



Published in final edited form as:

*Cultur Divers Ethnic Minor Psychol.* 2007 January ; 13(1): 35–44.

## Ethnic Variation in Depressive Symptoms in a Community Sample in Hawai'i

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### Abstract

A modified CES-D was administered to a community sample of 176 European Americans (EA), 209 Native Hawaiians (NH), and 357 Japanese Americans (JA), yielding measures of depression, positive affect, depressed affect, somatic disturbance and disturbed interpersonal relations. Positive affect was lower in JA relative to EA, consistent with findings among Native Japanese, a pattern attributed to cultural variation in emotion regulation. NH reported lower positive affect than EA, accompanied by elevated negative affect and somatic disturbance, suggesting generally higher levels of depressive symptoms. The three ethnic groups varied in mental healthcare usage with differing associations between depressive symptoms and experiences of stressful life events. Taken together, these results suggest ethnic variation in depressive symptoms may arise from differing cultural beliefs.

### Keywords

ethnicity; depression; CES-D; emotion regulation

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Considerable attention has been given to cultural research in psychopathology and numerous studies have been conducted to begin to understand how culture influences stress and mental disorders, including depression (e.g., Lopez & Guarnaccia, 2000). The study of representative community samples (as opposed to clinical or college samples) using culturally sensitive instruments, however, remains relatively uncommon. Cultural influences observed in cross-national comparisons may extend to culture-based subgroups within the dominant culture. With cultural heterogeneity increasing in the United States, the provision of appropriate clinical care depends upon understanding subcultural differences in the experience and presentation of depression. This article focuses on the study of ethnic subgroup differences in depressive symptoms in the Hawai'i Personality and Health cohort, which is a diverse community sample comprised mainly of Native Hawaiians, Japanese and European Americans.

### Prevalence of Depression across Ethnic Groups

Depressive disorders occur with fairly high prevalence across gender, age, and ethnicity in the United States (the one-year prevalence rate is between 5.0 % and 10.3 %, Olfson, et al,

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2002). The prevalence rates for depression may be expected to differ according to the sample composition (e.g., community versus college sample), socioeconomic status, birth place (native versus foreign born), generation, gender, and ethnicity or cultural group (Lee, Lei, & Sue, 2001). Indeed, several studies report prevalence rates differing across ethnic groups (e.g., Jackson-Triche et al., 2000). In the case of Asian Americans, the prevalence of depression is thought to be equivalent to or greater than the depression prevalence reported among European Americans (Kuo, 1984; Okazaki, 1997; Tsai & Chentsova-Dutton, 2002). However, as noted by Tsai & Chentsova-Dutton (2002) there is little national-level epidemiological research examining within-group differences in prevalence rates of depression for Asian Americans. In contrast, Native Hawaiians experience increased social, health, and mental health problems compared to other cultural groups in Hawai'i (Mokuau, 1990; Mokuau & Matsuoka, 1995) and the prevalence of depressive symptoms is reported to be fairly high among Native Hawaiians. For example, the data from "the Native Hawaiian Health Research Project" indicated that the prevalence of depressive symptoms was 15% in Native Hawaiian adults (Kaholokula, Grandinetti, Grabbe, Hang, & Kenui, 1999). Overall, little large-scale or national-level epidemiological research examining within-group differences in prevalence rates of depression for Asian Americans or Pacific Islanders has been conducted, especially in a community setting.

### Cultural Influences and Symptom Presentation

The impact of culture on the experience and presentation of depressive symptoms has been attributed to cultural differences in the conceptualization of depression. Previous research suggests that at least three cultural factors may contribute to the presentation and diagnosis of depression: cultural representations of the self, mind-body relations, and emotional regulation or expression (Tsai & Chentsova-Dutton, 2002).

The current concept of depression in North American societies is highly influenced by mainstream Western cultural values regarding "positive emotions and feeling good about the self" (Tsai & Chentsova-Dutton, 2002). Thus, decreased positive affect and decreased self-esteem have become salient symptoms of depression in mainstream American societies. In contrast, regulation of emotional expression to promote group harmony, particularly with regard to positive affect, remains an emphasis of many less individualistic societies. Moreover, depressive symptoms are more likely to be described in terms of "internal disturbances" in mainstream American societies, which tend to normalize and encourage individuals to be autonomous and self-sufficient (Lewis-Fernandez & Kleinmen, 1994), whereas depressive symptoms are more likely to be described in terms of "interpersonal disturbances" in Asian cultures, which tend to normalize and encourage individuals to be interdependent and connected with others. Furthermore, current depressive symptomatology in American societies has been influenced by a dualistic view of mind-body relations (Lewis-Fernandez & Kleinmen, 1994). Consequently, individuals may exhibit depression in the form of either primarily psychological or primarily somatic complaints and, correspondingly, they may seek primarily psychotherapeutic or primarily pharmacological therapies. In contrast, in Asian cultures, unitary beliefs about mind-body relations may influence individuals to present both somatic and psychological complaints as depressive symptoms (Cheung & Lau, 1982), and this combined presentation may lead to alternative healthcare choices, such as acupuncture or the use of primary health care in addition to or even in place of more mainstream psychotherapeutic or pharmacological therapies. Taken together, these factors might lead to a differing experience and manifestation of depressive symptoms and treatment choices between European and Asian subcultures within the United States. Potential cultural variation in depressive symptoms are optimally captured by scales that assess several domains of depression; the Center for Epidemiologic Studies Depression Scale (CES-D) assesses negative or depressed affect,

positive affect, interpersonal problems, and somatic symptoms and is thus appropriate for estimation of ethnic group differences in depressive symptomatology.

