Empacho in Four Latino Groups: A Study of Intra- and Inter-Cultural Variation in Beliefs

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It is usually impossible to know if reported differences between cultures are due to cultural differences or due to a difference in the methods used to study the cultures. This paper describes a collaborative, multisite study using a shared methodology to study intra- and inter-cultural variation in beliefs. A series of standard interview schedules were used to study Latin American beliefs about *empacho* in Guatemala, Mexico, and in the United States (Mexican-Americans and Puerto Ricans). Results showed consistency in beliefs about *empacho* both within and between the four samples.

Key words: Empacho, folk illness, intra-cultural variation, Guatemala, Mexico, Puerto Rico, cross-cultural comparison, cultural consensus model

Anthropology has a long tradition of cross-cultural comparative research. Ultimately such comparisons may help us understand human beings and culture in general. In medical anthropology, few researchers have attempted comparative studies focused on folk illness across national or cultural boundaries. A question of interest is whether similar syndromes occur in different regions or cultures. Cross-cultural comparisons of illness syndromes, however, can be difficult. In various cultural groups, different illness labels may be used to describe similar signs and symptoms or conversely, the same label may be used to describe a somewhat different cluster of signs and symptoms. A related dilemma is that conflicting anthropological reports may be due to a true difference in cultural beliefs or may be an artifact of different field methods.

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Beliefs about health and illness are an important part of any culture's belief system. Illness theories encompass the nature of health, the causes and preventability of illness, and the efficacy of therapeutic treatment (Foster and Anderson 1978). Etiological beliefs explain what (e.g., germs, inadequate rest or nutrition, or imbalances in hot and cold elements) or who (spiritual or invisible forces like witches, soul-loss, or evil eye) causes illness. "A disease theory system is thus an ideational, conceptual system, an intellectual construct, a part of the cognitive orientation of the members of the group. It deals with classification, explanation, and cause and effect" (Foster and Anderson 1978:37). Thus illnesses are typically defined in terms of their signs and symptoms, perceived causes, and potential curative treatments.

An illness or disorder that is restricted to a particular culture or group of cultures is often described as culture-bound. Usually, but not exclusively, these illnesses are psychiatric disorders. The term "folk illness" tends to be a more inclusive term and, perhaps, is preferable for indigenously defined illnesses (Simons 1987). Some argue that all illnesses are culture-bound (Cassidy 1982), because beliefs about etiology and treatment vary. Such an extreme position, however, ignores the fact that certain illness or disease states have similar signs and symptoms around the world (Prince and Tcheng-LaRoche 1987).

While many folk illnesses are considered psychosocial in origin (Simons and Hughes 1985), some may have certain linkages to organic disease, either through co-morbidity or possibly because the illness itself is a culturally constructed description of a state of pathophysiology. *Susto*, caused by a frightful episode, is considered psychogenic. A study of individuals with susto, however, showed a higher disease load and a significantly higher seven-year mortality rate than for comparison individuals from the same region (Collado-Ardon et al. 1983).

Two additional folk illnesses that may be linked with pathophysiology are *mollera caida* and *empacho*. Both have been linked with gastroenteritis in infants and children (Kendall, Foote, and Martorell 1983; Pachter, Bernstein, and Osorio 1992) and may represent folk labels for underlying pathophysiologic states. Mollera caida refers to the fallen fontanelle (soft-spot) on an infant's head. It is believed to be caused by a fall or by sudden withdrawal of the breast during breastfeeding. The most common treatment is to push up on the infant's palate (Trotter, Ortiz de Montellano, and Logan 1989). In Western medicine, a sunken fontanelle is considered a sign of dehydration and is treated by administering rehydrating fluids to the infant.

