F(12, 887) = 2.49^{**}$, $\eta^2 = .03$
Worried	$\Lambda = .99$, $F(3, 350) = 1.68$, $\eta^2 = .01$	$F(4, 352) = 5.75^{**}$, $\eta^2 = .06$	$\Lambda = .92$, $F(12, 926) = 2.49^{**}$, $\eta^2 = .03$

NOTE: Multivariate test statistic was Wilks's Lambda (Λ). The repeated measures factor was Method, and refers to the four types of measures (global self-concept, online frequency, online intensity, and recalled emotion).
$^{**}p < .05$.

This choice of aggregation was based on several convergent lines of research. First, the dimensions of pleasantness and unpleasantness have been replicated in multiple studies using cross-cultural samples (e.g., Kim-Prieto, Diener, & Fujita, 2004; Scollon et al., in press), even in studies that began with indigenous emotion terms rather than using translations of English emotion words (e.g., Shaver et al., 1992; Watson, Clark, & Tellegen, 1984). Second, Scollon et al. (in press) and Eid and Diener (2001) found less cultural variability in unpleasant emotions, and Scollon et al. (in press) found strong evidence that the negative emotions consistently covaried with one another, regardless of culture. Thus, we elected to aggregate the four unpleasant emotion terms (guilt, irritation, sadness, and worry). See Table 3 for reliability coefficients (Cronbach's alphas).

For pleasant feelings, however, there appears to be greater cultural variability. In particular, pride and affection are sometimes associated with negative emotions, especially in Asian cultures. First and most simply, the mean levels of pride reflect differences in cultural norms regarding this emotion, replicating other cross-cultural investigations of pride (e.g., Stipek, 1998). Second, Kim-Prieto et al. (2003) conducted a cluster analysis of emotion in 46 nations and found that at higher level clusters, pride clustered with the negative emotions in India and other non-Western societies. In the present study, pride also clustered with the unpleasant emotions for the Indian sample. Third, Scollon et al. (in press) found that pride loaded on the pleasant and unpleasant factors for Asians, and affectionate showed some mild associations with unpleasant feelings as well. Similarly, Shaver et al. (1992) noted that among Chinese respondents, love did not emerge as a basic emotion with positive valence. Instead, for the Chinese, love-related concepts clustered near sadness and other negative emotions related to attachment and loss. Lutz's (1982) observation that the Ifaluk have an emotion called *fago* that represents a combination of love, sadness, pity, and compassion also converges with the notion that affection may not be purely positive in non-Western

TABLE 3
Internal Consistency (alphas) for Pleasant and
Unpleasant Emotion Indices by Method and Culture

Culture	Pleasant Emotion[a]				Unpleasant Emotion[b]			
	Global	Frequency Online	Intensity Online	Recall	Global	Frequency Online	Intensity Online	Recall
European American	.84	.74	.93	.77	.71	.85	.70	.68
Asian American	.85	.93	.94	.91	.72	.86	.76	.60
Japanese	.67	.92	.90	.89	.54	.86	.79	.77
Indian	.84	.92	.92	.87	.61	.86	.82	.80
Hispanic	.86	.91	.93	.89	.66	.86	.80	.75

a. Computed from two items: happy and joyful.
b. Computed from four items: guilty, irritated, sad, and worried.

cultures. In contrast, happiness and joy are generally rated as desirable in most cultures (Sommers, 1984). Indeed, Shaver et al. (1992) found that happiness/joy emerged as a basic emotion concept in several cross-cultural samples, including the Chinese. Therefore, in aggregating across the pleasant emotions, we elected to use a 2-item PE scale (formed by averaging happiness and joy). See Table 3 for reliability coefficients (Cronbach's alphas).

Cultural differences emerged on all measures of PE and UE, Wilks's Lambda = .62, $F(32, 1,278) = 5.62$, $p < .001$. Univariate tests indicated cultural differences on all measures except frequency of online UE and recall of online UE (see Table 4 for means and univariate F tests). Table 4 also shows that, across the board, participants tended to underestimate their emotional experiences in their recall. Whereas the overall mean frequency of online PE was 81%, the overall mean recall of PE was 49%. Similarly, participants reported negative emotion on average 45% of the time online but recalled that figure as only 25%. These underestimates most likely reflect the difficult nature of the task. In particular, participants may have discounted or not remembered instances in which they felt an emotion only slightly.

