

## MIND, BODY, AND CULTURE: SOMATIZATION AMONG HISPANICS

RONALD ANGEL and PETER J. GUARNACCIA

30 College Avenue, Rutgers University, New Brunswick, NJ 08903, U.S.A.

**Abstract**—In this analysis we employ the recently released Hispanic Health and Nutrition Examination Survey (Hispanic HANES) to investigate the issue of somatization among Mexican Americans and Puerto Ricans. In order to do so, we use the physician's assessment as a control, and examine the association between depressive affect and self-perceptions of health for individuals with similar evaluated health levels. The data reveal rather dramatic discrepancies between individuals' assessments of their own health and physicians' evaluations. In addition, the data reveal that, net of the physician's evaluation, individuals' assessments of their overall health status are significantly influenced by their affective states. The data also reveal a strong effect of language of interview on self-assessments of health and depressive affect.

*Key words*—somatization, Hispanic, depression, physical symptoms

### INTRODUCTION

One of the characteristics of scientifically-based conceptions of the self is an analytical distinction between the psychological and the physical [1]. Yet, it is clear that internal subjective experiences do not correspond to the categories that researchers use to describe them. For example, subjective experiences of health and illness are global and nonspecific; distinctions between the psychological and the physical are more the conventions of scientific discourse than representations of the ways in which individuals experience their phenomenological realities. This confounding of the psychological and the physical, or of mind and body in phenomenological terms, is of more than academic interest. It has serious implications for the validity of data concerning aspects of subjective experience. In this analysis we deal with one aspect of the unity of the psychological and the physical self by examining the association between affective distress and self-assessments of physical illness among Mexican Americans and Puerto Ricans in the United States.

Ever since Zborowski's [2] classic study of the effects of culture on the reporting of pain, researchers have been interested in how cultural group membership affects the monitoring of physical and psychological states. Some of the important dimensions of the impact of culture on self-monitoring include: (1) generalizing complaints to the whole body as opposed to viewing them as site specific; (2) presenting complaints in primarily somatic, primarily psychological, or mixed idioms; and (3) attributing particular salience to symptoms in particular organ systems. Although there is suggestive evidence concerning these processes, for the most part they remain poorly understood [3].

Several researchers have documented a tendency among members of traditional cultures to somatize affective distress or social discord [3, 4]. Kirmayer

[5, 6] presents three definitions of the term somatization:

1. The presentation of physical symptoms in the absence of organic pathology, or the amplification of physical complaints accompanying organic disease beyond what can be accounted for by physiology.

2. The presentation of somatic complaints as a way of expressing personal or social problems—the body serves as the core symbol system for communicating social and emotional experience.

3. The set of psychological mechanisms through which emotional states produce somatic signs and symptoms of illness, such as the vegetative signs of depression and somatic symptoms of anxiety. Here, emotional distress becomes expressed through changes in bodily functions.

One impetus for this renewed interest is the relatively consistent finding that a large proportion of those seeking general medical services have little organic basis for their symptoms [3, 4]. In what follows we will examine the extent of somatization among Mexican-Americans and Puerto Ricans in the United States using the recently released Hispanic Health and Nutrition Examination Survey [7].

These data are particularly appropriate for this purpose because they are one of the few data sets available that contain all of the necessary components: (1) a physician's examination to serve as an external and independent health criterion; (2) the respondent's subjective assessment of his or her overall health; and (3) a measure of depressive affect (the CES-D). Our operationalization of somatization is based on the first of Kirmayer's definitions mentioned above and consists of a discrepancy between an individual's subjective assessment of his or her health status and the physician's independent assessment. For purposes of this analysis, somatizers are defined as individuals whose self-assessments of their

health are significantly poorer than the physician's assessment.

#### THE SOMATIZATION OF DISTRESS AMONG HISPANICS

For several decades researchers have reported that Hispanics are more likely than non-Hispanics to report somatic symptoms on a variety of scales of psychological distress [1, 3-6, 8-11, 12-16]. This research also reveals that various Hispanic groups have different response patterns; particularly striking are differences between Puerto Ricans and Mexican-Americans, with Puerto Ricans typically reporting much higher levels of distress. These discrepancies have been attributed to various causes including differences in culture, levels of acculturation, and the social class positions of Mexican-Americans and Puerto Ricans.

Evidence concerning any tendency to express psychological distress somatically by Mexican-Americans and Puerto Ricans is sparse. Indeed, even reports of relative levels of psychological distress among these groups provide contradictory evidence; it appears that rates of assessed psychological distress are influenced by such factors as the assessment instrument used, the translation procedures employed, and the samples studied [1]. Although we will make no attempt to be exhaustive, we will begin by reviewing some typical findings concerning self-reported psychophysiological symptoms among Hispanics and discuss some of their possible explanations.

During the 1950s and 1960s a number of multi-ethnic psychiatric studies that used the Langner 22-item scale, a symptom checklist consisting of psychophysiological symptoms of depression and anxiety, were carried out in New York City [8, 11, 12, 16]. These studies consistently found that Puerto Ricans reported the highest number of symptoms of any of the ethnic groups studied. This pattern was particularly striking in the Midtown Manhattan Study [16]. Although the results must be interpreted with some caution due to the small number of Puerto Ricans, this study found that 61% of the Puerto Ricans as opposed to 31% of non-Puerto Ricans reported impairing levels of symptoms. In addition, not one of the 27 Puerto Ricans respondents was rated as 'well' based upon the criteria used in the study.