With regard to the display of positive versus negative affect, recent research reveals that endorsement of positive and negative affect varies across culture (Iwata & Buka, 2002; Iwata & Higuchi, 2000). Using the CES-D, a study conducted in Japan indicated that Native Japanese students tended to report less positive affect than their Caucasian American counterparts, while their negative affect scores were comparable to those of Caucasian Americans (Iwata & Buka, 2002). This cultural difference in endorsement of positive affect was found in another group of Native Japanese college students: Japanese students endorsed fewer anxiety-absent items from Spielberger's State-trait anxiety inventory than American students (Iwata & Higuchi, 2000). These differences may be attributed to cultural variation in normative emotional expression: an individual's positive emotions and open expression may be encouraged and rewarded in individualistic cultures, while an individual's balance and control of emotional expression may be encouraged and rewarded in collectivistic cultures in order to maintain group harmony (for a review, see Markus & Kitayama, 1991). Although reduced positive affect on depressive and anxiety measures has been reported for Native Japanese samples, reduced positive affect has not yet been reported in Japanese American samples. Thus, the positive affect scale in particular may be a sensitive measure to examine in a Japanese American sample to assess whether cultural values observed in Native Japanese samples influence depressive symptoms similarly in a collectivistic subcommunity within an individualistic majority culture.

Like differences in the report of positive affect, the level of interpersonal problems also might be expected to vary by ethnic group, at least among individuals reporting high levels of depressive symptoms. Interpersonal problems typified depressed Japanese American college students more than Chinese and Caucasian American students (Marsella, Kinzie, & Gordon, 1973). This finding is consistent with a second cultural factor that may influence the presentation of depression cited above; that is, disturbances in social relations more than disturbances in internal emotional balance may be more likely to characterize depression in non-Western samples. While Marsella and colleagues reported on this phenomenon in a depressed sample, variation in the report of interpersonal problems could be extended to the general population. Also, these findings suggest that among cultural samples with collectivistic influences, such as Chinese and Japanese students, depressive symptoms may vary in the degree to which they influence reports of interpersonal problems. If interpersonal harmony is of greater concern in some cultures, interpersonal problems may be reported at a higher rate in the general population as well as among the depressed. Alternatively, interpersonal problems may be an indicator of emotional disturbance and therefore may only occur at a higher rate in depressed but not non-depressed samples from each culture. A comparison of reports of interpersonal problems in both depressed and non-depressed samples from different cultural groups could thus provide useful information about whether interpersonal problems act as an indicator of depression for Asian Americans and Native Hawaiians more than for European Americans.

In relation to the cultural variation in mind-body relations in depression, recent data from a World Health Organization study (Simon et al., 1999) revealed that somatic symptoms are commonly observed depressive symptoms across countries and cultures. This finding differed from previous notions that individuals in non-Western cultures are more likely to report somatic complaints (Kirmayer, 1984; Marsella, 1980). However, one previous study conducted on college students in Hawai'i revealed that somatization items in a depression measure (Zung Self-Rating Depression Scale) significantly distinguished between depressive and non-depressive Chinese relative to Japanese and European American college students (Marsella, Kinzie, & Gordon, 1973). Another study conducted on high school students in Hawai'i revealed that somatic complaints items in the CES-D significantly differentiated between Native

Hawaiian and “non-Hawaiian” adolescents (McArdle, Johnson, Hishinuma, Miyamoto et al., 2001). These results suggest that differences on somatic complaints merit further investigation in the Hawaiian Personality and Health cohort. The present study investigated whether somatic complaints differed among the three major ethnic groups, and between those who were and were not depressed.

A secondary emphasis of this research was to examine the relation between depressive symptoms and depressive concomitants such as stressful life events among the three cultural subgroups. Numerous studies indicate a relationship between life stress and the onset and the course of depression (e.g., Caspi et al., 2003). Accordingly, ethnic subgroup differences in symptom presentation, particularly differences in positive affect, were assessed to understand the relation of specific depressive symptoms to experience of life stress. If, as expected, symptom patterns vary by ethnic groups, then it becomes important to understand which symptoms of depression are linked to specific behavioral concomitants for each ethnic subgroup. If some patterns of symptom reporting are the consequence of cultural differences in emotion regulation rather than of depression, then these symptoms may not demonstrate the expected associations with the behavioral concomitants of depression such as stressful life events. Specifically, if lower endorsement of positive affect items by Japanese Americans reflects normative cultural differences rather than depression, then an association between less positive affect and stressful life events would not be expected among Japanese Americans but might be expected in European American respondents.

Finally, this research examined whether a difference in the conception of mental health might influence the health care utilization of the more depressed individuals in each ethnic subgroup. As suggested earlier, the belief in mind-body unity typical of Asian cultures might influence treatment choices for mental health issues. Previous research has shown that Asian Americans underutilized mental health services relative to European Americans (Sue, Fujino, Hu, Takeuchi, et al., 1991; Zhang, Snowden, & Sue, 1998). Low utilization among Asian Americans might be attributed to culturally specific beliefs about mental health, social stigma and shame, and their culturally relevant coping strategies and help-seeking behaviors (Sue & Morishima, 1982). An examination of the association between the kinds of depressive symptoms reported and the types of therapeutic interventions chosen may reveal ethnic subgroup differences of interest to those responsible for service provision for culturally diverse populations.