As shown in Table 4, Hispanic American respondents scored highest on all measures of PE, followed by European Americans. The three Asian groups were consistently lower on the PE measures. In general, the reverse was true for negative emotion—Hispanic and European Americans were very low on these measures, whereas the other three groups (especially the Japanese) were consistently higher. This pattern is most striking in Figures 4a and 4b, where we have standardized the measures to the same scale so that comparisons can be made. Although the standardized measures could obscure some of the details due to different variances, an interesting pattern still emerges—the rank ordering of the groups is maintained across the different measures. Again, the groups varied less on the unpleasant emotions (as indicated by less spread of the horizontal lines).

DOES SELF-CONCEPT PREDICT MEMORY
FOR EMOTIONS ACROSS CULTURES?

For the memory analyses, we again chose to use indices of PE and UE for the three measures (global, online, and recall) for two reasons. First, we did not have predictions about how the use of self-concept information would vary by specific emotion or by culture.

TABLE 4
Means and Standard Deviations of Measures by Culture

Culture	Pleasant Emotion (PE)				Unpleasant Emotion (UE)			
	Global	Frequency Online	Intensity Online	Recall	Global	Frequency Online	Intensity Online	Recall
European American	4.39 (1.03)	82.87 (18.26)	2.79 (.72)	49.12 (22.33)	3.18 (.87)	43.63 (21.98)	1.90 (.43)	25.90 (15.58)
Asian American	4.35 (1.18)	72.68 (25.15)	2.37 (.60)	39.77 (23.24)	3.33 (.81)	49.03 (23.03)	1.96 (.43)	25.43 (14.54)
Japanese	4.72 (1.13)	73.36 (22.78)	2.53 (.64)	43.98 (22.02)	3.83 (.94)	49.57 (23.58)	2.17 (.60)	28.25 (18.00)
Indian	4.34 (1.26)	82.71 (17.97)	2.87 (.74)	49.86 (21.60)	2.92 (.85)	42.57 (22.58)	2.26 (.74)	24.52 (16.63)
Hispanic American	5.04 (1.16)	92.25 (8.85)	3.21 (.64)	59.99 (24.64)	3.05 (.88)	42.56 (23.31)	1.97 (.55)	20.59 (16.64)
F	5.69*	11.89*	13.10*	7.06*	16.75*	1.77†	5.18*	2.28†
n	411	385	385	377	411	385	384	378

NOTE: $df = 4$. The theoretical range of scores is as follows: global (1 to 7), frequency online (0% to 100%), intensity online (0 to 100%), recall (0% to 100%). Levene's test for homogeneity of variance was violated for self-concept PE, frequency of online PE, and intensity of online UE. For those cases, a Kruskal-Wallis test indicated significant differences among means for self-concept PE ($\chi^2_{(4)} = 20.40$), frequency of online PE ($\chi^2_{(4)} = 39.45$), and intensity of online UE ($\chi^2_{(4)} = 15.85$).
$^\dagger p < .10$, *$p < .01$.

Second, the composite scores form more reliable measures and provide a useful framework for interpreting our findings.

We should note, also, that the analyses concerning memory for emotions do not include indigenous emotions because we were interested in making comparisons across groups and across measures, and therefore needed assessments that would be isomorphic. We recognize that our findings must be interpreted with this limitation in mind.

To determine whether self-concept predicts memory for emotions after controlling for online reports, we regressed the retrospective measure of emotion (taken at the end of the experience sampling week) onto both the online and global measures. We performed this analysis separately for each cultural group, and for PE and UE separately, resulting in 10 separate equations. Table 5 presents the standardized betas for each regression. These betas indicate the unique contribution of online emotion and the unique contribution of global self-beliefs to the recall of that emotion, while controlling for the other predictor. As one might expect, the significant and large betas for online emotion indicate that people are fairly accurate in their recall. Clearly, people have a relatively accurate sense of their own emotional lives—if they did not, this would be alarming. Nevertheless, the global measure still contributes to recall even after controlling for online emotion, as evidenced by the significant betas for the global measure for all groups. In some cases, global self-concept was as strong or stronger of a predictor of memory than online experiences. Furthermore, global self-concept influenced memory in all five cultural groups, and in predicting memory for pleasant and unpleasant emotion.