Much of the discussion concerning differences in reported symptoms between Mexican-Americans and Puerto Ricans has revolved around the possibility that observed differences are response artifacts. Dohrenwend [8] presented evidence that differences between Puerto Rican and other respondents could be explained by group differences in the perceived social desirability of psychophysiological symptoms. Haberman [12] corroborated these findings and concluded that elevated symptom reports by Puerto Ricans are largely a reflection of culturally-patterned modes of expressing distress.

None of these studies, however, explain what culturally-patterned factor might account for this uniquely Puerto Rican response style. One possibility is that the symptoms of the Langner 22-item scale

conform closely to those characteristic of a condition called *nervios* (nerves) in traditional Puerto Rican and other Hispanic cultures. *Nervios* is a culturally meaningful idiom of distress among Puerto Ricans and we would expect those who have recently arrived on the mainland from the island, and who are living in socially isolated and economically disadvantaged families, to express their distress in terms of this idiom. Symptoms of *nervios* include headaches, trembling, heart palpitations, stomach and appetite disturbances, trouble with concentration, sleep problems, and worrying [17]. Women are more likely to suffer from this syndrome, as are those from rural and lower class backgrounds. We might, therefore, hypothesize that the Langner scale taps the idiom with which Puerto Ricans express the worries, troubles, and problems associated with poverty and discrimination in a new environment.

Krause and Carr [14] provide support for this hypothesis. Using four items from the Langner scale (heart beating hard, acid or sour stomach, hands trembling, and worries make me physically ill), they found that Puerto Ricans in a Midwestern sample scored higher than any other ethnic group. Those Puerto Ricans who reported the highest symptoms were recent migrants, females, the elderly, those with little education, and those with high anomie scores. Both the symptoms used by Krause and Carr and the social characteristics of those with high symptom levels suggest the syndrome of *nervios* as a culturally meaningful category organizing Puerto Rican responses [18].

Among other groups, the social characteristics of people found to somatize distress fit closely with those identified for sufferers of *nervios* among Puerto Ricans. Somatization is prevalent in developing societies and among recent immigrants in developed societies. In industrialized nations, those most likely to express distress somatically are those of lower socioeconomic status, those with little education, those who are most behaviorally ethnic, those from rural areas, and those who are most actively religious [3, 4, 13]. Escobar *et al.* [9], employing data from the Los Angeles Epidemiologic Catchment Area (ECA), found that Mexican-American women over 40 were more likely than other Mexican-Americans and non-Hispanics to report higher numbers of symptoms on the somatization section of the Diagnostic Interview Schedule (DIS). These data also reveal that lower levels of acculturation are associated with a tendency to somatize distress. Those respondents diagnosed with 'trait' somatization were more likely than those with other DIS diagnoses to be depressed and to have used physical health services. Escobar and colleagues' research again confirms that somatization among Hispanics is associated with older age, being female, and lower acculturation. This research also confirms that somatization bears a strong association to depressive symptoms and disorder and that it results in greater use of medical services.

High levels of somatic symptoms and somatization disorder were also found in a psychiatric epidemiological study in Puerto Rico using the DIS [19, 20]. In addition, a factor analytic study by Rubio-Stipec and colleagues [21] yielded a somatization factor in Puerto Rico that did not appear either in the St Louis

or Los Angeles ECA sites. In a study of the clustering of symptoms in the somatization section of the DIS in Puerto Rico, Guarnaccia *et al.* [22] found that those people reporting somatization symptoms, related to the cultural category of *ataques de nervios*, were more likely to be older females with low levels of education and socioeconomic status. In this study, those diagnosed as suffering somatization disorder also suffered serious psychopathology, often meeting criteria for schizophrenia and other disorders [22]. These data, then, suggest that somatization items tap styles of presentation of distress in addition to a specific underlying disorder. Puerto Ricans suffering a psychotic disorder are likely to report a number of somatic symptoms as an expression of their distress and as a style of illness behavior that is less stigmatizing than being labeled mentally ill.

Certain evidence suggests that Mexican-Americans may also express distress in terms of a similar idiom. A recent study of schizophrenics by Jenkins [23] found that Mexican-American families characterized their family member's schizophrenic symptoms as symptoms of *nervios* and emphasized a series of somatic complaints that tended to destigmatize the illness. Unfortunately, the literature on psychopathology for Mexican-Americans provides quite inconsistent findings [1]. Studies that employ the Langner 22-item and similar scales often find that Mexican-Americans are less distressed than non-Hispanics. On the other hand, instruments such as the CES-D that focus on affective rather than psychophysiological symptoms show Mexican-Americans to be as, or even more, distressed than other groups [1, pp. 469-470]. Again, the social desirability of symptoms, levels of acculturation, and culturally-specific response styles likely influence responses to such scales.

Once again, though, the work of Dohrenwend [8] provides insights into the issue of cultural differences in expressive styles. In the Washington Heights mental health studies, Dohrenwend and colleagues found that blacks reported lower levels of symptoms than other ethnic groups. This finding was surprising because blacks as a group are economically disadvantaged and suffer the consequences of racial discrimination. One would expect these factors to be associated with poorer mental health. Rather than interpreting reports of fewer symptoms as reflecting better health status among blacks, though, Dohrenwend interpreted them as at least partial methodological artifacts and cited evidence that black respondents provide very different answers depending upon the race of the interviewer. In this study, blacks were more likely than other groups to rate the symptoms of the Langner scale as socially undesirable. This evidence, then, raises broader questions concerning the social context within which interviews concerning health take place. It is possible that more acculturated Mexican-Americans under-report psychological symptoms because of a desire not to appear sick to non-Hispanic society.

