The Correspondence of Health Complaints and Depressive Symptoms among Anglos and Mexican-Americans

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This study examines the relationship between depressive symptoms and somatic complaints and/or disorders in two ethnic groups. Data reported herein are from an epidemiological field survey of a disproportionate stratified sample of Anglos ($N = 637$) and two Mexican-American subsamples, United States-born ($N = 342$) and Mexican-born ($N = 201$), all living in Santa Clara County, California. The covariation between depressive symptoms and a severity of somatic complaints/disorders scale derived from collapsing International Classification of Diseases categories was compared among the three ethnic subsamples with control on age, sex, education, and marital status. A significant, direct linear correlation was found between depressive symptomatology and severity of somatic complaints/disorders for each ethnic group and was found in multivariate analyses not to change significantly with the introduction of controls. Partial correlations pointed to a stronger association for Mexican-Americans than for Anglos.

The purpose of this paper is to present a descriptive analysis of the relationship between the prevalence of depressive symptoms and self-reported physical health complaints drawn from a cross-sectional survey that included large subsamples of Anglos and Mexican-Americans. Three complementary assessments are included: a) the correspondence between depressive symptoms and physical health problems; b) the relationship between severity of health problems and depressive symptoms; and c) the extent to which ethnicity and immigrant status mediate the relationship between health problems and depressive symptoms.

The data reported in this paper were collected in 1980 as part of a county-wide survey jointly conducted by the California Department of Mental Health and the Santa Clara County Bureau of Mental Health. Depressive symptoms were measured by a brief checklist of physical complaints by self-report.

The association of depressed affect and complaints of physical health problems can be viewed from two general viewpoints: those instances when the depressed state is presumably primary, and those instances in which the physical complaint produces an affective reaction. From the first viewpoint, our clinical experience suggests that Mexican-Americans tend to report dysphoria in terms of physical complaints more frequently than Anglos, and this tendency is most likely to typify working-class Mexican immigrants (Fabrega et al., 1967). Complaints of headaches, generalized body pains, and indigestion frequently are the only spontaneous complaints of patients who, upon questioning, have all of the classical signs and symptoms of depressive disorder. Frequently the treatment must be mediated through discussion of the physical complaints rather than psychological distress. There is no similar clinical impression regarding the second viewpoint, suggesting that Mexican-Americans have a stronger affective dysphoric reaction to primary physical disease. As noted by White (1981), cultural groups are known to differ in their degree of "somatization" and "psychologization" (the process of conceptualizing a medical problem—including affective disorder—with less or more reference to affective constructs). The limited clinical evidence suggests that Mexican-Americans are similar to Chinese patients studied by Kleinman (1977) in their propensity to describe depression resulting from psychosocial stress as somatic, but differ in that working-class Mexican-Americans (especially women) also present accompanying affective symptomatology. These attributions of etiology have been used to explain underutilization of mental health services for both groups. To our knowledge there has been no epidemiological research published concerning a) the relationship of depressive symptoms and physical health complaints cross-culturally (Mexican-Americans and Anglos) or b) the role of acculturation in mediating this relationship. This latter point is also testable with our data since about 40% of the Mexican-American subsample are immigrants.

All cross-sectional studies of depressive symptom data on Hispanic subsamples (Frerichs et al., 1981; Vega et al., 1984; Vernon and Roberts, 1982), including

results from the Santa Clara survey, have reported that Hispanics have higher prevalence levels than Anglos. However, such differences are diminished or eliminated altogether when socioeconomic status is controlled. Moreover, Vega et al. (1984) reported important intraethnic differences in depressive symptoms, wherein the Spanish-speaking, marginally educated, and predominantly immigrant respondents are responsible for higher depression scores. The second generation Mexican-American respondents in this survey have mean scores that are not significantly higher than those of Anglos in the survey, despite the fact that the Anglos have much higher educational attainment. In sum, it appears that intraethnic markers are more salient than interethnic markers for prognosticating depressive symptoms among Mexican-Americans and Anglos.