Interestingly, there were group differences in the degree to which global self-concept influenced memory for emotions. For instance, online emotion was less important to the recall of pleasant and unpleasant emotion in the Hispanic group, and online emotion was a relatively stronger predictor of recall for European Americans than was global self-concept. Although these differences are interesting, we do not have a strong theoretical explanation for why some cultures would use self-concept more. We elaborate on this issue in the discussion section.

IS MEMORY FOR AMOUNT OF EMOTION EXPERIENCED (I.E., FREQUENCY) INFLUENCED BY INTENSITY OF ONLINE EXPERIENCE?

To test this question, we regressed recalled emotion onto intensity of online emotion and frequency of online emotion. Because the recall measure was, by definition, a frequency measure, we would expect there to be a high degree of association between the two. However, if intensity of online emotions is also implicated in people's memories, then we would expect intensity of emotion to add to the prediction of recall even after controlling for online frequency. Table 6 shows the standardized betas for frequency and intensity by cultural group for PE and UE separately. Interesting cultural differences emerged in the degree to which intensity predicted recalled reports of frequency. Notably, intensity of PE was related to recalled frequency of PE among European American, Indian, and Hispanic American participants, suggesting that their memory for the frequency of positive emotions was colored by the intensity of their positive emotions. Among Japanese respondents, intensity of PE did not contribute to recalled PE ($\beta = .15$, $t = 1.40$, $p = .17$), but intensity of UE predicted recalled UE ($\beta = .21$, $t = 2.34$, $p = .02$). Intensity of online UE also strongly predicted recalled UE for Indian participants ($\beta = .40$, $t = 6.28$, $p < .001$). Interestingly, for the Hispanic American group, intensity of PE entirely predicted recall of PE ($\beta = .45$, $t = 3.75$, $p < .001$), whereas
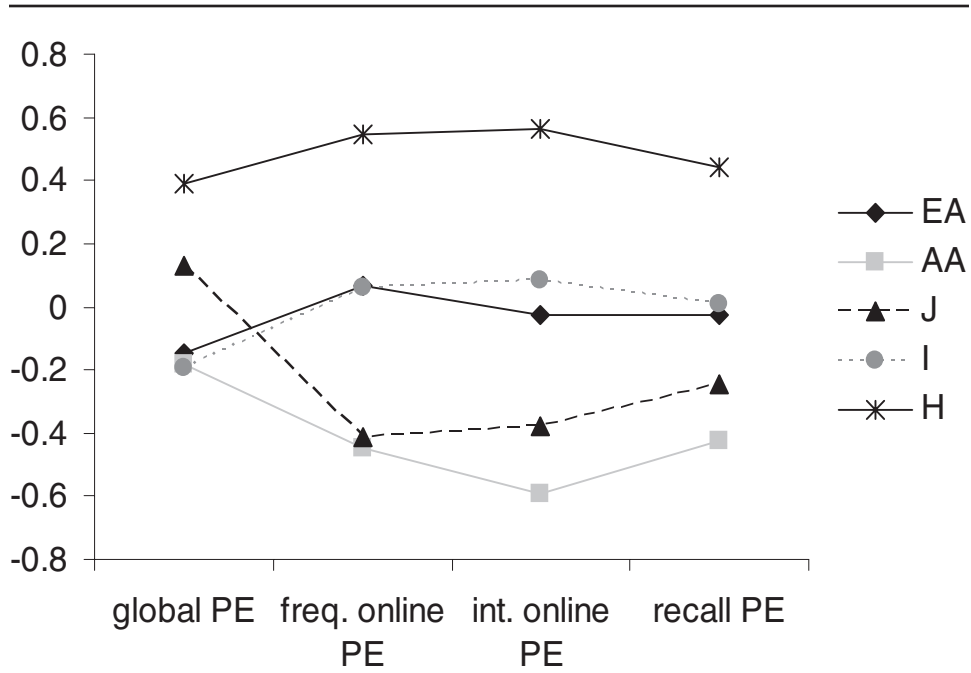
Figure 4a: Standardized Measures of Pleasant Emotion (PE) by Cultural Group
NOTE: EA = European American; AA = Asian American; J = Japanese; I = Indian; H = Hispanic; freq. = frequency;
int. = intensity.
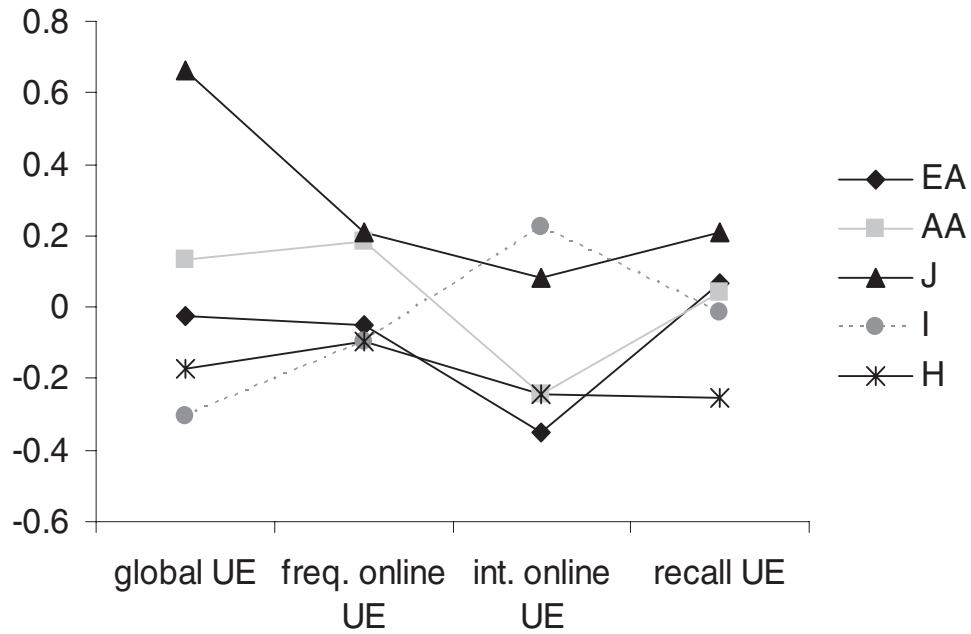
Figure 4b: Standardized Measures of Unpleasant Emotion (UE) by Cultural Group
NOTE: NOTE: EA = European American; AA = Asian American; J = Japanese; I = Indian; H = Hispanic; freq. = fre-
quency; int. = intensity.