Although these studies provide intriguing evidence of a tendency toward somatization among the poor and least acculturated, such findings must be interpreted cautiously. Poverty, low acculturation, and their associated stresses may be associated with

poorer actual physical health, confounding any tendency toward somatization with real diminished health levels. One of the major difficulties in using psychiatric screening scales results from the difficulty in separating the effects of organic illness from those of mental status. The symptoms of psychiatric disorders are not distinct and unambiguous, they often overlap with those of a number of physical conditions. For example, the symptoms of severe anemia may be difficult to differentiate from those of depression. In both cases the individual may lose interest in normal activities and experience changes in appetite, sleep patterns, and energy level. For groups whose illness burdens are high, normative levels of symptomatology may be quite different than for groups that suffer less illness. If a great number of those in one's reference group have symptoms, one's own diminished health status may not seem particularly noteworthy. It is unclear, at present though, how such normative factors affect illness reporting [1].

It is clear, however, that economic status is directly related to health; individuals and groups at the bottom of the social hierarchy experience a greater number of more severe illnesses than those in higher social classes [24]. The use of symptom-based instruments with these groups is problematic because of the fact that poverty increases risks for *both* psychological and physical illness. In the United States certain Hispanic groups are disproportionately represented in the lower social classes where they are exposed to the health risk factors associated with poverty.

This confounding of culture, social class, and physical and mental health is only one of the difficult methodological problems inherent in comparative research. It is clear that even when the greatest care is taken in instrument development, translation, and administration, specific data analytical approaches can lead to quite different assessments concerning similarities or differences between cultural groups [25]. Let us examine such methodological problems in two frequently cited studies, the first carried out by Mezzich and Rabb [10] in Peru and the other by Escobar *et al.* [10] in Colombia. Both studies were based on patient samples and found that Latin Americans reported more somatic symptoms than North Americans. To be included in the study, participants had to have high scores on a depression scale (the Zung in the first case and the Hamilton in the second) and be diagnosed as depressed by a clinician using research diagnostic criteria (RDC) [26]. Both of these inclusion strategies selected South American patients who most closely matched the symptom profile of a North American depressed patient and, thereby, limited the possibility of finding major differences in the presentation of depression across cultures. The objective of both studies was to determine whether there is a common core set of depression symptoms across cultures. Because of the selection criteria employed for inclusion in the sample the findings of a common set of symptoms of depression were built into the design. Perhaps the most striking result in these studies is that, in spite of the bias against finding significant differences between groups, differences were found.

Clearly, then, research techniques that cast individual's responses in terms of a culturally-specific set of

diagnostic criteria make it difficult to determine how emic categories are employed within specific cultural contexts. Much research will be necessary to determine how specific cultural groups construe mental and physical illness phenomenologically and how they express it linguistically. Numerous anthropologists [27-31] have attempted this complex task. These attempts, however, have had little impact on current epidemiological research.

In the analysis that follows we employ the Hispanic Health and Nutrition Examination Survey (Hispanic HANES) to get some idea of the impact of acculturation and other social and economic factors on somatization for Mexican-Americans and Puerto Ricans. Although it is impossible to determine individual emic categories of illness from such data, it is possible to discern group differences in overall levels of reported illness and to relate these to important sociocultural factors.

#### DATA

The Hispanic HANES, which was conducted between 1982 and 1984, consists of a medical history and a physical examination designed to identify significant pathology for samples of 7462 Mexican-Americans in the five southwestern states; 2834 Puerto Ricans in the New York area; and 1357 Cubans in Miami, Florida. Respondents ranged from 6 months to 74 years of age. The present analysis is based upon the adult (20 and older) Mexican-American and Puerto Rican samples. These data are, to date, the best available on the physical health of large representative samples of Hispanics in the United States [7]. In this analysis the determination of Hispanic ethnicity is based on a self-identification as Mexican, Mexican-American, Chicano, or Hispano in the southwest and Puerto Rican or Boricuan in the New York City Area.

The Hispanic HANES provides an excellent opportunity for assessing the impact of cultural change and social factors on somatization. It includes information on self-reported health status, measures of depression for each adult in the sample, and information from a physician's examination. The data also contain a great deal of sociodemographic and economic information on the individual and his or her family. In addition, respondents were given the choice of taking the interview in English or in Spanish. Preliminary analyses revealed that language of interview is an excellent behavioral measure of degree of acculturation and ethnic identification.

#### ANALYSIS

The fundamental requirements for making an inference of somatization is an independent and objective assessment of health, in addition to some

measure of an individual's level of distress. Again, the Hispanic HANES is unique in providing this information. Although a physical examination is not an unambiguously accurate reflection of health (e.g. conditions may be in their early stages and be missed or a physician may misdiagnose serious illness) it would be difficult to imagine a better practical validity criterion. The logic of our analysis is relatively simple. We begin by comparing the respondent's self-assessment of his or her health to the physician's assessment. We then examine how, net of the physician's assessment, culture affects the individual's level of depressive affect and self-assessed health. Although we will examine the association between distress and specific self-reported health conditions, the analysis focuses primarily on the individuals' global assessments.