In summary, this project assessed ethnic subgroup differences in depressive symptoms in a diverse community sample comprised mainly of Native Hawaiians, Japanese, and European Americans. Cultural differences in emotion regulation were predicted to be reflected in ethnic subgroup differences in endorsement of depressive symptoms. In particular, positive affect was expected to be less endorsed by Japanese American than European American respondents and was expected to show less association with depressive concomitants such as stressful life events among Japanese Americans. Differences in positive affect were expected to occur across the whole sample and to continue to persist when the most depressed participants from each ethnic subgroup were compared. In contrast, Native Hawaiians were expected to differ from European Americans on multiple subscales and to generally show a profile of more depressive symptoms. It was hypothesized that among the most depressed subjects, health care utilization would differ among the ethnic subgroups. Depressive symptoms were expected to elicit both primary and mental healthcare use (and possibly alternative healthcare) among the depressed Japanese Americans due to a mind-body unity conceptualization of depression, but were expected to elicit primarily mental healthcare use among European Americans. It was thus anticipated that depressed Japanese Americans would show reduced mental health care usage relative to the other groups. Thus, this research predicted specific ethnic subgroup differences

in depressive symptoms and their association with stressful life events and in mental health care usage based on demonstrated cultural differences in emotion regulation strategies.

## Method

### Participants

Data were drawn from a survey administered to the Hawai'i Personality and Health cohort (see Hampson et al., 2001), a sample composed of individuals who underwent a personality assessment by their elementary school teachers 40 years ago. At that time, entire classrooms were assessed, so the original cohort was representative of the ethnic composition of that generation in the islands of Oah'u and Kaua'i. Comparison of the 1960 and 1990 census data for these regions indicates that the category "White" was the largest ethnic group in Honolulu county (which includes all of the island of Oah'u) in both 1960 and 1990. For the county of Kaua'i (which includes the islands of Kaua'i and Ni'ihau), "Japanese" was the largest ethnic group in 1960 whereas "White" was the largest group in 1990. So, the Hawai'i Personality and Health Cohort may over-represent Japanese Americans, at least compared with today's ethnic composition. In addition, the Native Hawaiian group likely consists of both non-mixed and mixed Hawaiians. This is consistent with the U.S. 2000 census on which, of all the races, the Native Hawaiian and Other Pacific Island population had the highest proportion of respondents reporting more than one race (Grieco, 2001).

The survey was returned by 1057 participants, including 372 Japanese Americans (205 males and 167 females), 225 Native Hawaiians or part-Hawaiians (117 males and 108 females), and 194 European Americans (97 males and 97 females), with participant's ethnicity determined by self-report. Participants with missing CES-D values were eliminated from analysis, yielding final totals of 357 Japanese Americans (198 males and 159 females), 209 Native Hawaiians (109 males and 100 females) and 176 European Americans (88 males and 88 females) in the reported analyses. Participants ranged in age from 41 to 50 years ( $M = 45$ ,  $SD = 2$ ). The three ethnic subgroups did not differ on gender or marital status, but significant differences were found in employment status, with Native Hawaiians more likely to be unemployed compared to the other groups, ( $\chi^2(2) = 22.60$ ,  $p < .001$ ).

### Materials

**Assessment of depression**—Depressed symptoms in the past week were measured by a modified version of the Center for Epidemiologic Studies Depression Scale, the CES-D, which is recommended for use with community samples (Radloff, 1977; Tsai & Chentsova-Dutton, 2002). Nine items ("feel that your life force has gone?" "feel down in the dumps?" "have thoughts about death," "feel angry," "feel uncomfortable around people," "feel distant from people," "feel that you could not relate well to your family and friends," "avoid interacting with other people," "feel rejected by other people") were added to the original version of CES-D. One of the original CES-D somatic symptom items was separated into two items ("Have a poor appetite" and "Not feel like eating, even though you should have been hungry"). One of the original CES-D items ("people were unfriendly") was replaced with five new interpersonal items listed above. These 29 items were rated on a 5-point scale ranging from 0 (Not At All) to 4 (Most or All of the Time) to be consistent with other questionnaires administered at the same time, (cf. the original 20 CES-D items are rated on a 0 to 3 scale).

The original 20 items of the CES-D were classified by Radloff into four subcategories (depressed affect, positive affect, somatic and retarded activity, and interpersonal problems; Radloff, 1977). The current study adopts the four-factor structure described by Radloff in order to examine ethnic variation in symptoms presentation of depression. Using a principal components factor analysis with a varimax rotation, the 9 new items were included with the

original items, with analysis constrained to 4 factors. Radloff's original groupings were supported by the current analysis. In addition, all 9 new items had factor loadings of 0.40 for at least one of the 4 factors; 4 items ("feel that your life force has gone?" "feel down in the dumps?" "have thoughts about death," and "feel angry") loaded on the depressed affect factor and 5 items ("feel uncomfortable around people," "feel distant from people," "feel that you could not relate well to your family and friends," "avoid interacting with other people," "feel rejected by other people") loaded on the interpersonal problems factor. Thus, the factors used in this analysis include the original scale items from the CES-D 20 as well as the added items listed above. The total CES-D scores reflect a sum of reversed positive affect, negative affect, somatic symptoms, and interpersonal relations. Overall, the total CES-D scores and scale scores for each subcategory were examined in the present study.