TABLE 5
Standardized Beta Weights From Regressions
Predicting Recalled Emotion From Online and Global Measures

| | Standardized Betas | | | |
| | Pleasant Emotion | | Unpleasant Emotion | |
	Online	Global	Online	Global
European American	0.61***	0.27**	0.56***	0.31**
Asian American	0.37***	0.47***	0.41**	0.39**
Japanese	0.44***	0.26***	0.22**	0.34***
Indian	0.36***	0.33***	0.32***	0.37***
Hispanic	0.18*	0.52***	0.17*	0.52***

*$p < .10$. **$p < .05$. ***$p < .01$.

frequency of PE did not predict recall. In addition, intensity of UE was completely unrelated to recalled UE ($\beta = .00$, $t = .02$, $p = .99$) for Hispanics.

These results suggest that retrospective reports of emotions are contaminated by intensity, but the degree to which intensity of online experience is implicated in memory varies by culture and the valence of emotion. Hispanic Americans tended to place greater weight on intense pleasant experiences but no weight at all on intense negative emotions. Indian respondents weighted intensity quite heavily, regardless of valence.

DISCUSSION

CULTURAL DIFFERENCES IN SPECIFIC, AGGREGATED, AND INDIGENOUS EMOTIONS

The present study found cultural differences in pleasant and unpleasant emotion on virtually all types of assessment (global, online, and recall). Consistent with cultural norms regarding the value of pleasant and unpleasant feelings, European Americans and Hispanics displayed the highest levels of pleasant emotion and the lowest levels of unpleasant emotion, whereas Asian Americans, Japanese, and Indians were generally lower in pleasant feelings and higher in unpleasant feelings. In general, the different measures resulted in similar conclusions in that the rank order of the groups was preserved across the methods of assessment.