Because of their regional concentration and differences in the sampling procedures used to select each group, the Mexican-American and Puerto Rican samples are independent and cannot be pooled. Consequently, we will conduct parallel analyses for each group and all statistical tests will refer to within-group differences. In addition, because of the relatively low examination response rate for Cubans (60.5%) they will not be employed in this analysis.\*

#### RESULTS

Table 1 presents basic demographic and economic information for the two samples. To summarize this information we might point out that the Mexican-American sample is younger, less female, and more likely to be married than the Puerto Rican sample.

Table 1. Sociodemographic characteristics of study samples

	Mexican-American (%)	Puerto Rican (%)
<i>Age</i>		
20-44	62.5	56.7
45-59	31.5	37.2
60-74	6.0	6.1
<i>Sex</i>		
Male	43.9	37.0
Female	56.1	63.0
<i>Marital status</i>		
Married	73.7	51.1
Widowed	4.5	4.9
Divorced/separated	10.1	22.9
Never married	11.6	20.9
<i>Education</i>		
High school or less	83.0	84.3
College or more	17.0	15.7
<i>Family Income</i>		
≤ \$4999	8.5	17.9
\$5000-14,999	34.7	39.8
\$15,000+	56.8	42.3
<i>Language of interview</i>		
English	56.6	37.7
Spanish	43.4	62.3
<i>Residence (SMSA)</i>		
Central city	50.3	87.2
Suburb	37.8	12.8
Rural	11.9	0.0
<i>Employment status</i>		
Employed	58.5	44.1
Unemployed	41.5	55.9
(N)	(3371)	(1285)

\*The response rates for Mexican-Americans and Puerto Ricans for the household interview and for the physical examination were the following:

Household	Mexican-Americans	Puerto Ricans
Interview	86.5%	89.0%
Examination	75.4%	74.9%

Table 2. Self-assessed and physicians' assessments of health for Mexican-Americans (proportions; *N* in parentheses)

Self-assessment	Physician's assessment				Column (%)	<i>N</i>
	Excellent	Very good	Good	Fair/poor		
	<i>English Interview</i>					
Excellent	21.19	15.60	8.94	10.20	18.29	(349)
Very good	26.95	21.40	13.41	6.12	23.69	(452)
Good	34.32	38.40	34.64	26.53	35.22	(672)
Fair/poor	17.54	24.60	43.02	57.14	22.80	(435)
Row (%)	61.84	26.21	9.38	2.57		
( <i>N</i> )	(1180)	(500)	(179)	(49)		(1908)
$\chi^2 = 113.699, P \leq 0.000$						
	<i>Spanish Interview</i>					
Excellent	6.79	5.70	3.48	2.35	5.67	(83)
Very good	7.74	6.62	3.48	3.53	6.49	(95)
Good	35.39	32.54	27.86	31.76	33.08	(484)
Fair/poor	50.08	55.15	65.17	62.35	54.75	(801)
Row (%)	43.27	37.18	13.74	5.81		
( <i>N</i> )	(633)	(544)	(201)	(85)		(1463)
$\chi^2 = 20.429, P \leq 0.015$						

Puerto Ricans have lower family incomes, and are more frequently unemployed. In addition, a majority of the Puerto Rican sample took the interview in Spanish and, because of the design of the sample, are exclusively urban. This table, then, reveals several important differences between Mexican-Americans and Puerto Ricans that we might suspect affect their health.

Tables 2 and 3 present cross-tabulations of the individual's self-reported general health status and the physician's summary assessment from the physical examination. One strength of the Hispanic HANES is that both the respondent and the physician assessed the respondent's general health in the same metric (excellent, very good, good, fair, and poor) so that direct comparisons are possible. Table 2 presents information for the Mexican-American sample. Perhaps the most striking aspect of this table is the extent of disagreement between respondents and physicians, especially for those who took the interview in Spanish. Among those who took the interview in English, 88% were rated in excellent or very good health by the physicians. Yet, only 48% of the respondents assessed their own health as excellent or very good.

For Spanish-interview Mexican-Americans this pattern is even more pronounced. Although the physicians were somewhat less likely to assess the health of this group as excellent or very good (80%), those respondents who took the interview in Spanish were much less likely than those who took it in English to report excellent or good health (15% as opposed to 48%). In fact, half of those whom the doctors evaluated as in excellent or very good health reported their own health to be only fair or poor.

Table 3 reveals similar patterns of discrepancy between respondents and physicians for Puerto Ricans. In general, the physicians found the Puerto Ricans to be in poorer health than the Mexican-Americans. A much larger proportion of Puerto Ricans than Mexican-Americans were assessed as having only fair or poor health. Among Puerto Ricans interviewed in Spanish, 42% were found to be in good health and 16% in fair or poor health. Apparently, then, the Puerto Rican sample is generally less healthy than the Mexican-American sample. Nonetheless, they are similar to Mexican-Americans in their pattern of disagreement with the physician. These data, therefore, suggest that low acculturation,

Table 3. Self-assessed and physicians' assessments of health for Puerto Ricans (proportions; *N* in parentheses)