An extensive literature reports associations between physical health problems and psychological distress, including secondary depression (Eastwood and Trevelyan, 1972; Guze et al., 1971; Schwab et al., 1978). For example, studies have linked poor health or life-threatening disorders and conditions, such as stroke, to depressive symptoms (Robins, 1976; Robins and Guze, 1972). Link and Dohrenwend (1980), elaborating on Frank's (1973) seminal construct of demoralization, wrote that physical health problems are an important antecedent of a specific cluster of symptoms found in nonclinical depression (low self-esteem, helplessness-hopelessness, sadness-anxiety). Moreover, Kirmayer (1984), in reviewing the literature on somatization, found compelling evidence of a strong link between chronic pain and "sleep disturbance, appetite loss, decreased libido, irritability, social withdrawal, lack of interest in ordinarily rewarding activities, and increased somatic preoccupation" (p. 239), with biological markers for depression being correlated with a tendency for pain symptoms to respond to treatment with tricyclic antidepressants. Based on such findings, some researchers have concluded that chronic pain could constitute a variant of depressive spectrum disorder.

Others have discussed the issue from the perspective of somatization and the possible misuse of medical care providers by people who, although presenting somatic complaints to their physicians, are not ill from any organic disorder. They cite as evidence the considerable decline, perhaps as high as 25%, of medical utilization when these individuals are put into psychotherapy (Feldman, 1984; Vischi and Jones, 1979). In sum, an important relationship has been established between health anomalies and depressive symptoms and disorders, as well as other psychiatric phenomena, and the linkage between the two has been assigned either to the endogenous nature of depressive symptoms, the conjoint occurrence of somatic and depressive symptoms, or the "masking" of these symptoms by health complaints. Unfortunately, other than clinical observations, little is known about the magnitude or patterning of these relationships among and within diverse sociodemographic groups.

This paper adds to knowledge in this area by examining the relationship of depressive complaints and general health complaints as they occur in a large representative sample of two ethnic groups, Mexican-Americans and Anglos. Depressive symptoms range from none to very severe in this population, and physical health complaints similarly range from none to life threatening. Because general health care is readily available in the research site, many of those interviewed responded with specific diagnostic labels for their problems such as cancer, myocardial infarction, multiple sclerosis, etc. Therefore, all aspects of the bidirectional relationship of depressive symptoms and somatic disease appear to be represented.

Methods

The field methods used in this research have been carefully documented in the literature (Vega et al., 1984, 1985), and the details are available from the authors. Briefly, they could be summarized as follows. A modified random-digit dialing telephone survey was used to gather data; there were 1342 respondents. The sample was stratified by age and sex. A disproportionate sampling was done of Mexican-Americans in order to assure cell sizes adequate for analyses. The specific techniques for selecting the sample are based on those outlined by Lucas and Adams (1977) and consist of generating a sample of telephone numbers by means of random digit selections from banks of prefixes supplied by the local telephone companies. Once a household was identified, a technique similar to the one developed by Kish (1965) was used to select specific respondents. Interviews conducted in English took an average of 30 minutes and the Spanish version averaged 34 minutes. The refusal and noncompletion rate was 12.0% for Anglos and 9.3% for Mexican-Americans. There were no specific age-sex subgroups with unusual nonresponse rates, and a poststudy analysis confirmed the representativeness of the sample to county distribution of sociodemographic groups.

Great care was taken to assure a comparable survey instrument in English and Spanish. A Spanish version of the questionnaire was developed through the efforts of an eight-person team which included a Mexican-American linguist, a mental health researcher, and five Mexican-American staff members of a mental health center serving a predominantly Mexican-American community. Subsequently, several pretests

specifically designed to test the equivalency of the items in the questionnaire were completed as part of the construction and translation refinement process. All interviewers were given extensive training, and Spanish-language interviewing (as well as much of the English interviewing) was done by fully bilingual Mexican-American interviewers. About 40% of the Mexican-American respondents did elect to be interviewed in Spanish, and these respondents were almost all immigrants.

Since the study was sponsored by local health agencies, it was presented as a health study conducted in order to estimate levels of unmet need. The survey instrument contained five nonspecific symptom measures developed for use in the Florida Health Study (Schwab et al., 1979) and for which there exists a national data base of both face-to-face and telephone interviews of more than 12,000 respondents. In addition, information was collected covering health problems experienced in the previous 12 months, utilization of health and other human services, social support variables, and demographic information. Because of small sample sizes among ethnic groups other than Anglos and Mexican-Americans, these groups have been eliminated from the analyses that follow. Moreover, only three ethnic subsamples are used in the analyses—Anglos, Mexican-American immigrants, and native-born Mexican-Americans.

