Research Reports

A Survey of Four Illnesses and Their Relationship to Intracultural Variation in a Mexican-American Community

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Empacho, caida de mollera, susto, and *mal de ojo* are four illnesses that are consistently identified as elements of Mexican-American health beliefs in the United States. Each has a long history of discussion in the anthropological literature about Mexican-American communities and traditional medical beliefs (cf. Foster 1953; Clark 1959a, 1959b; Rubel 1960; Romano 1960,1965; Madsen 1961; Trotter and Chavira 1981).

These four illnesses have been the focus of studies of the social characteristics of their ethnomedical properties (Rubel 1960, 1964; Samora 1961; Madsen 1964; O'Nell 1975; Trotter and Chavira 1975, 1981); their epidemiological, public health, and community health characteristics (Rubel 1964; Trotter 1982; Collado-Ardon, Rubel, and O'Nell 1983; Rubel and O'Nell 1978; Rubel, O'Nell, and Collado-Ardon 1984); their relationships with poisonous treatments (PAHO/WHO 1981; Trotter et al. 1983; Trotter 1985a); and their correspondence with specific medically recognizable conditions (Rubel, O'Nell, and Collado-Ardon 1984; Trotter 1985b; Trotter, Ortiz de Montellano, and Logan 1989). Other articles explore their meaning in terms of broader anthropological issues in Mexican-American communities (see Foster 1953; Weaver 1973; Rosaldo 1985; Rubel 1966).

A significant element missing from the above explorations is a community-based survey of the frequency of treatment of these ailments, and their correlational relationships with key cultural variables, such as gender; ethnic self-identification; levels of Spanish- and English-language usage and preference; English and Spanish writing skills; Anglo and Mexican-American peer group associations; pride in informant's own ethnicity; place of birth of informant, informant's parents, and grandparents; place where informant was raised; food preferences; and entertainment preferences—conditions that help define intracultural variation and cultural orientation in Mexican-American communities.

Defining the Illnesses

The home-based treatment of *empacho, caida de mollera, susto,* and *mal de ojo* identifies a clear difference between Mexican-American health beliefs and the medical definition of health and illness. They are culturally defined within Mexican-American communities (Clark 1959a, 1959b; Madsen 1961; Romano 1965; Rubel 1966), with broad community knowledge that these definitions are not accepted in the medical model of diseases (Trotter and Chavira 1981). The four illnesses represent an interesting causal and treatment spectrum, ranging from illnesses that are supernaturally caused and cured, to those naturally caused and cured, with combinations in between (Trotter 1985b).

Empacho is thought to be a bolus of food attached to the intestinal wall, blocking the passage of food through the gut. It is caused by eating the wrong food at the wrong time, eating food that is improperly prepared, or forcing individuals, especially children, to eat things they do not want to eat. The most common treatments are massaging the stomach and abdominal area, or ingesting ethnomedical remedies (most of which are purgatives). The intracultural variation in symptoms

and treatments of *empacho* have been described in detail (Trotter 1981a, 1981b, 1985a, 1985b).

Caida de mollera can be translated as a fallen or depressed anterior fontanelle. It is an illness specific to infants, prior to the time their fontanelle closes. It is caused by rough handling, accident (e.g., the child falling from a bed or a strong bump), or pulling the child away from the nipple too fast. These actions are thought to cause the fontanelle to fall and press on the brain, producing symptoms such as irritability, listlessness, inability to nurse, and crying, in addition to the depressed fontanelle. Common treatments include holding the baby upside down and pushing on the soft palate, patting the baby's feet while upside down, sucking on the fontanelle, or putting home-remedy mixtures in the fontanelle in order to draw it upwards and take the pressure off of the brain. The intracultural variation in cause and treatment, as well as the ethnohistory and epidemiology of the illness have been discussed in earlier publications (Trotter 1985b; Trotter, Ortiz de Montellano, and Logan 1989).