Self-assessment	Physician's assessment				Column (%)	<i>N</i>
	Excellent	Very good	Good	Fair/poor		
	<i>English Interview</i>					
Excellent	23.93	18.10	12.10	0.00	17.11	(83)
Very good	24.79	27.15	12.90	0.00	21.65	(105)
Good	40.17	36.65	43.55	30.43	38.97	(189)
Fair/poor	11.11	18.10	31.45	69.57	22.27	(108)
Row (%)	24.12	45.57	25.57	4.74		
( <i>N</i> )	(117)	(221)	(124)	(23)		(485)
$\chi^2 = 59.556, P \leq 0.000$						
	<i>Spanish Interview</i>					
Excellent	11.84	10.23	5.71	1.57	7.13	(57)
Very good	11.84	12.12	6.01	3.15	8.13	(65)
Good	35.53	32.95	17.12	8.66	22.75	(182)
Fair/poor	40.79	44.70	71.17	86.61	62.00	(496)
Row (%)	9.50	33.00	41.63	15.88		
( <i>N</i> )	(76)	(264)	(333)	(127)		(800)
$\chi^2 = 93.015, P \leq 0.000$						

measured as having taken the interview in Spanish, results in less agreement with the physician, regardless of specific ethnicity. In addition, the consistency of patterns for both Mexican-Americans and Puerto Ricans suggests that the findings are not simply an artifact of the overall excellent and very good assessed health of the Mexican-American sample.

These patterns raise intriguing questions. Much of the previous literature on agreement between physicians and respondents indicates that when respondents differ with the physician they tend to rate their health status as better than does the physician [32, 33]. Our findings are rather different. Mexican-Americans and Puerto Ricans respondents who disagree with the physician see themselves as in poorer health than does the physician. The reasons for this discrepancy are unclear. We must, of course, begin by asking whether these results are partially a linguistic artifact. In spite of our best efforts at translation, complete conceptual equivalence between respondents from different cultures is never guaranteed [25]. In addition, it may be that for Mexican-Americans and Puerto Ricans the adjectives associated with normal health differ from those used by non-Hispanic. In Tables 2 and 3, Spanish language of interview is associated with poorer self-assessed health. Since those who took the interview in Spanish are more culturally Mexican or Puerto Rican, these findings may reflect a culturally-conditioned response pattern in addition to actual poorer overall health.

In Spanish the general health question is the following: "Diría usted que la salud de (Respondent's Name) en general es excelente, muy buena, buena, regular, o mala?" A large number of responses fall into the 'buena' and 'regular' categories. This may seem a more appropriate category for describing normal health for the less acculturated than for the more acculturated. In Spanish these terms connote more of what the phrase 'just fine' might mean in English. Unfortunately, with these data we are unable to assess the meaning that respondents attributed to their responses. This determination requires a detailed examination of the various linguistic categories that different groups use for normal and poorer health.

Regardless of the sources of the discrepancies revealed in Tables 2 and 3 their magnitude is

dramatic and they clearly reflect a cultural and linguistic impact on self-assessments. The next question we will ask is whether such reports are the reflection of a tendency among Hispanics to express distress somatically. Again, the data in Tables 2 and 3 suggest such a tendency. If somatization is a characteristic of traditional culture we would expect the least acculturated to manifest this characteristic to a greater degree than the more acculturated. This is exactly the pattern we found in comparing English-interview respondents to Spanish-interview respondents.

If, as we have argued, traditional culture entails less of a separation of the psychological and physical senses of self we would expect those respondents who rate their health as poor to also have higher distress levels as measured by standard depressive affect scales. In order to investigate this possibility we compare the average CES-D scores of respondents at each level of self-reported health. These results are presented in Table 4. Since an elevated depression score might be the result of physical illness or of factors associated with poverty rather than a reflection of a culturally-influenced response style, the mean scores presented in Table 4 are adjusted for the physician's evaluation as well as for the health-related economic and sociodemographic factors listed at the bottom of the table.

The patterns revealed in Table 4 are rather dramatic. For all groups, those who report the lowest levels of health have the highest average CES-D scores. The largest difference revealed by these models is the consistently higher CES-D score for Puerto Ricans at all levels of self-reported health. Those Puerto Ricans who rated their health as poor had an average score well above 16, which is often taken to be a cutoff for depression. Table 4 also reveals language of interview differences. Those who took the interview in Spanish had slightly higher average CES-D scores in the poor category. These differences, however, are not large. For both Mexican-Americans and Puerto Ricans, however, those who took the interview in Spanish were much more likely than those who took the interview in English to report the lowest levels of health. So although the differences between language of interview groups in average CES-D scores within categories of self-assessed health are small, lower acculturation

Table 4. Adjusted CES-D score by categories of self-assessed health for English and Spanish interview\*

Self-assessment	English interview	Spanish interview	
		<i>Mexican-American</i>	
Excellent	6.12	(314)	6.73 (71)
Very good	6.29	(407)	6.26 (71)
Good	7.59	(588)	6.42 (390)
Fair	9.16	(284)	8.90 (559)
Poor	11.91	(70)	12.70 (107)
		<i>Puerto Rican</i>	
Excellent	8.33	(75)	8.82 (55)
Very good	10.21	(94)	9.96 (59)
Good	11.65	(172)	10.29 (163)
Fair	12.80	(70)	15.14 (355)
Poor	19.98	(24)	20.94 (101)

\*Adjusted for physician's assessment, marital status, employed vs not employed, age, education, gender, income, central city vs suburban and rural vs urban residence. The specific coding for these variables is that presented in Table 5.