The depression measure used in this research was developed using factor analytic techniques and numerous tests for construct validity and reliability (Warheit et al., 1983). See the Appendix for a summary of the validity and reliability tests used to develop this measure and the content of the items. The measure is similar to other depression checklists in wide use such as the Center for Epidemiological Studies Depression Measure (Radloff, 1977). These measures have been found to be reliable indicators of mental health utilization and patient status but are unable to differentiate between primary and secondary depression (Weissman et al., 1977). In fact, a recent paper[3] presenting data from the Epidemiological Catchment Area Project in New Haven indicated that these screening measures were superior to diagnostic instruments for prognosticating mental health utilization. The internal consistency of the measure was tested for reliability using Cronbach's Alpha, which yielded a coefficient of .83 for the entire sample. Surprisingly, the Mexican-Americans had a higher alpha than the

Anglos, with the Spanish-speaking respondents having the highest coefficient of any subsample (.84).

Scaling of Somatic Disorders and/or Complaints

The raw data for the somatic disorders/complaints variable are in the form of responses to the following open-ended questions:

1. "Do you personally have any physical disability or health problem at present? What are they? Describe symptoms."
2. "Have you received any medical treatment for these problems at any time during the past 12 months? For which problem or problems?"
3. "In the past 12 months have you taken any medicines ordered by a doctor? What illness or symptom was it for?"

The responses were encoded by two board-certified psychiatrists using the International Classification of Diseases (World Health Organization, 1977). Both followed the same plan, wherein all responses were coded as literally as possible. No inferences were made about diagnosis from the symptoms given. Even if a respondent indicated shortness of breath, swollen ankles, enlarged abdomen, and a history of heart disease (and use of digitalis), which were obviously indicative of congestive heart failure, only the separate complaints were coded. The procedure of not making any inferences in coding complaints was used to minimize coding bias across ethnic groups, although better educated respondents were more likely to give a precise diagnosis.

This procedure produced up to nine diagnostic classifications for a respondent, although the majority had very few. The next step involved collapsing the approximately 300 nominal ICD categories into a rational severity continuum. First, a distinction was made among disease, procedure, and injury (accident). Within these categories a physician classified into a severity continuum of "minor," "intermediate," and "major." Complaints that did not contain enough information value for a clear judgment were placed into the "intermediate" category, which, therefore, should be construed as also containing items of indeterminate severity. Responses to each of the above three questions were then combined and purged of redundancy.

Respondents were then assigned a single severity category on the basis of the highest value present in their array of codes. Respondents reporting only injuries (accidents) or injuries of greater severity than their disease or procedure were dropped from further analyses so as not to confound injuries and disease. The relatively low prevalence of injury reports (5% of the sample) precluded detailed analysis of this category. The number of disorders/complaints reported was not taken into account on the premise that it

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[3] Tischler, G., and Leaf, P. The direct measurement of need: A clinician's perspective. Unpublished paper, Special Conference on Needs Assessment, Division of Biometry and Epidemiology, National Institute of Mental Health, Washington, DC, February 15, 1985.

would be in large part an artifact of lay medical knowledge. As operationalized, this variable can be viewed as a rough estimate of the severity of the most severe complaint or disorder from which the respondent reports to have suffered or for which the respondent reports to have received treatment during the past year.

Results

As previously stated, the major objectives of this paper are to examine for a relationship between the prevalence and severity of somatic complaints/disorders (SOMCD) and depressive symptomatology (DEPR) and to ascertain whether the nature or strength of such a relationship differs by ethnicity and acculturation level. The depression scale score means broken down by somatic complaints/disorders and by ethnic subsample appear in Table 1. It can be seen here that depression means co-vary in what appears to be a linear fashion with SOMCD for the total sample as well as within the ethnic subsamples. A two-way analysis of variance of these data yielded highly significant ($p < .001$) F-ratios for both SOMCD and ethnic main effects and a nonsignificant interaction effect ($p > .157$). Deviation from linearity by SOMCD yielded a nonsignificant $F = .782$, with $p > .457$. Furthermore, no significant departure from linearity was observed for any of the three ethnic subgroups. In addition to pointing to a linear association between somatic complaints and disorders and depressive symptomatology, these data document the association between the latter and ethnicity.