With regard to specific emotions, we observed the greatest cultural differences in measures of pride. In particular, the three Asian groups, especially the Indians, reported considerably lower levels of pride than European Americans and Hispanics, regardless of type of assessment. Guilt also exhibited large cultural variability, with Japanese and Asian Americans generally reporting the most guilt. These cultural differences are consistent with theories suggesting that European American and Hispanic culture, in general, emphasize pleasant feelings regardless of whether such emotions are engaging or disengaging. In contrast, Asian cultures typically emphasize engaging emotions and de-emphasize disengaging emotions, regardless of the valence of such emotions (Kitayama et al., 1995, 2000). Thus, it is not surprising that European Americans and Hispanics would display the highest levels of pride

TABLE 6
Standardized Beta Weights From Regressions Predicting Recalled (Frequency)
of Emotion From Online Frequency and Online Intensity Measures

| | *Standardized Betas* | | | |
| | *Pleasant Emotion* | | *Unpleasant Emotion* | |
	Online Frequency	*Online Intensity*	*Online Frequency*	*Online Intensity*
European American	0.51***	0.43***	0.82***	0.13
Asian American	0.47***	0.39***	0.57***	0.19
Japanese	0.47***	0.15	0.58***	0.21**
Indian	0.34***	0.34***	0.50***	0.40***
Hispanic	0.09	0.45***	0.52***	0.00

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

(pleasant, disengaging) and relatively low levels of guilt (unpleasant, engaging), whereas Asians would display less pride and more guilt.

The present study also included indigenous emotions and found that these specific emotions did not form separate clusters from the dimensions of pleasant and unpleasant affect that are common to Western theories of emotion. It is possible that the sampling of other indigenous emotions might reveal a different structure, but this remains to be explored in future research. Naturally, the indigenous emotions do include specific content that is not included in other emotions. However, the indigenous emotions that were studied would not alter general conclusions at the level of pleasant and unpleasant affect.

Positive and negative emotions. Characterizing emotions simply as positive or negative has come under attack in recent years because these global assignments can oversimplify the emotion domain, especially in the cross-cultural context where what is considered positive or negative may vary. It should be noted that a positive cluster and a negative cluster emerged in each culture, although pride clustered with the negative emotions in India. Presumably, in each culture people view events as either desirable or undesirable, and react with either pleasant or unpleasant emotions, respectively. Pleasant and unpleasant emotions may be universal reactions to events that are seen as either beneficial or detrimental to a person's goals and well-being. At the same time, the present findings confirm earlier speculations that certain specific emotions such as pride may be considered pleasant or unpleasant in particular cultures. Thus, the positive and negative emotion categories may be useful in a cross-cultural context, but care must be taken as to which emotions belong to these categories.

MEMORY FOR EMOTIONS ACROSS CULTURES

The present study demonstrated that global ratings of affect figure prominently in people's memories of their emotions. For pleasant and unpleasant emotion, there was a sizeable association between global and recalled affect across the cultural groups, even after controlling for online affect. These results are even more remarkable considering that the global and retrospective measures have no overlap in time frame. Furthermore, the present study was a conservative test of the influence of self-concept on memory because participants in

experience sampling studies are more likely to attend to their own emotion states and thus should be unusually accurate in remembering them.

The present findings also underscore the need for experience sampling measures in cross-cultural studies of emotion, particularly in studies of clinical phenomena. Whereas cultures did not differ significantly in online reports of unpleasant emotion (particularly sadness), they differed in global reports of unpleasant emotion. Overreliance on retrospective measures could indicate cultural differences that are not apparent in daily experience.

Although global affect serves as a source of information when recalling emotion, regardless of culture, interesting cultural differences emerged in the degree to which intensity predicted recall (of frequency). Hispanic Americans weighted intensity of pleasant emotion quite heavily, giving no weight at all to the intensity of unpleasant emotions. Indians placed relatively greater impact on intensity of pleasant emotion but equally weighted the frequency and intensity of unpleasant emotions. We speculate that the differential influence of intensity on emotion recall is one mechanism through which cultural and individual differences in subjective well-being reports might emerge, but clearly more research is needed. Unfortunately, emotion scales often ask respondents to report the amount of emotion experienced, without differentiating between frequency and intensity of emotions. In future research, it would also be informative to ask respondents to recall the intensity of their emotions.