Susto is often translated as fright sickness. It is believed to be caused by the victim being exposed to some type of shocking or frightening event. In South Texas, both traditional healers and lay people explained the underlying cause as a disassociation of the person's soul from the body, attributed to fright (Trotter and Chavira 1981). The dislocation can range from mild to severe, and treatments vary from herbal teas to supernatural rituals. The teas, the most common being *yerbaniz* (*Tagetes lucida* Cav.), have a calming effect that allows the body and soul to reintegrate naturally, without further intervention. If teas do not work, then a ritual, called a *barrida* (praying while sweeping the body with objects thought to have magical properties), is performed to call the soul back and to reintegrate it in the body (Trotter and Chavira 1981). The intracultural variation in the identification and treatment of *susto* in South Texas has been described elsewhere (Trotter 1982). Rubel and his colleagues have also shown a fascinating linkage between *susto* and serious physical conditions in communities in Mexico (Collado-Ardon, Rubel, and O'Nell 1983; Rubel, O'Nell, and Collado-Ardon 1984).

Mal de ojo is called the evil eye, although a better translation for South Texas might be the "powerful eye," since no intentionality is associated with the harm caused to others. The illness is initiated by glancing or staring at another individual, and "drawing off some of their vital essence." It can be stopped at that point by touching them to "ground" the supernatural influence of "giving someone the eye." Children and old people are the most vulnerable, since they have the weakest defenses. People go to great lengths to touch any child they have stared at or admired. If a child comes down with *mal de ojo*, then a serious effort is made to identify who might have caused the illness. That person is contacted, even if they live some distance away, and requested to come and touch the child to cure them. If the person who caused the harm cannot be identified, then the child is treated with a special ritual that includes prayers being said as the child is brushed with an egg. The egg is placed under the child's bed for the night, and then checked the following morning to see if the cure has been effective. More detailed descriptions and intracultural variation in the diagnosis and treatment of *mal de ojo* are available (Madsen 1964; Samora 1961; Trotter 1981a, 1981b).

Methodology

The data were collected as part of a household survey of home-remedy use in Frontera, Texas (a pseudonym). Frontera is a town of approximately 27,000 individuals, located in the Lower Rio Grande Valley of Texas, less than twenty miles from the United States–Mexico border. It is the county seat and the home of a state-supported university. The population of Frontera demographically resembles the Valley as a whole. With local variations, approximately 80% of the population is Mexican American, 20% Anglo, and less than one-half of one percent of the population is derived from all other groups.

The household survey relied on an instrument constructed from ethnographic data collected by the author and colleagues (Trotter 1981a, 1981b, 1982, 1985a, 1985b; Trotter and Chavira 1975, 1981; Trotter and Logan 1986), in addition to reconfirmed data from earlier studies in the Lower Rio Grande Valley of Texas (Madsen 1961, 1964; Rubel 1960, 1964, 1966; Romano 1960, 1965). The questions were translated and back-translated into regional colloquial Spanish and English. The instrument was pretested with both a community and an expert group. A minor amount of wording was modified where necessary. It was then pretested again. No problems with the construction of the instrument were identified during the second pretest.

The questionnaire contains seven sections. The sections record (1) socio-demographic variables, (2) a saliency question on home-remedy use, (3) sets of questions about specific remedies and over-the-counter medications, (4) questions about referent groups for medical decision making in the home, (5) questions designed to develop a decision model for illnesses, (6) two questions each on the frequency of treatment of *empacho*, *caida de mollera*, *susto*, and *mal de ojo*, and (7) a previously constructed and validated instrument, ARSMA, which was used to measure intracultural variation for key cultural variables.[1] The data collected in sections 1, 6, and 7 are used in this report.

There are a number of models for measuring and assessing intracultural variation (cf. Guerro 1986; Pelto and Pelto 1975; Weller and Romney 1987). In the case of the home treatment of illnesses in a Mexican-American community on the border, intracultural variation is not only effected by the normal forces that produce variability within a single culture, it is also impacted by dynamic pressures toward acceptance of competing beliefs, values, and processes—pressures to assimilate into the dominant culture of the United States, and countervailing pressures to maintain Mexican and Mexican-American cultural boundaries, lifestyles, values, and beliefs.