To supplement the previous analysis, the next analysis involved adjusting for ethnic subsample DEPR differences by dichotomizing each ethnic subsample at the second tertile (actually, the 64th percentile) on DEPR score so as to yield a "highest one third" and "lower two thirds" subgroup for each of the subsamples.[4] Table 2 reports the percentage and base N of respondents scoring above their ethnic subsample second tertile on DEPR by categories of SOMCD. For

example, 28.8% of the 260 Anglos with no SOMCD had DEPR scores in the top third of the Anglo distribution as compared to 49.0% of those with a major SOMCD. As was the case with subgroup means in Table 1, these data point to an association between DEPR and SOMCD within each ethnic group.

The most remarkable feature of these data is the relative stability in the distribution of those scoring in the third tertile across all three subsamples. The only deviation from this pattern appears in the category of minor health complaints, where immigrant respondents were considerably more likely to be in the third tertile than were Anglo or native-born Mexican-American respondents. It is interesting that approximately one half of the respondents reporting intermediate or major health complaints are in the third tertile of symptoms for their respective ethnic subsamples. On the other hand, the range of those scoring in the third tertile of their subsample who did not report any health complaints varies from a low of 25.2 among immigrants to a high of 29.5 among the native-born Mexican-Americans, with Anglos in an intermediate position.

Depressive symptomatology is known to vary with a variety of demographic characteristics on which our ethnic subsamples differ and which could also be expected to vary with SOMCD. The linear correlation matrix is presented in Table 3. It can be seen that non-zero correlations with DEPR, SOMCD, and ethnic group membership are obtained for age, sex, education, and disrupted marital status (separated, divorced, or widowed). In terms of explained variance in DEPR scores it can be seen below the diagonal of the first column that age, education, sex, and marital status account for .4, 7.1, 2.6, and 3.2%, respectively. Likewise, they explain 8.9, .5, 2.5, and 3.3% of the variance in SOMCD. Education, therefore, explains the most variance in DEPR while age the most in SOMCD. Because all of the variables correlate with ethnicity, the possibility exists that the DEPR-SOMCD association could be spurious with respect to or suppressed by these variables. Multivariate analyses were conducted to address this point.

The analytic objective here was to determine whether the linear association found between DEPR and SOMCD in all three ethnic groups was a function

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[4] Because the DEPR scale consists of discrete integer values, the 64th percentile was the only value close to the two-thirds point that would yield exactly comparable proportions for the three ethnic groups and will be referred to as the second tertile for convenience.

TABLE 1

Depression Scale Means by Ethnic Group and Severity of Somatic Complaints/Disorders

Somatic Complaints/Disorders	Anglo	Mexican-American		Total
		U.S.-born	Mexican-born	
None (N)	10.65 (260)	10.97 (193)	14.09 (107)	11.42 (560)
Minor (N)	11.23 (146)	12.32 (62)	17.87 (30)	12.35 (238)
Intermediate (N)	12.32 (109)	15.83 (36)	19.63 (40)	14.58 (185)
Major (N)	14.18 (100)	17.73 (33)	20.65 (20)	15.79 (153)

TABLE 2

Percentage of Respondents Scoring above Their Subgroup Second Tertile on Depression by Somatic Complaints/Disorders and Ethnic Group

Somatic Complaints/Disorders	Anglo	U.S.-Born Mexican-American	Mexican-Born Mexican-American	Total
None (N)	28.8 (260)	29.5 (193)	25.2 (107)	28.4 (560)
Minor (N)	32.2 (146)	28.7 (62)	46.7 (30)	35.7 (238)
Intermediate (N)	45.0 (109)	52.8 (36)	50.0 (40)	47.6 (185)
Major (N)	49.0 (100)	51.5 (33)	50.0 (20)	49.7 (153)
Total (N)	35.8 (615)	36.1 (324)	36.0 (197)	(1136)

TABLE 3

Bivariate Linear Correlations among Depression, Somatic Complaints/Disorders, and Selected Variables[a]