Table 5. Regression coefficients predicting self-assessed health of Mexican-American and Puerto Rican adults

	Mexican-American		Puerto Rican	
	OLS*	SURREGR†	OLS*	SURREGR†
Spanish interview	0.46§ (0.04)	0.50§ (1.07)	0.39§ (0.07)	0.39§ (0.77)
Age	0.01§ (0.00)	0.01§ (1.49)	0.01§ (0.00)	0.01 (1.17)
Female	0.03 (0.04)	0.02 (1.05)	0.18§ (0.06)	0.18 (1.43)
Employed	-0.15§ (0.04)	-0.13§ (0.78)	-0.12 (0.07)	-0.11 (1.54)
Education	-0.05§ (0.01)	-0.05§ (1.27)	-0.02‡ (0.01)	-0.03‡ (1.03)
Married	-0.02 (0.04)	-0.03 (1.12)	0.06 (0.06)	0.02 (0.63)
Fam. Inc. \$ ≤ 4999	0.27§ (0.07)	0.27‡ (1.31)	0.21‡ (0.10)	0.22§ (0.67)
Fam. Inc. \$5000-14,999	0.24§ (0.04)	0.25§ (0.95)	0.13 (0.07)	0.14 (1.32)
Central city	-0.05 (0.04)	-0.07‡ (0.67)	0.06 (0.09)	0.00 (1.02)
Rural	-0.10 (0.06)	-0.15 (1.64)	N/A	N/A
Depressive affect	0.02§ (0.00)	0.02§ (0.87)	0.02§ (0.00)	0.02§ (0.98)
Physician's assessment	0.13§ (0.02)	0.12§ (1.18)	0.25§ (0.04)	0.27§ (1.17)
Intercept	2.59§ (0.12)	2.60§ (1.15)	1.68§ (0.22)	1.82§ (1.23)
Adjusted R <sup>2</sup> (N)	0.26	0.26 (2861)	0.30	0.30 (1168)

\*Standard errors in parentheses.

†Square roots of design effects in parentheses.

‡P ≤ 0.05; §P ≤ 0.01.

is associated with a greater tendency to report both poorer health and more depressive affect.

Table 5 presents the results of analyses that test for the net impact of language of interview on self-assessed health. These models control for physician's assessment and several health-related demographic and economic variables. As most other large-scale surveys, the Hispanic HANES is based on a complex sample design involving stratification and clustering [7]. The result of employing ordinary least squares (OLS) regression with complex samples is an unknown amount of bias in the parameter estimates and distortion in the standard errors of the estimates. The analyses presented in Table 5 are based on both ordinary least squares (OLS) regression and a technique that takes the weighting scheme and the complex design of the survey into account in computing regression coefficients and their corresponding standard errors. The program, known as SURREGR [34], is complex and a detailed explanation of the procedure will not be attempted here. In order to interpret these results, however, it is only necessary to keep in mind that they can be interpreted in the same way as ordinary regression results. The entries in parentheses below each coefficient in the SURREGR models are the square roots of the design effect for that variable.

This table provides some useful information. In these models both the self-assessment and the physician's assessment are coded negatively so that a positive coefficient indicates poorer health. These models reveal a consistent net impact of language of interview on self-assessments for both Mexican-Americans and Puerto Ricans. As we would expect, the physician's assessment is a

significant predictor of self-assessments. In addition, as was revealed in Table 4, for both groups, an increase in depressive affect contributes significantly to an individual's negative self-assessment of health. In addition to these cultural and medical variables we might point out that both education and low income have significant net effects on self-assessments of health. It is clear, then, that medical, cultural, and social class factors affect an individual's self-assessment of his or her health simultaneously. A complete understanding of these factors requires ethnographic data in addition to the sort of data provided by the Hispanic HANES. These data do make it clear, however, that there is a general tendency for what we might term 'demoralization' to be experienced both affectively and as perceptions of poorer physical health.

#### SPECIFIC HEALTH CONDITIONS

To this point we have been concerned with respondents' general assessments of their health. We have argued that the experience of self is based on global and indistinct perceptions and that the interpretation of these perceptions is conditioned by culture and language. It is possible, however, that specific chronic health conditions are associated with greater depression (as a cause, consequence, or comorbidity), or with a tendency to view one's health more negatively than an external observer. In order to examine these possibilities we examined the impact of (1) specific conditions that were diagnosed during the examination and (2) conditions reported as part of the medical history on depressive affect.

As in any cross-section of the nonelderly population, the prevalence of specific health conditions is quite low in the Hispanic HANES. In terms of the physicians' diagnoses, only endocrine, circulatory, and respiratory diagnoses were frequent enough for analysis, and even these had very low prevalence for the younger age groups. From the medical history the only chronic conditions with substantial prevalence were heart problems, diabetes, kidney problems, and bronchitis.

In order to examine the net effects of these diagnoses and conditions on depressive affect we regressed the CES-D score on the diagnoses and the conditions reported in the medical history in two separate models. These results are presented in Table 6. Each of these models controlled for the health-related sociodemographic and economic factors included in the earlier analyses as well as for the physician's global assessment. This table reveals that, net of the physician's global assessment and the other health-related controls in the model, none of the diagnoses were significantly associated with the CES-D score for either group. Of the chronic conditions, however, bronchitis is associated with increased CES-D score for Mexican-Americans, and diabetes, kidney disorders, and bronchitis with higher scores for Puerto Ricans.

Although these models are rather weak predictors of depressive affect, they do suggest the depression may be manifested as specific medical conditions and that such conditions may have a significant psychosomatic component, at least for Puerto Ricans. On the other hand, it may simply be that depressed individuals are more likely than nondepressed individuals to go to the doctor with specific complaints and receive a diagnosis. Although suggestive, these results must be interpreted cautiously. Since the conditions were asked as part of the medical history and consisted of questions about whether a doctor had ever diagnosed the problem, the meaning of these associations is ambiguous. Again, it may be that demoralized individuals were simply more likely than nondemoralized individuals to report conditions. Nonetheless, the possibility that depression and specific conditions are associated is an intriguing possibility.