In the current study, Cronbach's alpha was used to assess internal reliability of the 29 CES-D items, which was found to be .89 for the total sample, .90 for European Americans, .90 for Native Hawaiians, and .89 for Japanese Americans, indicating that internal consistency was satisfactorily high in each ethnic subgroup. Alphas for each subscale for each ethnic group are shown in Table 1.

**Assessment of depressed participants**—A widely used cut-off to identify depressed individuals is a score of 16 or greater on the CES-D, and Radloff (1977) found that approximately 21% of the general population met this criterion. Accordingly, to categorize participants on the basis of their level of depression, those in the upper 20% for each ethnic subgroup were categorized as depressed and the remainder as nondepressed.

**Assessment of life events**—Experience of stressful life events was assessed by the List of Threatening Events (LTE-Q; Brugha & Cragg, 1990). The LTE-Q consists of 12 life events which have happened in the past 10 years, each of which is rated for incidence (has or has not happened), and impact (on a 4-point scale ranging from 2 = little or no effect to 5 = very large effect). The number of events endorsed was summed, for a maximum score of 12 incidents. The impact of life events was scored separately from incidence by summing the impact ratings across endorsed events. Brugha and Cragg (1990) demonstrated short-term test-retest reliability, and agreement between respondents' and informants' reports on the LTE-Q. Expert raters' assessments of the threat level of events described by the respondents in an interview following completion of the questionnaire demonstrated that 80% of the events were of marked or moderate long-term threat, supporting the validity of the measure.

**Assessment of healthcare use**—Use of medical healthcare and mental healthcare were assessed, respectively, by (1) the number of visits to physician, nurse practitioner, or physician's assistant during the past 12 months and, (2) the number of visits to a psychiatrist, psychologist, clergy, or other counselor for mental or emotional distress during the past 12 months. Frequency of use of 15 different forms of alternative healthcare (aromatherapy, chiropractic, meditation, massage, faith healing, healing touch, acupuncture, nutritional supplements, herbal remedies, hydrotherapy, ho'oponopono, prayer, special health diets, Tai Chi, and "other") was assessed by rating each on a 5-point scale (1 = never, 2 = 1–2 times, 3 = 3–5 times, 4 = 6–10 times, 5 = more than 10 times). The ratings for these 12 alternative healthcare items were summed to create a variable for total use of alternative health care.

## Procedure

Participants completed the measures as part of a 16-page questionnaire sent to them by mail between November 1999 and October 2000 as an adult follow-up to a childhood study of personality traits (Goldberg, 2001; Hampson et al., 2001). This study was IRB-approved and subjects received modest payment for participation upon return of their completed survey

packet and signed consent forms. About 62% of participants contacted completed the questionnaire, additional information can be found in Hampson et al., (2001).

## Results

### Ethnic-subgroup Variation in Reporting Depressive Symptoms

The first set of analyses tested the hypotheses that positive affect would be endorsed less by Japanese American than European Americans, and that Native Hawaiians would differ from European Americans by reporting more symptoms on the CES-D total and subscale scores. Using a series of planned contrasts, differences in CES-D total score and each of the 4 subscales were assessed between: (1) European Americans and Japanese Americans; and (2) European Americans and Native Hawaiians. The planned contrasts were conducted with alpha levels determined by Bonferroni correction. Table 1 shows results for each of the three ethnic groups for CES-D total and subscale scores. Effect size in these contrast analyses was computed using the formula ( $r_{\text{contrast}} = \sqrt{(t^2_{\text{contrast}} / (t^2_{\text{contrast}} + df))$ ; Furr & Rosenthal, 2003).

As predicted, the first set of planned contrasts revealed that across the sample, Japanese Americans reported lower positive affect than did European Americans ( $t(739)=4.137, p<.001, r=.15$ ) while their CES-D total, depressed affect, somatic symptoms, and interpersonal problems subscales did not differ significantly from those of European Americans. This level of  $r$  is considered a small to medium effect size.

The second set of planned contrasts revealed that Hawaiians reported lower positive affect ( $t(739)=4.06, p<.001, r=.15$ ), higher CES-D total scores ( $t(739)=-3.54, p<.001, r=.13$ ), higher depressed affect ( $t(739)=-2.92, p<.05, r=.14$ ), and higher somatic symptoms ( $t(739)=-3.816, p<.01, r=.11$ ) than did European Americans while their interpersonal problems subscale score did not differ significantly from that of European Americans.

### Ethnic Variation in Reporting Depressive Symptoms in Non-depressed vs. Depressed Members of the Cohort

Depressive symptoms were compared among subjects with a distinction made between relatively depressed and non-depressed members of the population by defining as relatively depressed to top 20% of scores on the revised 29-item CES-D. This analysis was used to differentiate general cultural variation in the report of a symptom, such as a hypothesized general reduction in positive affect for Japanese compared to European samples (i.e., main effect of ethnic group), versus ethnic variance in the presentation of depression, such as an increase in interpersonal problems among depressed but not non-depressed Japanese Americans compared to European Americans. Effect size used is the partial Eta squared calculated as part of the General Linear Model in the SPSS software package. Post-hoc comparisons were made using the Student Newman-Keuls statistic.