The complex cultural dynamics of the border created the problem of finding an instrument that had been tested for validity and reliability to measure intracultural variation for the population in the Lower Rio Grande Valley. The solution was to use an instrument, ARSMA, originally developed to determine the most culturally appropriate treatment modalities for Mexican Americans (Cuellar, Harris, and Jasso 1980), and later tested in a community context in the Valley (Montgomery and Orozco 1984). The instrument contains a number of questions that help measure some of the variations in Mexican-American culture in South Texas.[2]

The questionnaire was administered to a randomly selected set of households, using a proportional sample from each census tract. The refusal rate for the entire survey was less than 3% of the households contacted. The average length of an interview was 40 minutes. The sample is representative of the household demographics of the community as a whole. Only the Mexican-American households surveyed are described in this article, as depicted in Table 1.[3]

Our informant of choice was the female head of household, who is consistently designated in the literature as the individual most commonly in charge of the home treatment of illnesses and the most knowledgeable about the issues covered in the survey. If there was no female head of household available, we interviewed the male head of the household. Table 2 identifies the gender of the informants. The questionnaire was administered by bilingual and bicultural interviewers in either English or Spanish, depending on the preference of the informant. Table 3 indicates the self-preferred ethnic identification for the informants.

Results

The informants were asked a series of eight questions: two each about the treatment of *caida de mollera*, *empacho*, *mal de ojo*, and *susto* in each household. Informants were asked if anyone in the household had ever been treated for each illness, and

Table 1
Mexican-American informants by census tract.

Census tract	Frequency	Percent	Cum percent
A	1	.4	.4
B	63	24.7	25.1
C	60	23.5	48.6
D	34	13.3	62.0
E	59	23.1	85.1
F	38	14.9	100.0
Total	255	100.0	

Table 2
Sex of informants.

Sex	Frequency	Percent	Cum percent
Male	35	13.7	13.7
Female	220	86.3	100.0
Total	255	100.0	

then asked if anyone in the household had been treated for the illness in the past 12 months. This provides a profile of the treatment of these illnesses very roughly equivalent to incidence and prevalence studies of medically defined diseases in a community setting (see Trotter 1981b, Peterson 1975 for discussions of incidence and prevalence). Table 4 summarizes whether or not each of the four illnesses was treated in the sample households at any time in the past. Table 5 depicts the percentage of households in the survey that have treated each illness within 12 months of the survey.

The data strongly support the contention in the ethnographic literature that these four ailments are commonly identified and treated in Mexican-American households. *Mal de ojo* is the most pervasive. It was diagnosed and treated in a total of 63.1% of the households in this population sample, over time. It is followed closely by *susto*, treated in 62.4% of the households. *Empacho* (48.2%) and *caida de mollera* (34.1%) are treated less often, but are still encountered in such frequencies as to be considered common ailments. At least one of the four illnesses was treated in approximately four-fifths of the households surveyed. The percentage of households treating all four conditions at some time in the past was 21.2.

An identical order is demonstrated for treatments of these illnesses occurring in the past 12 months. As would be expected, the occurrence of treatment is lower for the shorter time span. Nevertheless, as many as one-fourth of all of the households surveyed had treated at least one of these illnesses in the past 12

Table 3
Informant-preferred ethnic label.

Ethnic label	Frequency	Percent	Cum percent
Mexicano*	71	27.8	27.8
Mexican-American	175	68.6	96.5
Hispanic	9	3.5	100.0
Total	255	100.0	100.0

**Mexicano* is a generic term used in both Spanish and English speech in South Texas to identify both Mexican nationals and Mexican Americans, regardless of where born or legal status.

Table 4
Percent of households ever treating illnesses (n = 255).

	Treating		Not treating		Missing data	
Illness	Count	Percent	Count	Percent	Count	Percent
Empacho	123	48.2	132	51.8	0	.0
Caida de mollera	87	34.1	167	65.5	1	.4
Susto	159	62.4	95	37.3	1	.4
Mal de ojo	161	63.1	93	36.5	1	.4

Table 5
Percent of households treating illnesses in previous 12 months (n = 255).

	Treating		Not treating		Missing data	
Illness	Count	Percent	Count	Percent	Count	Percent
Empacho	36	14.1	216	84.7	3	1.2
Caida de mollera	15	5.9	238	93.3	2	.8
Susto	52	20.4	201	78.8	2	.8
Mal de ojo	69	27.1	184	72.2	2	.8

months. The percentage of households treating all four of the ailments in the past 12 months was 2.7.

The contention that these illnesses are not universal in Mexican-American communities is also well supported. A total of 20.8% of the surveyed households had never treated any of the four illnesses in the past. The percentage of households that had not treated any of the four conditions in the past 12 months was 20.4.