Unexpected differences. An unexpected finding was that cultures differed in online reports of pleasant emotion. This finding was inconsistent with Oishi's (2002) study. However, in a study by Mesquita and Karasawa (2002), Japanese students rated everyday emotional events as less pleasant than American students. Nevertheless, because we did not have any theoretical predictions for online differences, this finding needs to be interpreted with caution. Furthermore, given the dearth of cross-cultural investigations of online emotions, we cannot make any definitive conclusions about online differences until the finding has been replicated. One possibility is that online differences are sample-specific; therefore, obtaining several diverse samples in each culture should be a goal for future research.

Conceptual overlap. Do global self-beliefs of emotion predict memory for emotions simply because the constructs are conceptually related? Global, online, and recalled assessments of emotion bear some conceptual overlap. After all, a person who was very happy during the experience sampling week probably typically feels happy and therefore has global beliefs about the self that include a lot of positive emotion. And naturally, people's memory and global self-beliefs are grounded in reality to some extent. However, the present study demonstrated that there are systematic biases in memory, and these biases can be accounted for by a person's global self-concept. Future research should try to separate these constructs through experimental mood manipulation to determine whether recall can still be predicted from global affect.

Identifying the processes of emotion recall. Based on Robinson and Clore's (2002a) theory, heuristic information may "fill in" when individuals lack concrete, episodic knowledge (see also Roediger & McDermott, 2000). However, another possibility is that strong norms for particular emotions in some cultures may also increase the use of heuristic information. The present data do not speak to the distinction between these two processes, although this question deserves some attention in future research. One way to examine this in future research is to have participants recall their emotions under different conditions of cognitive load or following cultural priming manipulations. If use of heuristics is driven by memory

decay, we would expect a greater correspondence between the global self-beliefs and recall when recall takes place under cognitive load. If use of heuristic information is driven by cultural norms, then we might observe stronger associations between global self-beliefs and recall after priming cultural norms.

Choice of emotions. Our findings are limited to the extent that our grouping of emotions into the dimensions of pleasantness versus unpleasantness is a meaningful way of organizing the data. However, based on structural analyses of emotions (e.g., Kim-Prieto et al., 2003; Scollon et al., in press; Watson et al., 1984), we believe there was sufficient justification to make the pleasantness-unpleasantness distinction in all five cultural groups. Furthermore, we took care to include in our PE and UE indices only those emotions that exhibited common structure across the five groups. Although alternative ways of organizing the data do exist, the current dimensions of pleasantness and unpleasantness, nevertheless, lend a useful framework for interpreting the present set of findings. In addition, our findings are limited to the extent that our selection of emotion terms was representative of the emotional lives of the different individuals from different cultural backgrounds in our study. It is possible that the inclusion of additional indigenous emotions terms would alter our findings. However, because our goal was to examine whether self-concept influences memory for emotions, we found it necessary to use the same emotion terms across cultures.

Sample characteristics. This study was a first effort to use multiple methods of assessment, including experience sampling, to study multiple cultural groups. However, some caveats about our samples are worth noting. First, we elected to treat the three within-U.S. groups separately, given past research on ethnic differences in emotion and well-being (e.g., Matsumoto, 1993; Okazaki, 1997, 2000) as well as strong ethnic differences in mean levels of emotions in the present study (see Figure 1 and Table 4). One weakness was that ethnicity was also confounded by geographical differences, leaving open the possibility that group differences were due to geography rather than ethnicity per se. To our defense, however, Schkade and Kahneman (1998) did not find any differences in self-reported life satisfaction between Midwesterners and Californians. Furthermore, our own findings converge with the conclusions of these cultural groups based on global reports of emotion (e.g., E. Diener, Diener, et al., 1995). Second, males were somewhat underrepresented in all our samples. However, for all groups, there were more males than females, so any cultural differences that emerged are unlikely due to gender differences. Finally, we did not have even sample sizes for our five groups. These uneven sample sizes present a problem only for the multivariate hypothesis testing, and even so, a simple observation of the means for each culture on the specific emotions suggests clear differences. The uneven sample sizes do not present a problem for regression analyses or for cluster analyses because these analyses were conducted within each culture separately. In these analyses, the sample size only affects the stability of the coefficients and the dissimilarity matrices (on which the clustering was performed) in the same way that sample size influences the stability of a correlation coefficient.