Empacho is a gastrointestinal disorder believed to be caused by an obstruction in the stomach or intestines caused by food or other material. Empacho is often associated with some kind of dietary indiscretion—either eating too much, the wrong type, or poorly prepared food, or eating at the wrong time. Treatments for empacho include massages, ingestion of teas, oils, and purgatives, and dietary restrictions (Trotter 1985a; Weller, Ruebush, and Klein 1991; Pachter, Bernstein, and Osorio 1992). Treatments can take place at home or with a sanctioned folk healer (*santiguador* for Puerto Ricans, *sobador* for Mexicans, Mexican Americans, and Guatemalans). Also, the treatment of empacho has been implicated in cases of lead poisoning (Morbidity and Mortality Weekly Report, 1982; Bose, Vashistha, and O'Loughlin 1983; Trotter 1985b; Baer and Ackerman 1988; Baer et al. 1989).

While most reports of empacho agree at the most general level that it is "blocked digestion," reports vary in terms of specific causes, symptoms, treatments, and identification of those at risk for getting empacho. Trotter (1985a) studied empacho in Texas, Arizona, and New Mexico. Results of interviews with Mexican-Americans conducted in migrant and public health clinics showed that empacho is believed to be caused by a bolus of food that sticks to the wall of the intestine, usually as a result of dietary indiscretion or swallowing a lot of saliva. Symptoms included stomach bloating, constipation, indigestion, diarrhea, vomiting, and lethargy. In the clinic samples, infants were at highest risk, followed by children. Treatment included massages, popping the skin on the small of the back to dislodge the bolus, rolling an egg on the stomach, and ingesting olive oil or herbal teas.

Baer et al. (1989) found similar beliefs about empacho in both Guadalajara and Oaxaca, Mexico. Symptoms and treatments also followed the results reported in the southwestern United States (Trotter 1985a). The population treating empacho ranged from 35% in Guadalajara to 24% in Oaxaca. In both locations empacho was considered a potentially life threatening illness.

In a study of empacho beliefs of mainland inner-city Puerto Ricans, Pachter, Bernstein, and Osorio (1992) sampled mothers from a pediatric clinic in Hartford, Connecticut, and found that 64% of mothers reported having a child who at one time had empacho. Major causes were eating too much food, eating spoiled food, eating at the wrong time, or changing a baby's formula. Vomiting and stomach pain were the most salient symptoms, followed by a swollen stomach, decreased appetite, diarrhea, and fever. Constipation was mentioned by only 4 of 43 informants. Treatment consisted of massages, dietary changes, purgatives and laxatives, but no respondents mentioned popping the skin or rolling an egg on the stomach, which were common treatments with Mexican-Americans.

Weller, Ruebush, and Klein (1991) obtained illness histories from a random community sample of households on the Pacific Coast of Guatemala. They estimated empacho to be the fifth most common diagnosis (as common as the "flu" [*gripe*]), occurring equally often in adults and children. In addition, the authors identified the symptoms that distinguished empacho from other illness diagnoses. They described empacho as a kind of gastrointestinal illness with symptoms of diarrhea, vomiting, headache, and a lack of appetite. While diarrhea and vomiting characterize gastrointestinal illness in general, empacho could be distinguished from other gastrointestinal illnesses as a unique diagnostic label because those with empacho also tend to have a headache, a lack of appetite, and no stomachache.

Heider (1988) used the phrase the "Rashomon Effect" to describe the situation where different investigators provide different descriptions of the same event. Prior studies of empacho done in different groups of Latin Americans have identified almost as many differences as similarities. However, since each study utilized different sampling procedures, inclusion criteria, and illness case description procedures, one cannot tell if differences in symptoms, treatments, and at-risk groups in these studies are due to true cross-cultural differences or to different research methodologies.

Empacho is not unique is this regard. Reports on other folk illnesses and illness

theories have produced conflicting reports. Low (1985) attempted a cross-cultural summary of previous reports of *nervios* (nerves) and acknowledged the difficulty in relying on secondary data sources in trying to come to a conclusion. Studies based on the reports of others often must grapple with the problem of conflicting interpretations by coders (see for example, Murdock, Wilson, and Frederick 1978).