Treatment Correlated with Intracultural Variation

The correlation of the treatment of these illnesses to other cultural variables is the subject of the remainder of this report. The data were tested for a linkage between the gender of the informant and the treatment of the four illnesses in the household. There were no significant correlations between sex of informant and any of the eight treatment conditions (ever treated *empacho*, treated *empacho* in last 12 months; ever treated *caida de mollera*, treated *caida de mollera* last 12 months; ever treated *susto*, treated *susto* last 12 months; ever treated *mal de ojo*, treated *mal de ojo* last 12 months; $p > .01$). Nor was there a linkage between ethnic identifier (Mexicano, Mexican-American, Hispanic) and the treatment of the illnesses in the household ($p > .01$), or between the census tract where the household lived (a gross measure of socioeconomic status) and the treatment conditions ($p > .01$).

As an alternate hypothesis to gender and socioeconomic status differences, the literature on ethnic populations in the United States would suggest that the treatment of these four illnesses should correlate with the cultural orientation of the informants. Increasing orientation to Anglo culture could reduce both the incidence and prevalence of these illnesses in Mexican-American households. This theoretical stance would be supported if differentials in composite or individual measures for the ARSMA variables were significantly correlated with a decrease in reported treatments.

A test of these hypotheses was conducted by calculating cross-tabulations between informants' responses about each of the eight treatment conditions with different configurations of the ARSMA data. The uncollapsed ARSMA data produced no significant correlations ($p > .01$), but they also produced tables

with too many cells with fewer than five responses. This condition makes any statistical inferences suspect. Therefore, the responses were collapsed.

The means of collapsing the data resulted from running a stem-and-leaf plot of the ARSMA data as an exploratory device. Stem-and-leaf plots are one of a variety of exploratory data analysis techniques that allow complex data to be presented visually.[4] This helps determine the best ways for grouping the data to accomplish further statistical tests. The stem-and-leaf plot for the ARSMA data is depicted in Table 6.

The scale results were collapsed into three groups, using these data: from the low point to the first hinge, from the first to the second hinge, and from the second hinge to the high score. This is the most theoretically defensible division of the scores, since it is equivalent to those individuals who are most strongly Mexicano in cultural orientation, those who are more bicultural, and those who are most strongly oriented to the Anglo culture.[5]

Seven of the eight treatment conditions did not show any significant correlation ($p > .01$) with the collapsed cultural orientation measures.[6] This suggests that these illnesses are intraculturally quite

Table 6
Stem-and-leaf plot of ARSMA scale data.

```
1    0000000001111111
1    2222222222333333333
1    444445555555555555
1 H  6666666667777777777
1    8888888889999
2    0000001111111111111
2    222222222222333333
2 M  44455555555
2    666666667777777
2    8888888888888999999999
3 H  00000000000000000000001111111111111111
3    222222222222233333
3    444555555555555555
3    6666666777
3    9
```

$N = 254$; Minimum is 1.000, lower hinge is 1.700, median is 2.475, upper hinge is 3.100, maximum is 3.950.

stable in South Texas. The one treatment condition that does show a significant relationship ($p < .01$) with cultural orientation data is the lifetime treatment of *mal de ojo* in the household (see Table 7).

There are several plausible reasons for these findings. It is possible that the one significant correlation may have been due to the number of correlations run; an artifact of the statistical process and not a result of any true relationships among the data. If you compute 100 coefficients, you expect at least one of them to have observed significant levels below 0.01, even if there is no relationship between the variables in the population (Norusis 1986:318). There were 296 coefficients run (8 treatment conditions compared with sex of informant, 8 treatment conditions compared with census tract of informant, 8 treatment conditions correlated with ethnic label, 8 treatment conditions compared with the uncollapsed and 3 forms of collapsed ARSMA measures, 8 treatment conditions run against 30 individual variables). This would produce an estimated 2 to 3 "significant" correlations with no true relationships. This condition would make the data consistent (all of the ailments not having a significant relationship with the intracultural variation variables tested), and would indicate that these illnesses were core ethnomedical beliefs that are strongly resistant to assimilation pressures.

Another possibility is that *mal de ojo* can be considered to have the strongest supernatural component of the illnesses, causing it to be different from the others, in relation to the tested measures of intracultural variation.[7] The explanations for both its causes and cure rely on belief in

Table 7
Relationships between lifetime treatment of *mal de ojo* and cultural orientation (ARSMA scale divided at hinges by ever-treated *mal de ojo*).