Analyses of total CES-D scores and all subscales revealed significant main effects of depression level and ethnic group for total CES-D scores (depression level:  $F(1,736)=861.16, p<.001, \eta_p^2=.54$ ; ethnic group:  $F(2,736)=15.74, p<.001, \eta_p^2=.04$ ), positive affect (depression level:  $F(1,736)=217.70, p<.001, \eta_p^2=.23$ ; ethnic group:  $F(2,736)=14.75, p<.001, \eta_p^2=.04$ ), depressive affect (depression level:  $F(1,736)=846.86, p<.001, \eta_p^2=.54$ ; ethnic group:  $F(2,736)=11.26, p<.001, \eta_p^2=.03$ ), somatic symptoms (depression level:  $F(1,736)=338.61, p<.001, \eta_p^2=.32$ ; ethnic group:  $F(2,736)=14.26, p<.001, \eta_p^2=.04$ ), and interpersonal problems (depression level:  $F(1,736)=481.19, p<.001, \eta_p^2=.40$ ; ethnic group:  $F(2,736)=3.40, p<.05, \eta_p^2=.01$ ). The post hoc comparison showed that, overall depression, Native Hawaiians scored significantly higher than European Americans, with Japanese Americans intermediate between these groups. On positive affect subscales, European Americans had higher scores than

Hawaiians and Japanese Americans, who did not differ. On the depressive affect subscale, Native Hawaiians scored higher than European and Japanese Americans, who did not differ. On somatic symptoms, Native Hawaiians scored higher than European and Japanese Americans, who did not differ. Thus, for the total CES-D depression score and all depressive subscales except interpersonal problems, interaction between depression and ethnic group were not significant.

In contrast to the other symptoms subscales, interpersonal problems showed an interaction between independent factors of depression level and ethnic group. Main effects of depression level and ethnic group were qualified by an interaction effect, ( $F(2,736)=3.45, p<.05, \eta_p^2=.01$ ). This interaction reveals that interpersonal problems were elevated in depressed Hawaiians relative to depressed European American respondents with depressed Japanese Americans intermediate between other depressed groups but not differing from either, while non-depressed samples did not differ between ethnic subgroups (see Figure 1).

### The Relation between Depressive Symptoms and Stressful Life Events

Analysis of group differences in stressful life events revealed a significant group difference; Native Hawaiians reported significantly higher scores for the number of stressful life events than European and Japanese Americans who did not differ ( $F(2, 703)=25.35, p<.001$ ). For each ethnic group, the CES-D total scores and subscales were correlated with the number of life stressors endorsed and the stress resulting from these events using a Pearson  $r$  correlation. For all groups, the total score of the CES-D and three of the 4 subscales (depressed affect, somatic symptoms, and interpersonal problems) correlated positively with the number of stressful life events and level of stress reported by all 3 ethnic samples (see Table 2), with the exception of level but not number of stressful life events correlating with interpersonal relations for European Americans.

In contrast, the positive affect subscale was associated with stressful life events differently among ethnic groups, as predicted. Positive affect was negatively correlated to both life events variables among European Americans (stressful life events:  $r=-.28, p<.001, 2$ -tailed; effects of stress:  $r=-.32, p<.001, 2$ -tailed) and Native Hawaiians (stressful life events:  $r=-.17, p<.05, 2$ -tailed; effects of stress:  $r=-.25, p<.001, 2$ -tailed), while these variables did not associate significantly in Japanese Americans. The hypothesis that for Japanese Americans, positive affect would associate with life events differently than other depression subscales, and differently than the same subscale in other ethnic groups, was supported. The failure to find this relationship in the Japanese Americans is particularly significant given that the range and mean score for positive affect were similar in the Japanese and Native Hawaiians.

### Ethnic Differences in Healthcare Use among Depressed Groups

Chi-square was used to test the hypothesis that among the most depressed subjects, there would be differences in primary and mental healthcare utilization by ethnic subgroup. The presence or absence (but not amount) of use of each of the 3 branches of care was compared using ethnic group as an independent variable. Use of mental healthcare varied between depressed Native Hawaiians, Japanese and European Americans, ( $\chi^2(2)=6.10, p<.05$ ), although the primary and alternative healthcare use did not significantly differ among these groups, (See Table 3). Pair-wise comparisons showed depressed Native Hawaiians used more mental health care than depressed Japanese, ( $\chi^2(2)=6.11, p<.05$ ), although neither group differed significantly from depressed European Americans. Because depressed Japanese Americans had a lower cutpoint depressive score for identifying the depressive sample, differences between Japanese American and Native Hawaiian may have been due to a lower level of depressed symptoms. Thus a second chi-square analysis was performed with the higher depression level cutpoint of the Native Hawaiians applied to both Japanese Americans and Native Hawaiians to assess mental health



care usage. With this cutpoint, both samples had about 40 subjects but depressed Japanese Americans still reported less mental health care usage than Native Hawaiian respondents, ( $\chi^2(2)=4.79, p<.05$ ). Thus, depressive symptom levels alone seem unlikely to account for the reduced mental health care usage among Japanese Americans.