## DISCUSSION

These results, then, demonstrate a rather dramatic tendency for individuals who experience high levels of affective distress to also evaluate their general physical health negatively. Additionally, the data demonstrate dramatic differences between Mexican-Americans and Puerto Ricans in average levels of distress and in self-assessed health. Although the association between depressive affect and negative self-assessments of health held for both groups, Puerto Ricans expressed much greater affective and physical distress than did Mexican-Americans. Finally, for both Mexican-Americans and Puerto Ricans, level of acculturation, measured as language of interview, independently affected both the expression of depressive affect and subjective assessments of health.

Although our preliminary analyses of the association of specific health problems and depression revealed some suggestive evidence of a tendency for those with specific self-reported conditions to have higher depressive affect scores, the low prevalence of such conditions in the Hispanic HANES makes any conclusions concerning the association between specific illness conditions and depression premature, especially since the objective diagnoses made by the physician did not show the same association with depressive affect. Taken as a whole, though, the data suggest a strong tendency toward a general pattern of the simultaneous expression of distress in terms of affect and as negative assessments of physical health. Rather than representing alternative avenues for the expression of distress, then, the psyche and the soma appear to be simultaneously involved in demoralization.

Barsky and Klerman [35] speculate that the fixation on the body and the preoccupation with disease characteristic of the clinical syndrome of hypochondriasis represents a somatic style of dealing with intrapsychic and interpersonal conflict. Katon, Kleinman, and Rosen [4] suggest that the more general somatic expression of psychic distress may be the result of social, cultural, and even political forces that stigmatize the direct expression of

Table 6. Regression of depressive affect on diagnoses, conditions, and selected controls\*

	Mexican-American		Puerto Rican	
	CES-D	Proportion	CES-D	Proportion
<i>Diagnoses (examination)†</i>				
Respiratory	2.93	(0.00)	4.15	(0.04)
Endocrine	-0.39	(0.06)	-2.19	(0.05)
Circulatory	0.41	(0.10)	-0.21	(0.10)
R <sup>2</sup>	0.08		0.15	
N	(2858)		(1166)	
<i>Conditions (medical history)</i>				
Heart	-0.06	(0.02)	1.42	(0.04)
Diabetes	-0.43	(0.05)	3.83§	(0.05)
Kidney	0.95	(0.11)	3.18§	(0.12)
Bronchitis	2.50‡	(0.05)	4.94§	(0.08)
R <sup>2</sup>	0.08		0.17	
N	(2864)		(1169)	

\*Controls include physician's assessment, language of interview, age, sex, education, marital status, family income, employment status, rural/urban residence. Analyses based on SURREGR [34].

†Diagnoses based in International Classification of Disease (ICD), Revision Nine categories (United States Department of Health and Human Services, 1980).

‡P ≤ 0.05; §P ≤ 0.01.

depressive effect. These authors, then, as do many others, identify a social and cultural component to bodily perceptions. Our results lend support to the view of the self as a simultaneous experience of body and mind, of the physical and the affective, and to the notion that the experience and expression of aspects of subjective states are socially and culturally influenced.

It is clear, then, that the self comprises aspects of the social as well as of individual experience. We must note that our findings reveal a clear idiosyncratic component to the association between depressive affect and assessments of physical health. Although Puerto Ricans scored lower in both affective and physical health, within each group those who were depressed were also more likely to rate their health low. Clearly, within each group individuals differ in their experience of distress and in their modes of expression. Culture, then, represents the symbolic and linguistic system within which individual experiences are labeled and acted on. The specific emotions and symptoms that lie at the root of subjective experience and its reporting can only be indirectly ascertained since they contain aspects of both the social and the individual. Such findings have important implication for the comparisons of subjective health levels for individuals who differ significantly in culture and social class.

*Acknowledgements*—This research was supported in part by a grant from the National Institute of Mental Health (R01 MH42917-01), and by the Institute for Health, Health Care Policy, and Aging Research, Rutgers University. Peter Guarnaccia was supported in part by a Henry Rutgers Research Fellowship, Rutgers University. The authors wish to thank Jacqueline Lowe Worobey for her technical assistance.