Statistic	Value	DF	Probability
Pearson chi-square	9.332	2	0.009
Phi	0.192		

supernatural forces (Rubel 1960; Trotter and Chavira 1981; Trotter 1985b). Therefore, if there is some association between supernatural beliefs in a cultural model of an illness and cultural orientation variables, this type of significant relationship should show up in a cross-tabulation. This possibility is supported by the fact that *susto* shows the next-strongest tendency toward significance of all of the other three illnesses ($p = .098$), and it has the second-largest supernatural component in its treatment as measured by the scale described in Note 7. This hypothesis cannot be confirmed or denied by the data collected.

It is also possible that *mal de ojo* is more sensitive to assimilation pressures than are the other three illnesses. If this were true, then *mal de ojo* would need to be linked to a cultural condition that the others were less strongly linked to, within the explanatory models of the population. This contention is supported by the fact that the individuals who are most clearly bicultural were those treating *mal de ojo* at a proportionately higher rate than either the most Mexicano or the most Anglo-oriented groups, as noted in Table 8.

These data are congruent with the classic anthropological assertions that assimilation pressures and the stress of bicultural orientation are sometimes expressed as positive relationships to supernatural beliefs. Testing this issue further would necessitate additional data beyond what was collected in this survey.

It is also possible that the results are linked to differences in a single variable or a subset of the variables embedded in the

Table 8
ARSMA scale divided at hinges by ever-treated *mal de ojo*.

	Treated *Mal de ojo*		
	Yes	No	Total
Most Mexicano	33	32	
Bicultural	93	36	
Most Anglo	35	25	
Total	161	93	

ARSMA scale, and that the lifetime treatment of *mal de ojo* is more sensitive to those variables than are the other illnesses. To test this possibility, cross-tabulations were run on each of the eight treatment conditions for each of the individual questions in the ARSMA scale. Only three relationships were found to be significant ($p < .01$), and in each case they were relationships between the lifetime treatment of *mal de ojo* and one of the questions. The results are shown in Table 9.[8]

These results suggest that *mal de ojo* is primarily linked to differences in language usage and to differences in the location where an individual was raised. The fact that the concept of *mal de ojo* does not exist in English might provide a partial explanation for this phenomenon. Further study linking language (and the place where an informant was raised) with the prevalence of the treatment of these illnesses would be useful future research.

Finally, it is possible that the treatment of the four illnesses could be linked with other variables, such as education level or socioeconomic status of individuals or households. These conditions need to be tested. Unfortunately, since this survey was oriented to household information, and education in these households is known to be highly variable, the informants' direct education level was not recorded. However, several indirect measures of education and socioeconomic status were collected and could be constructed into measures to indirectly test such associations. This will be accomplished during further exploration of this issue at a future date.

Summary and Conclusions

This report provides the first survey data on the treatment of *empacho*, *caida de mollera*, *susto*, and *mal de ojo* in a border community in the United States. The rates of treatment of these illnesses are consistent with ethnographic research results of the past four decades, which have indicated that culturally different explanatory models of illness etiology are both common in and important to Mexican-

Table 9
Significant relationships between lifetime treatment of *mal de ojo* and three cultural variables.

Statistic	Value	DF	Probability
Language(s) spoken (Spanish/English) compared with lifetime treatment of mal de ojo			
Pearson chi-square	11.805	3	0.008
Phi	0.217		
Location where informant was raised (U.S./Mexico) compared with lifetime treatment of mal de ojo			
Pearson chi-square	14.349	4	0.006
Phi	0.240		
Whether or not informant reads English compared with lifetime treatment of mal de ojo			
Pearson chi-square	6.465	1	0.011
Cramer's *V*	0.161		

American communities on the United States–Mexico border.

Current theory would predict that the household treatment of these illnesses would be linked to factors of cultural orientation and intracultural variation. The survey results did not show any significant relationships between the variation in treatment of *empacho*, *caida de mollera*, or *susto* and the sex of the informant, the informant's ethnic label, or census-tract residence location. Nor did the survey identify a relationship between the variables embedded in a cultural orientation instrument, ARSMA, administered to informants, either in terms of lifetime treatment of *empacho*, *caida de mollera*, and *susto*, or their treatment in the past 12 months. This finding suggests that identification and treatment of these illnesses are very stable in Mexican-American communities on the United States–Mexico border in South Texas.