## Discussion

The goal of this project was to assess the impact of conceptualization of depression on the experience and presentation of depressive symptoms among differing ethnic groups. Cultural differences in the regulation of emotional expression formed the basis for anticipated differences in the level of positive but not negative affect across different ethnic subgroups. As predicted, Japanese Americans reported lower levels of positive affect than European Americans, but their depressed affect, somatic symptoms, and interpersonal problems did not differ significantly from those endorsed by European Americans. This finding was consistent with the lower positive affect found in a previous cross-cultural study examining Native Japanese versus American college students (Iwata & Buka, 2002). While Iwata and Buka revealed higher levels of depressed affect in Japanese students relative to North American students, they did not find differences in overall negative affect, a 16-item score derived from the 20-item CES-D. The Japanese American sample in the current study revealed the same specific reduction in positive affect relative to European Americans as the Native Japanese sample in previous research, however, this Japanese American community sample did not exhibit elevated depressed affect.

In contrast to Japanese Americans, Native Hawaiians reported higher levels of depressed affect and somatic symptoms as well as lower levels of positive affect relative to European Americans. For Japanese Americans, lower positive affect relative to the European Americans is an isolated symptom difference and thus might be explained by normative expectations of emotional expression hypothesized to occur in some collectivist cultures. That is, the inhibition of expression of positive affect, specifically individual happiness, is thought to be desired and encouraged in order to maintain a group harmony (Mesquita & Walker, 2003). In contrast, lower positive affect among Hawaiians is accompanied by elevated depressed affect and somatic complaints. Thus, alternative explanations to cultural determination may exist for this pattern of depression among Native Hawaiians.

The documentation of higher levels of self-reported depressive symptomatology among the Native Hawaiians might be attributable to their higher levels of unemployment compared to the Japanese Americans participating in this research,  $\chi^2(2)=9.963, p<.01$ . In this sample, total depressive symptoms tended to be higher among unemployed than employed Hawaiians  $F(1,209)=3.10, p<.1, \eta_p^2=.02$ , but post-hoc comparison among cultural groups for the CESD-total and all subscales did not show an interaction between employment status and depression; both employed and unemployed Hawaiians reported higher levels of depressive symptoms than European and Japanese Americans for CESD total and all subscales except interpersonal problems subscale. Future research with more sophisticated calibration of employment and SES may be needed to assess this potential explanation for more widespread depressive symptoms among the Hawaiians.

As this pattern of symptoms illustrates, the meaning of lower positive affect in an ethnic or subcultural sample is only realized when other symptom clusters are considered and the predictions can be linked to specific cultural concepts. Among Japanese Americans, but not necessarily among Hawaiians, lower positive affect might be linked to cultural values more than mental health status, so that diagnosticians will need to consider cultural norms in interpreting responses to positive affect items among Asians and Asian Americans when assessing for depressive symptoms. To better understand the possible cultural values

influencing lower positive affect observed among Japanese Americans in this study, future research is needed that includes cultural measurements such as measurements of cultural orientation and self-construal taken concurrently with measures of depression. This research specifically demonstrates that lower positive affect exists among the Japanese in both depressed and non-depressed samples.

While positive affect represents a symptom that might be overinterpreted diagnostically in the Japanese, difficulties with interpersonal relations may represent a symptom that could be underinterpreted diagnostically among Hawaiians and perhaps Japanese Americans. In this research sample, interpersonal problems were elevated among depressed but not non-depressed Hawaiians relative to European Americans, with Japanese Americans intermediate between these groups. This finding may be explained by the great importance that Native Hawaiians place on the concept of group harmony and the extended family ('ohana; Ito, 1987).

Disruption in interpersonal relations may thus represent either a symptom of depression or may precede depressive onset, representing a possible cause of higher depressive symptom scores. Future research into depression among Native Hawaiian may wish to examine the temporal relationship between disturbed mood and disturbed relationships. The higher levels of disturbed interpersonal relations for the depressed Native Hawaiians and, to a lesser extent, for the depressed Japanese Americans compared to the depressed European Americans, is consistent with the cultural differences between non-Western collectivist values and Western values of individuality and autonomy. This finding suggests that probing for symptoms of interpersonal conflict would be appropriate when assessing depression for Japanese Americans and Native Hawaiians. Western-based instruments may under-represent this aspect of depression. For example, the Beck Depression Inventory includes only a single item probing for relations to others, whereas five of the nine new items in the 29-item version of the CES-D used here loaded on the interpersonal scale. This finding, like variation in positive affect, may show that patterns of emotion regulation and their relationship to depression likely vary across differing collectivistic cultures. In future research, greater differentiation of types of interpersonal conflicts (e.g., within the family versus career-related) as well as possible gender and ethnic differences in this phenomenon (in a larger sample of depressed subjects) might provide greater understanding of the relationship between social difficulties and depression among Japanese and Native Hawaiians.

A second thrust of the present study was to understand the way differences in the concept of depression might influence other factors commonly accompanying depression. For example, the amount and experience of life stress showed association to positive affect in Native Hawaiians and European Americans but not Japanese Americans. In contrast, levels of positive affect were similar for Native Hawaiians and Japanese Americans, but reduced relative to European Americans. Among this sample of Native Hawaiians, then, the relationship of positive affect to life stress appears more similar to the pattern observed among European Americans, although levels of positive affect are less than those of European Americans and more similar to levels of positive affect among Japanese Americans. Because this sample of Native Hawaiians endorsed multiple elevations on depressive symptom subscales, at least two explanations could account for their reduced positive affect. Lower positive affect among Hawaiians may be another side effect of overall greater depressive symptoms, or it could indicate emotion regulation strategies such as those hypothesized to account for lower positive affect in the Japanese Americans. Associations between reduced positive affect and experiences of life stress in Native Hawaiians and European but not Japanese Americans, however, suggest that lower positive affect may have differing meanings in Native Hawaiians and Japanese Americans. Future research needs to explore the possible difference in low endorsement of positive affect between Japanese and Hawaiian populations and link this dimension to concurrent measurements of cultural orientation and self-construal.