	(4)	(5)	(6)	(7)	(8)	(9)
(1) Anglo = 1	−.138	.143	.201	.497	−.050	−.013
(2) U.S.-born Mexican-American = 1	−.008	−.125	−.176	−.133	.031	.023
(3) Mexican-born Mexican-American = 1	.185	−.039	−.055	−.497	.029	−.010
(4) Depression	—	.188	−.062	−.267	−.161	.179
(5) Somatic complaints/disorders	.035	—	.298	−.072	−.157	.183
(6) Age (yrs)	.004	.089	—	−.098	−.098	−.287
(7) Education (yrs)	.071	.005	.010	—	.096	−.140
(8) Sex (male = 1)	.026	.025	.010	.009	—	−.218
(9) Marital status (disrupted = 1)	.032	.033	.082	.020	.048	—

[a] With $N = 1345$, $r > .05$, $p < .05$; $r > .06$, $p < .01$; r^2 below diagonal.

of or was conditioned by the set of demographic variables demonstrated to be correlated with DEPR, SOMCD, and ethnicity. The first step in these analyses was to residualize (*i.e.*, remove common variance) both DEPR and SOMCD on the four demographic variables (sex, age, education, and disrupted marital status). The effect of this was to transform DEPR and SOMCD into variables uncorrelated with the demographic variables. To accomplish this, DEPR and SOMCD were separately regressed upon the four variables, with the outcome that each variable added significantly to the multiple correlation, which was significantly greater than 0 in both cases. Product (interaction) terms for the four variables were then added with the outcome that higher than first-order terms did not significantly increment explained variance. All six first-order product terms were retained because each significantly incremented explained variance in one or both equations. The net effect of this procedure was to residualize both DEPR and SOMCD on the four demographic variables and their six first-order interactions and in so doing to remove statistically the effect of these variables.[5]

The bivariate correlation between DEPR and SOMCD was found to be $r = .188$ or 3.5% explained variance, while the partial correlation between the two

controlling for the 10 demographic variables (four main effects and six first-order interactions) was $r = .191$ or 3.6% explained variance for the combined ethnic groups. The similarity of the two coefficients stands as evidence that the correlation observed between DEPR and SOMCD is not an artifact of correlations of each with the demographic variables.[6]

The partial correlations for the three ethnic subsamples are Anglo, $r = .131$; United States-born Mexican-Americans, $r = .234$; and immigrant Mexican-Americans, $r = .246$. Translated in percentages of variance explained, these are 1.7, 5.5, and 6.1%, respectively. These outcomes suggest a) that a statistically significant ($p < .001$) linear association exists between SOMCD and DEPR for all three ethnic subsamples and b) that SOMCD explains similarly and larger amounts of variance in DEPR in the two Mexican-American subsamples than in the Anglo subsample. To test the difference among the three ethnic subsample partials a simple difference between correlations Z-test (with an adjustment in standard error for the 10 control variables) was employed. Although

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[5] The bivariate correlation between variables residualized on a common set of variables is, of course, the familiar partial correlation coefficient. The difference between a zero-order and a partial correlation is commonly interpreted to reflect the covariation in the former, which is due to correlation the two variables have in common with the control variables.

[6] Framed in a multiple regression context, this outcome is equivalent to finding that SOMCD significantly increments explained variance if added to the regression of DEPR on the 10 demographic variables. Alternately, this result would be obtained if SOMCD were treated as the dependent variable with DEPR added to the demographic variable list. The partial correlation strategy was chosen because of its parsimony and simplicity in dealing with the symmetry (*i.e.*, reciprocal causality) between DEPR and SOMCD. Similarly, the introduction of ethnicity and its interactions could be tested in the form of separate partial slopes but the partial correlation approach is preferred again for the same reasons.

the correlation between DEPR and SOMCD is stronger in the two Mexican-American subsamples, none of the paired contrasts yielded a Z significant at Alpha = .05. The similarity of the native-born Mexican-American and immigrant subsample correlations and their difference from that for Anglos suggested the combination of the two for a more powerful test against Anglos. Because the combined N for the two groups is close to that for Anglos and because a differences test reaches maximum power with equal N values, a significant difference becomes more probable. The contrast between Anglos and the combined Mexican-American groups yields a $Z = 1.821$, which yields a one-tailed $p < .035$ and a two-tailed $p < .07$, pointing to a weak difference in the direction of a stronger linear association between DEPR and SOMCD for Mexican-Americans than for Anglos.