There was a significant relationship between the lifetime treatment of *mal de ojo* in the household and the informants' cultural orientation values, but not between treatment of *mal de ojo* in the past 12 months and the same condition. Several alternative hypotheses are presented to explain the relationship. It may be an artifact of running numerous correlations and having the test show significance where there is no real relationship between the variables. It may be due to a relationship between supernatural beliefs and cultural variables or to the stress of assimilation or biculturalism; or it may be related to differences in language usage and the effects of where the informant was raised. Alternatively, the lack of significant correlation between treatment of the other illnesses and cultural orientation variables may be due to a relationship of these illnesses with some unknown cultural or social variables, which could form the basis for future research.

The prevalence of the treatment of these illnesses, and their apparent stability in the population, supports the continued recommendation by anthropologists that culturally congruent health-care delivery should include sensitive accommodation of culturally defined health beliefs within the context of modern medical systems.

Notes

[1]The acronym stands for Acculturation Rating Scale for Mexican Americans. The authors of the instrument (Cuellar, Harris, and Jasso 1980) call it an acculturation scale, since the concept of acculturation is in current use in psychology. In anthropology, the term appears to have strong negative connotations that include a unilineal movement of an individual or group from one culture and toward another, necessitating a cultural ideal to measure that movement. The concept appears to be different in psychology. ARSMA was developed and used to measure variation and cultural orientation within the Mexican-American culture, in order to produce culturally sensitive and appropriate assignments of therapeutic experiences for patients (Cuellar, Harris, and Jasso 1980:200). It was later tested and revalidated, in terms of validity and reliability measures, to test cultural variation in a general population study (Montgomery and Orozco 1984). No statements in this report should be taken to mean that there has been movement of individuals or the group from one "cultural ideal" to another, or that ARSMA measures that movement. The idea of movement violates the theoretical orientation of this discussion. This is not a paper on acculturation, it is a paper on intracultural variation.

The ARSMA instrument provides published validity and reliability measures (coefficient of stability = .72, $p < .01$; test/retest reliability correlation coefficient = .80, $p < .01$; inter-rater reliability .89, $p < .01$) on an extensive set of questions that describe some elements of intracultural variation. The question content is listed in Note 2. There are a number of scientifically legitimate research tools for measuring cultural variation within the Mexican-American culture (cf. Cuellar, Harris, and Jasso 1980:199–200). There is still debate over the place of these instruments in tests of theory, and other instruments could have been selected. This one held the advantages of being developed by individuals from the cultural system being addressed in this study, then tested in the cultural environment where an enormous amount of ethnographic exploration of these illnesses has taken place, with published reliability and validity measures. No other instrument presented these advantages.

[2]The ARSMA questions explore the following variables: speaking ability (English/Spanish); language(s) preference (Spanish/English); ethnic-identification term informant uses for self; ethnic identification mother uses; ethnic identification father uses; ethnic origin of friends and peers up to age 6; ethnic origin of friends and peers from 6 to 18; whom informant associates with in the outside community (variations in Anglo and Mexicano peer interactions); music preference (Spanish/English); TV viewing preference (Mexican/Anglo); movie preference (Mexicano/Anglo); place of birth of informant; birthplace of informant's father; birthplace of informant's mother; birthplace of informant's father's mother; birthplace of informant's father's father; birthplace of informant's mother's mother; birthplace of informant's mother's father; place where informant was raised (Mexico/U.S./Other); level of contact informant has had with Mexico; food preference; language in which informant thinks; can informant read Spanish (yes/no); can informant read English (yes/no); comparative reading ability in Spanish and English; ability to write Spanish (yes/no); ability to write English (yes/no); comparative writing ability in Spanish and English; level of pride in ethnic identification; how informant rates self, from very Mexicano to very Anglicized.

[3]The census tracts in Frontera vary a great deal in terms of the overall income levels, occupation, and general socioeconomic status of residents, and can be taken as a proxy measure of group differentials in socioeconomic conditions. The frequencies and other statistics for this article were produced using SPSSX, version 3.0, on an IBM 9370 mainframe, double-checked using Systat version 4.1. The cross-tabulations were run on Systat version 4.1, and cross-checked with SPSSX 3.0 on the mainframe.