Healthcare utilization also differed among depressed European Americans, Native Hawaiians, and Japanese Americans. Depressed Japanese Americans tended to use mental health care services less than depressed Native Hawaiians. Conversely, Japanese Americans showed similar usage of primary and alternative health care services as both other groups. These two findings may be consistent with a mismatch between a mind-body unity conceptualization among Japanese versus a more segregated approach of treating *either* mind *or* body typical of Western medicine. While this effect was predicted, other possible explanations could account for this result: less depression among Japanese American than Native Hawaiians, social stigma associated with mental health care usage or even because psychotherapy requires accessing emotional terminology which may be more culturally comfortable for European American or Native Hawaiians. Among these possibilities, lack of group difference in depressed affect between Japanese Americans and European Americans does not seem to support either difficulty with emotional terminology or failure to report symptoms due to social stigma among the Japanese Americans in this sample. Even when depressed and non-depressed Japanese Americans and Native Hawaiians were compared using the higher cutpoint derived from the Native Hawaiian subgroup, less mental healthcare utilization was observed for the Japanese Americans relative to the Native Hawaiians. This finding fails to support the hypothesis that lower levels of depression account for lower mental health care utilization among Japanese Americans.

In previous research, Japanese and Native Hawaiians are often categorized as a homogeneous group of Asian American/Pacific Islanders (AAPI; Takeuchi, Kuo, Kim, & Leaf, 1989). One implication of this work is to suggest that within group differences exist in depressive symptoms among AAPI populations, at least in this sample from a community in Hawai'i. To better understand within-group differences, future research needs to investigate a direct comparison between Native Hawaiians and Japanese Americans. Japanese Americans in Hawaii represent a relatively large ethnic group compared to Japanese American representation in the continental United States, however, so that caution should be exercised in generalizing these findings to other groups of Japanese Americans.

Caution in interpretation also is indicated by several limitations in the present study. An important caution is the relatively modest effect sizes which accompany analyses of this large sample. This weakness is offset to some degree by the use of planned comparisons which rely on theory-based predictions, and also offset somewhat as weak effects are contrasted in two non-European ethnic groups relative to the same European sample. The unequal sample sizes also need to be considered in comparison of correlation patterns among the depressed populations. Moreover, the present samples included only individuals whose ages range from 41 to 50 years. Future research needs to include samples of varying age to validate these findings since younger generations may be differently affected by mainstream culture in the United States (Iwata, Turner, & Lloyd, 2002). Ideally, future research also will include additional Asian subcultures and larger samples so that cultural differences and patterns of specificity can be better ascertained.

In conclusion, the present study revealed varying depressive symptom profiles across culture in terms of positive affect, somatic complaints, and interpersonal problems which were consistent with previous research. Moreover, a relationship between positive affect and behavioral variables such as the experience of stressful life events was observed among European and Native Hawaiians, but not among Japanese Americans. Overall, this research suggests that differences observed in student samples among Native Japanese (e.g., Iwata & Buka, 2002) can also be observed in American community subsamples of Japanese. This work extends assessment of culturally-based response patterns to Hawaiian subjects and reveals the importance of assessing interpersonal disturbances during diagnostic evaluation for depression in Native Hawaiians and Japanese Americans. This work highlights a difference between

Native Hawaiians and Japanese Americans with regard to reports of positive affect, underscoring the importance of examining differences within the broad category of Asian/Pacific Islanders. Taken together, the findings from this study suggest that the differences in symptom profiles among ethnic groups may have different etiologies and consequences.