Discussion

The results of these analyses indicate that, despite global differences in the prevalence of depressive symptoms across subsamples, the correspondence of health status with depressive symptoms is similar for Anglos, Mexican-American immigrants, and native-born Mexican-Americans. This patterning holds for those who have no health complaints, as well as for those who do. The only fluctuation in this pattern is the higher depressive symptomatology among immigrants reporting minor health complaints and the somewhat stronger association between severe health complaints and depressive symptoms among immigrant and native-born Mexican-Americans.

A dramatic finding is that sociodemographic variables such as age, sex, and marital status, which play such a powerful role in the prevalence and severity of depressive symptoms in this population, as well as others, do not condition or alter the relationship between health complaints and depressive symptoms. The likelihood of the association between depression and significant physical disorder or complaints is no greater for the maritally separated, for example, although the prevalence of depressive symptoms is much greater among this subgroup.

Except for the immigrant subsample, respondents with no health complaints and those having minor complaints have low depressive symptomatology, which contrasts with higher rates among respondents reporting intermediate or major complaints. Apparently, the correlation between health complaints and depressive symptoms is sensitive to a threshold of relatively serious health complaints. On the other hand, this threshold appears to be lower for immigrants. Given that approximately one half of the respondents in each subsample reporting either inter-

mediate or major health complaints were also high in depressive symptoms, this degree of association illustrates the importance in clinical medicine to look for depression associated with any significant somatic disorder and to suspect concurrent or causative physical disorder in patients presenting with psychological symptoms. A recent study of a representative sample of public mental health patients in the research site concluded that 45% of the patients had an active important physical disease(s) and one sixth had a disease causing or exacerbating his or her mental disorder(s).[7]

The cross-cultural differences in results are interpretable within the framework of research conducted by Edgerton and Karno (1968) and Karno and Edgerton (1969) almost two decades ago. They discovered in presenting case vignettes to samples of Mexican-Americans and Anglos that Mexican-Americans were more likely to blur the distinction between somatic and mental health complaints and to describe depression as a "nervous" condition. This could explain the greater likelihood of immigrants to be depressed when complaining of only minor ailments. Karno and Edgerton found Mexican-Americans were also more likely to say a person suffering from such a condition should see a physician and to believe that there was an organic etiology at work. Furthermore, low-acculturation respondents (similar to our immigrant subsample) were much more likely to believe in the heritability of mental illness than either native-born Mexican-Americans or Anglos. The somatization process for Mexican immigrants is associated with concomitant manifestation of both affective and somatic complaints.

Regrettably, we cannot offer a parsimonious explanation for the greater tendency of Mexican-Americans with severe health complaints to report more depressive symptoms, except to conjecture that the process of somatization may reflect numerous cultural factors, including holistic belief systems and a broad tolerance for the expression of emotional complaints. The finding that native-born Mexican-Americans and immigrants are similar in their tendency to complain of both somatic and emotional problems may reflect an enduring cultural trait. On the other hand, Anglos may be more likely to partition physical health complaints from psychological states, as has been conjectured from clinical reports. Since the differences among Mexican-Americans and Anglos are most accurately described as variations in degree rather than orientation, differential exposure to highly rational

[7] Koran, L., Sox, H., and Morton, K. A medical evaluation study of mental health service clients. Unpublished report, Stanford University School of Medicine, Stanford, California, 1984.

medical models of illness may account for the lower prevalence of depressive symptoms in this cohort of Anglos. If this is the case, we expect the differences in ethnic groups to diminish with more complete acculturation and higher educational attainment in subsequent generations of native-born Mexican-Americans. However, since current immigration to the United States is significantly expanding the immigrant population, this ethnic group will stratify generationally along socioeconomic and cultural vectors, creating subtle variations in commitment to Mexican cultural values and beliefs.

The finding that ethnic culture does appear to play a role in mediating the strength of these relationships is intriguing but requires replication and additional study in order to clarify which models of somatization are viable for explaining observed differences based on cultural and socioeconomic factors. Kirmayer (1984) has identified seven models explaining somatization as 1) bodily aspect of emotion, 2) inability to express emotion, 3) attention and attribution, 4) communication, 5) idiom of distress, 6) entry into the sick role, and 7) response to health care systems. Any of these models is susceptible to mediation by cultural experience, income, and educational attainment. It was beyond the scope of our research design to clarify the multidimensional nature of the association between affective and somatic complaints. Instead, we focused on accurately describing the general association and sought to identify variations attributable to ethnicity and acculturation. Since our data are cross-sectional and do not include information about respondent perceptions about their disorders, we offer possible explanations of these associations only with caution. Given the strong linear association between health complaints and depressive symptoms, the results of more detailed epidemiological research would of course be of great interest, especially when such observations could be supplemented by clinical interviews to establish the natural history of the complaints and disorders, including the order of onset and cultural sequelae.