[4]Stem-and-leaf plots arrange, list, and preserve the observed values of a variable in ascending or descending order, while organizing the data to visually resemble a histogram. The stem (vertical axis) in Table 6 represents the values on the ARSMA scale, while the "leaf" numbers represent the scores of individual informants, listing each informant as individual divisions of .1 change in the ARSMA score. The hinges (H) mark the points that are halfway between each extreme value and the median (M). These are roughly equivalent to quartile positions and provide two of the five numbers (minimum, maximum, two hinges, and the median) that summarize the data in this type of plot. The plot and the summary numbers allow a quick visualization of the data, to assist in making decisions about further statistical analysis. Detailed explanations of stem-and-leaf plots, as well as other exploratory data techniques are available (Tukey 1977; Hartwig and Dearing 1979).

[5]As a point of information, none of the uncollapsed correlations were significant ($p > .01$). In addition, two other forms of collapsing the data were also tested. First, all responses

were lumped on a four-point scale (1.0 to 1.99, 2.0 to 2.99, 3.0 to 3.99, and 4.0 to 5.0). These are roughly equivalent to the four "types" of Mexican Americans that Cuellar, Harris, and Jasso (1980:209) identify as differentiated within the ARSMA scale (very Mexicano, Mexican-oriented bicultural, Anglo-oriented bicultural, and very Anglicized). None of the correlations were significant ($p > .01$) for the eight treatment conditions. The data were also tested by lumping the scores in a two-way cultural orientation division, using the median as the dividing score. There were no statistically significant relationships between this final collapsing of the scores and any of the treatment conditions for illnesses. In addition, this latter division of the data probably obscures too much of the intracultural variation to be theoretically defensible.

[6]There was considerable variation in the results of the cross-tabulations (chi-square, phi, etc.) for each treatment condition and the ARSMA data. However, since none of the results were significant at the specified level, a decision was made to not take up valuable page space in reporting the results. In keeping with the author's firm conviction that all results should be made available for these types of tests, the results from these cross-tabulations will be made available on written request.

[7]A simple ordinal scale to rank folk illnesses on the basis of supernatural versus natural conditions can be set up by comparing their combined causal and curative processes. On one end would be illnesses that have both a supernatural cause and a supernatural cure. This would be followed by illnesses having a mixture of supernatural and physical causes and cures. Finally, on the other end of this scale would be illnesses that have only natural causes and only natural cures. Using this scale, *mal de ojo*, with both supernatural cause and cure, would be the furthest toward the supernatural end, followed by *susto*, with supernatural cause but combined ethnopharmacological and supernatural cures, followed by *empacho* and *caida de mollera*, which would be tied for being most toward the natural end (each having both physical causes and cures). This "scale" was used by a healer in South Texas to explain to the author the difference between natural and supernaturally caused and cured ailments. The healer was pointing out that these were not simple dichotomies, but blendings from one extreme to the other.

[8]The individual questions and responses for the three variables that showed a significant relationship to lifetime treatment of *mal de ojo* are as follows: What language do you speak? (Spanish only; mostly Spanish, some English; Spanish and English about equally [bilingual]; mostly English, some Spanish; English only); Where were you raised? (in Mexico only; mostly in Mexico, some in U.S.; equally in U.S. and Mexico; mostly in U.S., some in Mexico; in U.S. only); Can you read English? (yes/no).

References Cited

Clark, M.
1959a Health in Mexican American Culture. Berkeley: University of California Press.
1959b Social Functions of Mexican-American Medical Beliefs. California's Health 16:153–155.

Collado-Ardon, R., A. J. Rubel, and C. W. O'Nell
1983 A Folk Illness (Susto) as Indicator of Real Illness. Lancet 2:1362.

Cuellar, I., L. C. Harris, and R. Jasso
1980 An Acculturation Scale for Mexican American Normal and Clinical Populations. Hispanic Journal of the Behavioral Sciences 2(3):199–217.

Foster, G. M.
1953 Relationships between Spanish and Spanish American Folk Medicine. Journal of American Folklore 66:201–247.

Guerro, L. C.
1986 Intracultural Variation in Folk Medical Knowledge: A Comparison between Curers and Noncurers. American Anthropologist 88:351–368.

Hartwig, Frederick, and Brian E. Dearing
1979 Exploratory Data Analysis. Beverly Hills, CA: Sage Publications.

Madsen, W.
1961 Society and Health. Austin, TX: Hogg Foundation for Mental Health.
1964 The Mexican Americans of South Texas. New York: Holt, Rinehart and Winston.

Montgomery, G. T., and S. Orozco
1984 Validation of a Measure of Acculturation for Mexican Americans. Hispanic Journal of Behavioral Sciences 6(1):53–63.