GENERAL CONCLUSION

Despite the inevitable limitations of a single study, the present research is the first to assess emotional experiences in five cultures using the experience sampling method and sampling indigenous emotions. Several important conclusions emerged and point the way

toward intriguing lines of inquiry for future research. First, pleasant and unpleasant emotions emerged in all five cultures, although pride grouped with the unpleasant emotions in India. Second, indigenous emotions in India and Japan clustered with Western emotions and did not form separate clusters. Third, the different methods gave some approximate ordering of the groups, but online methods (especially for negative emotion) showed smaller cultural differences than recall methods. The greatest cultural differences emerged in measures of pride. Fourth, there were interesting recall biases for emotions, suggesting that although global self-beliefs influenced recall in each of the cultures, different groups used different types of self-belief information in recalling emotion.

NOTES

1. We assessed emotion recall in terms of the frequency of various discrete emotions, but we could compute intensity and frequency from the online ratings. From the online reports, we defined frequency as how often people feel emotions, regardless of the strength; intensity was defined as the average intensity of emotion the people report on those occasions when they do feel them.

2. Of course it is possible for people to feel pride about others, but this is not the typical default sense of the word (see Kitayama et al., 2000).

3. Kim-Prieto, Diener, and Fujita (2004) tested the effect of language on emotional experience using emotion ratings from multiple sites in various countries. At some sites, participants responded in their native language, whereas at other sites, participants responded in English. Using hierarchical clustering, they found that samples did not cluster by language, but instead clustered according to geographical region. Both the Indian sample that completed English measures and the Indian sample that completed Bengali measures were closest in the clustering to each other and China. The Indian sample that used Hindi measures clustered with the United States and Australia—a finding better explained by exposure to Western culture (because that specific sample was drawn from a business school) rather than language, because Americans and Australians completed measures in English.

4. Participants completed mood ratings directly on a personal digital assistant that also served as the signaling device, with the exception of participants in India who wore alarm watches as the signaling device and completed identical measures in paper-and-pencil form. Watch alarms were programmed to occur roughly once every 2 to 3 hours, 5 times a day. Participants in the Indian sample turned in their forms each day to guard against any late reporting.

5. Proud, affectionate, joyful, happy, irritated, guilty, sad, and worried were translated into Japanese by Shigehiro Oishi, a native Japanese speaker who is familiar with Japanese translations of emotion words used in previous cross-cultural research (e.g., Kitayama et al., 2000; Suh, Diener, Oishi, & Triandis, 1998). Furthermore, Kengo Takeno, a Japanese Ph.D. student in psychology at International Christian University in Tokyo, checked the Japanese translations and made minor changes to ensure accuracy. The Japanese emotion terms were *hokori*, *aijo*, *ureshii*, *shiawase*, *iraira*, *zaiakukan*, *kanashii*, and *sinpai*, respectively.

6. In the cases where the assumption of homogeneity of variance was violated, a Kruskal-Wallis test yielded parallel results.

7. To create a dissimilarity matrix, we first created a correlation matrix among the frequency of specific emotions (this number was 12 for the Japanese and 10 for the Indians). We then subtracted each element of the correlation matrix from unity $(1 - r)$ to form a dissimilarity matrix of 12×12 for the Japanese sample and 10×10 for the Indian sample. All clustering was performed on these dissimilarity matrices.

8. We were unable to test for any gender by culture interaction effects due to instability in estimates with moderate sample sizes. However, for the samples that were somewhat larger, we conducted within-culture tests of gender effects. Japanese males and females did not differ on any of the measures. Among Indians, significant differences emerged between males and females, $F(1, 150) = 7.46$, $p < .01$, such that females ($M = 2.98$, $SD = .79$) reported greater intensity of online pleasant emotion than males ($M = 2.65$, $SD = .58$), and females reported greater intensity of online unpleasant emotion ($M = 2.35$, $SD = .79$) than males ($M = 2.10$, $SD = .62$). Marginally significant differences emerged for global and recalled unpleasant emotion that were in the direction of females reporting more unpleasant emotion. A marginally significant difference emerged for frequency of online unpleasant emotion, such that males reported feeling unpleasant a greater proportion of time than females.

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