Conclusion

We have examined the relationships between depressive symptoms and somatic complaints within two ethnic groups and we find consistent linear trends; i.e., as health complaints increase in seriousness the number of depressive symptoms reported tends to rise. This association is invariant even when controlling for several demographic variables typically tested in this type of research. However, we detect an ethnic group difference in the direction of a stronger association between depression and somatic complaints

among Mexican-Americans, a finding that is in accord with clinical impressions and the limited scientific literature on the topic. Mexican-American immigrants are also more likely to report depressive symptoms when experiencing relatively minor health problems, indicating the importance of intracultural variations as well. In sum, we have presented evidence from cross-sectional data that support the likelihood of a complex clinical picture for Hispanics that includes concurrent presentation of health problems and affective symptomatology.

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APPENDIX[8]

The depression scale contains 18 items, with a range of 0 to 72, covering affect, body complaints, psychological patterns, negative self-evaluation (cognition), and future outlook. Numerous tests were conducted to establish the reliability and validity of the scale. These included the following.

1. A study was conducted in which three psychiatrists made blinded, independent ratings of a probability sample of community respondents ($N = 322$) and a sample of psychiatric patients ($N = 107$) who were being treated in community inpatient and/or outpatient settings. Using protocols generated from structured interviews, the psychiatrists rated both community respondents and patients along a continuum ranging from not impaired to incapacitated. Overall, the raters significantly agreed on the global levels of impairment for both the patient and nonpatient groups. When the depression score distributions were analyzed in the context of the impairment ratings, it was found that the scores for both the patients and those from the community sample rated as having some level of impairment were significantly higher than those in the sample rated as unimpaired. Moreover, the scale score differences within the impaired groups were statistically significant; as impairment levels increased, so did scale scores.

2. Psychiatrists rated a community probability sample ($N = 300$) for psychosocial impairment by means of protocols generated from their interview schedules. These ratings were also made independently and blinded; once again, the results showed statistically significant relationships between the impairment ratings of the psychiatrists and the scale scores of respondents in the sample.

3. Scale score results of 256 psychiatric inpatients were compared with those of a general probability sample ($N = 1645$), wherein the community respondents were placed into four risk categories as determined by their personal and social histories, including treatment for mental health problems, psychotropic drug use, suicidal ideation and behaviors,

recent life events, and similar factors known to be associated with mental health problems. When scores of patients were compared with those of the risk groups from the community sample, statistically significant differences were found between patients' scores and the no-risk and low-risk groups from the community sample. The analyses also showed that the differences between the patients' scores and those of the moderate-risk and high-risk community groups were not significantly different from each other.

4. Scale score results were analyzed in relationship to 59 factors known to be related to mental health problems (*e.g.*, employment patterns, marital and family histories, alcohol and drug use, suicidal ideation and behaviors, hospitalizations, and life crises events). The results of these analyses showed statistical associations between scale scores and all of these 59 factors.

The Florida Health Study Depression Measure

1. Do you feel in good spirits?
2. How often do you have crying spells or feel like it?
3. How often do you feel you don't enjoy doing things anymore?
4. How often do you feel alone and helpless?
5. How often do you feel that people don't care what happens to you?
6. How often do you feel that life is hopeless?
7. Do you tend to feel tired in the morning?
8. Do you feel that you are bothered by all sorts of ailments in different parts of your body?
9. Have you ever had periods of days or weeks when you couldn't take care of things because you couldn't get going?
10. Do you have any trouble getting to sleep and staying asleep?
11. How often do you have trouble with sleeping?
12. Do you ever have loss of appetite?
13. When things don't turn out, how often would you say you blame yourself?
14. How often do you think about suicide?
15. Life has changed so much in our modern world that people are powerless to control their own lives (strongly agree, agree, undecided, disagree, strongly disagree).
16. Do you sometimes wonder if anything is worthwhile anymore?
17. How often would you say that things don't turn out the way you want them to?
18. How does the future look to you?

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[8] Abstracted from Vega *et al.* (1984).