Norusis, M. J.
1986 The SPSS Guide to Data Analysis. Chicago: Statistical Package for the Social Sciences, Inc.

O'Nell, C. W.
1975 An Investigation of Reported "Fright" as a Factor in the Etiology of Susto, "Magical Fright." Ethos 3:41–63.

PAHO/WHO (Pan American Health Organization/World Health Organization)
1981 Epidemiological Notes: (a) Use of Lead Tetroxide as a Folk Remedy for Gastrointestinal Illness—Los Angeles, California; (b) Lead Poisoning from Lead Tetroxide Used as a Folk Remedy—Greeley, Colorado. Border Epidemiological Bulletin, No. 11 (November).

Pelto, P. J., and G. H. Pelto
1975 Intra-cultural Diversity: Some Theoretical Issues. American Ethnologist 2(1):1–18.

Peterson, W.
1975 Population. 3rd edition. New York: Macmillan.

Romano, O.
1960 Donship in a Mexican-American Community in Texas. American Anthropologist 62:966–976.
1965 Charismatic Medicine, Folk-Healing, and Folk Sainthood. American Anthropologist 67:1151–1173.

Rosaldo, R.
1985 Chicano Studies, 1970–1984. Annual Review of Anthropology 14:405–427.

Rubel, A. J.
1960 Concepts of Disease in a Mexican-American Community in Texas. American Anthropologist 63:795–814.
1964 The Epidemiology of a Folk Illness: Susto in Hispanic America. Ethnology 3:268–283.
1966 Across the Tracks: Mexican-Americans in a Texas City. Austin: University of Texas Press.

Rubel, A. J., and C. W. O'Nell
1978 Difficulties of Presenting Complaints to Physicians: Susto Illness as an Example. *In* Modern Medicine and Medical Anthropology in the United States–Mexico Border Population. Boris Velimirovic, ed. Pp. 166–175. Washington, DC: Pan American Health Organization.

Rubel, A. J., C. W. O'Nell, and R. Collado-Ardon
1984 Susto: A Folk Illness. Berkeley: University of California Press.

Samora, J.
1961 Conceptions of Disease among Spanish Americans. American Catholic Sociological Review 22:314–323.

Trotter, R. T. II
1981a Folk Remedies as Indicators of Common Illnesses: Example from the United States-Mexico Border. Journal of Ethnopharmacology 4:207–221.
1981b Remedios Caseros: Mexican American Home Remedies and Community Health Problems. Social Science and Medicine 15B:107–114.
1982 Susto: Within the Context of Community Morbidity Patterns. Ethnology 21:215–226.
1985a Greta and Azarcon: A Survey of Episodic Lead Poisoning from a Folk Remedy. Human Organization 44(1):64–72.
1985b Folk Medicine in the Southwest: Myths and Medical Facts. Postgraduate Medicine 78(8):167–179.

Trotter, R. T. II, A. Ackerman, D. Rodman, A. Martinez, and F. Sorvillo
1983 "Azarcon" and "Greta": Ethnomedical Solution to Epidemiological Mystery. Medical Anthropology Quarterly 14(3):3, 18.

Trotter, R. T. II, and J. A. Chavira
1975 The Gift of Healing: A Monograph on Mexican American Folk Healing. Edinburg, TX: Pan American University.
1981 Curanderismo: The Mexican American Folk Healing System. Athens, GA: University of Georgia Press.

Trotter, R. T. II, and M. H. Logan
1986 Informant Consensus: A New Approach for Identifying Potentially Effective Medicinal Plants. *In* Plants Used in Indigenous Medicine: Biocultural Approaches. Nina Etkin, ed. Pp. 91–113. New York: Redgrave.

Trotter, R. T. II, B. Ortiz de Montellano, and M. H. Logan
1989 Fallen Fontanelle in the American Southwest: Its Origin, Epidemiology, and Possible Organic Causes. Medical Anthropology 10(4):207–217.

Tukey, J. W.
1977 Exploratory Data Analysis. Reading, MA: Addison-Wesley.

Weaver, T. L.
1973 Mexican American Health Care Behavior: A Critical Review of the Literature. Social Science Quarterly 54:85–102.

Weller, S. C., and A. K. Romney
1987 Systematic Data Collection. Qualitative Research Methods Series, 10. Newbury Park, CA: Sage Publications.

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