#### REFERENCES

1. Angel R. and Thoits P. The impact of culture on the cognitive structure of illness. *Cult. Med. Psychiat.* **11**, 465-494, 1987.
2. Zborowski M. Cultural components of responses to pain. *J. Soc. Issues* **8**, 16-30, 1952.
3. Katon W., Kleinman A. and Rosen G. Depression and somatization: a review, part I. *Am. J. Med.* **72**, 127-135, 1982.
4. Katon W., Kleinman A. and Rosen G. Depression and somatization: a review, part II. *Am. J. Med.* **72**, 241-247, 1982.
5. Kirmayer L. J. Culture, affect and somatization, part I. *Transcult. Psychiat. Res. Rev.* **21**, 159-188, 1984.
6. Kirmayer L. J. Culture, affect and somatization, part II. *Transcult. Psychiat. Res. Rev.* **21**, 237-262, 1984.
7. National Center for Health Statistics. *Plan and Operation of the Hispanic Health and Nutrition Examination Survey: 1982-1984*. U.S. Government Printing Office, Washington, D.C., 1985.
8. Dohrenwend B. P. Social status and psychological disorder: an issue of substance and an issue of method. *Am. Sociol. Rev.* **31**, 14-34, 1966.
9. Escobar J. I., Karno M., Golding J., Burnam M. and Hough R. L. Psychosocial influences on psychiatric symptoms: the case of somatization. In *Health and Behavior: Research Agenda for Hispanics* (Edited by Gaviria M. and Arana J. D.), pp. 207-215. The Simon Bolivar Research Monograph Series No. 1, The University of Illinois at Chicago, 1987.
10. Escobar J. I., Gomez J. and Tuason V. B. Depressive phenomenology in North and South American patients. *Am. J. Psychiat.* **140**, 47-51, 1983.
11. Haberman P. W. Ethnic differences in psychiatric symptoms reported in community surveys. *Publ. Hlth Rep.* **85**, 495-502, 1970.
12. Haberman P. W. Psychiatric symptoms among Puerto Ricans in Puerto Rico and New York City. *Ethnicity* **3**, 133-144, 1976.
13. Kleinman A. Depression, somatization and the 'new cross-cultural psychiatry'. *Soc. Sci. Med.* **11**, 3-10, 1977.
14. Krause N. and Carr L. G. The effects of response bias in the survey assessment of the mental health of Puerto Rican migrants. *Soc. Psychiat.* **13**, 167-173, 1978.
15. Mezzich J. E. and Raab E. S. Depressive symptomatology across the Americas. *Archs gen. Psychiat.* **37**, 818-823, 1980.
16. Srole L., Langner T. S., Michael S. T., Kirkpatrick P. O., Marvin K. and Rennie T. A. C. *Mental Health in the Metropolis: The Midtown Manhattan Study*. McGraw-Hill, New York, 1978.
17. Guarnaccia P. and Farias P. The social meanings of nervios: a case study of a central American woman. *Soc. Sci. Med.* **26**, 1223-1231, 1988.
18. Kleinman A., Good B. and Guarnaccia P. *Critical Review of Selected Cross Cultural Literature on Depressive and Anxiety Disorders*. Final report under a contract with the National Institute of Mental Health (PLO No. 85M029642401D), 1986.
19. Canino G. J., Bird H. R., Shrout P. E., Rubio-Stipec M., Bravo M., Martinez R., Sesman M., Guzman A., Guevara L. M. and Costas H. The Spanish Diagnostic Interview Schedule: reliability and concordance with clinical diagnoses in Puerto Rico. *Archs gen. Psychiat.* **44**, 720-726, 1987a.
20. Canino G. J., Bird H. R., Shrout P. E., Rubio-Stipec M., Bravo M., Martinez R., Sesman M. and Guevara L. M. The prevalence of specific psychiatric disorders in Puerto Rico. *Archs gen. Psychiat.* **44**, 727-735, 1987b.
21. Rubio-Stipec M., Shrout P., Bird H., Canino G. and Bravo M. Empirically defined scales of the Diagnostic Interview Schedule. Unpublished.
22. Guarnaccia P. J., Rubio-Stipec M. and Canino G. *Ataques de Nervios* in the Puerto Rico Diagnostic Interview Schedule: the impact of cultural categories on psychiatric epidemiology. *Cult. Med. Psychiat.* In press.
23. Jenkins J. H. Ethnopsychiatric interpretations of schizophrenic illness: the problem of *Nervios* within Mexican-American families. *Cult. Med. Psychiat.* In press.
24. United States Department of Health and Human Services. *Health Status of Minorities and Low Income Groups*. U.S. Government Printing Office, DHHS Publication No. (HRSA)HRS-P-DV 85-1, Washington, D.C., 1985.
25. Angel R. and Gronfein W. The use of subjective information in statistical models. *Am. Sociol. Rev.* **53**, 464-473, 1988.
26. Spitzer R. L., Endicott J. and Robins E. Research diagnostic criteria: rationale and reliability. *Archs gen. Psychiat.* **35**, 837-844, 1978.
27. Frake C. O. The diagnosis of disease among the Subanon of Mindanao. *Am. Anthropol.* **63**, 113-132, 1961.
28. Good B. The heart of what's the matter: the semantics of illness in Iran. *Cult. Med. Psychiat.* **1**, 25-58, 1977.
29. Kleinman A. and Kleinman J. Somatization: the interconnections in Chinese society among culture,

- depressive experiences, and the meanings of pain. In *Culture and Depression* (Edited by Kleinman A. and Good B.), pp. 429-490. California University Press, Berkeley, Calif., 1985.
30. Kleinman A. *The Social Origins of Distress and Disease*. Yale University Press, New Haven, Conn., 1986.
  31. Manson S. M., Shore J. H. and Bloom J. D. The depressive experience in American Indian communities: a challenge for psychiatric theory and diagnosis. In *Culture and Depression* (Edited by Kleinman A. and Good B.), pp. 331-368. California University Press, Berkeley, Calif., 1985.
  32. Maddox G. L. and Douglass E. Self-assessment of health: a longitudinal study of elderly subjects. *J. Hlth soc. Behav.* **14**, 87-93, 1973.
  33. LaRue A., Bank L., Jarvik L. and Hetland M. Health in old age: how do physicians' ratings and self-ratings compare?" *J. Geront.* **34**, 687-691, 1979.
  34. Holt M. *SURREGR: Standard Errors of Regression Coefficients from Sample Survey Data*. Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC 27709, 1982.
  35. Barsky A. J. and Klerman G. L. Overview: hypochondriasis, bodily complaints, and somatic styles. *Am. J. Psychiat.* **140**, 273-283, 1983.