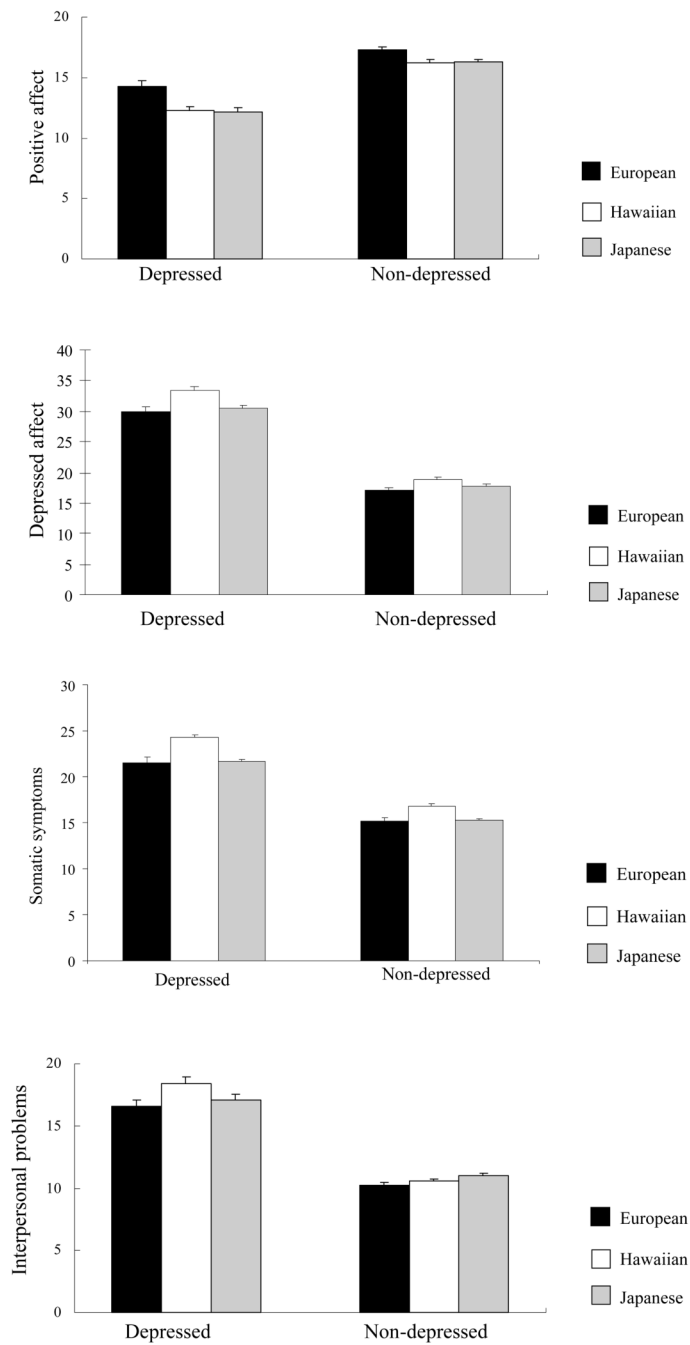
### Acknowledgements

This research was supported in part by a grant from the National Institute on Aging (AG20048). We thank Lewis R. Goldberg for commenting on an earlier version of this manuscript, and Joan P. Dubanoski, Anthony J. Marsella, and Thomas M. Vogt, for their many contributions to the study of the Hawai'i Personality and Health cohort.

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**Figure 1.** Means of positive affect, depressed affect, somatic symptoms, and interpersonal problems among European, Native Hawaiian, and Japanese Americans.

**Table 1**  
Means, Standard Deviations, and Coefficient Alphas of the CES-D Total and Subscales for European, Native Hawaiian, and Japanese Americans and Planned Contrasts Between Groups

	European (n=176)	Hawaiian (n=209)	Japanese (n=357)	European vs. Hawaiian	European vs. Japanese
Total CES-D					
<i>M</i>	54.73	60.52	57.04	**	<i>ns</i>
<i>SD</i>	14.90	17.96	15.23		
<i>alpha</i>	.90	.90	.89		
Positive affect					
<i>M</i>	16.70	15.47	15.57	***	***
<i>SD</i>	2.53	3.14	3.07		
<i>alpha</i>	.69	.70	.74	**	<i>ns</i>
Depressed affect					
<i>M</i>	19.56	21.62	20.08		
<i>SD</i>	6.66	7.68	6.58		
<i>alpha</i>	.91	.92	.91	**	<i>ns</i>
Somatic & retarded activities					
<i>M</i>	16.41	18.19	16.40	**	<i>ns</i>
<i>SD</i>	4.36	5.06	4.35		
<i>alpha</i>	.81	.81	.79		
Interpersonal relations					
<i>M</i>	11.47	12.05	12.14	<i>ns</i>	<i>ns</i>
<i>SD</i>	3.91	4.57	3.84		
<i>alpha</i>	.87	.88	.87		

*Note.* Significant differences between groups

\*\*  $p < .01$ ,

\*\*\*  $p < .001$

Correlations between CES-D (Total and Subscales) and Stressful Life Events among European Americans, Native Hawaiians, and Japanese Americans

Table 2

	Total CES-D	Positive affect	Depressed affect	Somatic & retarded activities	Interpersonal relations
<i>Stressful Life Events</i>					
<i>European (n=166)</i>					
Numbers	.30***	-.28***	.27***	.36***	.12
Effect	.39***	-.32***	.37***	.41***	.19*
<i>Hawaiian (n=199)</i>					
Numbers	.29***	-.17*	.25***	.27***	.24**
Effect	.40***	-.25***	.35***	.37***	.33***
<i>Japanese (n=339)</i>					
Numbers	.30***	-.08	.32***	.28***	.25***
Effect	.30***	-.08	.35***	.26***	.25***

Note. Numbers=numbers of life events have happened to a respondent in the past 10 years. Effects of Stress=the effect of stress from life events endorsed by respondent.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ , two-tailed



**Table 3**  
Health Care Utilization among European, Native Hawaiian, and Japanese Americans in the Depressed Sub-samples

	European (n=34)	Hawaiian (n=40)	Japanese (n=64)
Primary healthcare use	30 (88.2%)	35 (87.5%)	51 (79.7%)
no-use	4 (11.8%)	5 (12.5%)	13 (20.3%)
Mental healthcare* use	8 (23.5%)	13 (32.5%)	8 (12.5%)
no-use	26 (76.5%)	27 (67.5%)	56 (87.5%)
Alternative healthcare use	32 (94.1%)	35 (87.5%)	55 (85.9%)
no-use	2 (5.9%)	5 (12.5%)	9 (14.1%)

*Note.* Significant difference between groups

\*  $p < .05$