Similarly, there have been conflicting reports regarding saliency of humoral theory in Latin America (Rubel 1990). Although some investigators describe the hot-cold equilibrium theory as universal in Latin America, some studies have documented variability so large that a variety of explanations of how a concept with little agreement among informants can still be important have been offered (Molony 1975; Mathews 1983; Boster and Weller 1990). Some have attempted to identify sources for intracultural variation (Logan and Morrill 1979), while another questioned the relative importance of hot-cold compared to other concepts, such as contagion or severity of the illness (Weller 1983, 1984).

Exceptional studies are those that use a common methodology across sites. Osgood, May, and Miron's (1975) study of the connotative dimensions of meaning in words was a massive study spanning several culture and language groups. Whiting (1963) tried to obtain comparable ethnographies by sending six teams of investigators into the field with a standard research protocol. More recent is Rubel, O'Nell, and Collado-Ardon's (1984) study of susto. In an extremely well-designed and well-executed study, Rubel, O'Nell, and Collado-Ardon selected three cultural groups in Mexico (Mestizo/Ladino, Zapotec, and Chinantec) and within each selected a sample of individuals with susto and comparison sample of individuals without susto. Such a design facilitates the study of potential causal factors and allows for comparisons within and between cultures.

Rubel, O'Nell, and Collado-Ardon's comparative study is unique and no such study, to our knowledge, has been conducted for other folk illnesses. In order to systematically assess why there have been differences in the prior published reports concerning empacho, we embarked on a collaborative study with a common methodology, aimed at studying beliefs about a specific folk illness in multiple cultural settings. Four Latin American sites were used to study the beliefs about causes, symptoms, and treatments. The four samples are widely separated geographically, consist of Spanish-speakers, and represent variant forms of Latin Culture. Thus, we can examine intra- and inter-cultural variation in beliefs about empacho.

METHODS

Study Sites

The study sites were selected to facilitate comparisons across sites and with previously published results. Previous studies of empacho have been conducted in Guatemala (Weller, Ruebush, and Klein 1991), Mexico (Baer et al. 1989), and the United States with Mexicans along the Mexico-Texas border (Trotter 1985a) and with Puerto Ricans in Connecticut (Pachter, Bernstein, and Osorio 1992). For this

study, new interviews were conducted at each of these four sites with a common interview schedule. Data collection proceeded independently at each site supervised by each co-investigator. Approximately 40 to 60 individuals were interviewed at each site to provide a reliable estimate of empacho beliefs and to allow for comparisons on sociodemographic variables.

The Guatemalan interviews were conducted in rural towns (approx. pop. 500) in the Northeastern Region of Guatemala, in the Department of Izabal. The population of this region, apart from Puerto Barrios, is clustered in small villages and towns supported by agricultural work. The principal agricultural activities involve work as wage laborers on surrounding banana and cattle plantations. Although many Kekchi Indians have migrated to this area, many towns consist principally of Ladino Spanish-speakers. Equal numbers of literate and illiterate men and women were selected from the community. Interviews were conducted by two native Guatemalans who are part of an on-going field research team with the cooperation of Dr. Robert E. Klein. In order to be interviewed, informants needed to respond affirmatively that either they had heard of the illness called empacho and knew something about it or that someone in their family had experienced it.

The Mexican interviews were conducted in Guadalajara (pop. approximately 3 million), Jalisco. Residents of Guadalajara are from both rural and urban backgrounds and are predominately mestizo. The city is modern, with much industry. Interviews were done at a large, modern, government hospital (Hospital de IMSS No. 46) which serves individuals covered by Social Security Health Insurance. This population generally ranges from working to upper middle class. Interviews were conducted in Spanish by three students from the school of Public Health of the University of Guadalajara with the assistance of Dr. Javier E. Garcia de Alba Garcia. The sample was comprised of women who were waiting in the Pediatric Emergency waiting room of the hospital who were familiar with the illness empacho. Interviews were conducted from 8:00 A.M. until 2:00 P.M. for several days, until the sample of 40 was completed. In total, 155 women were approached; 115 were not part of the sample, as they responded that they were not familiar with empacho. This suggests that a minimum of 26% of this population is not only familiar with empacho but also willing to admit this in a hospital setting.

The South Texas interviews were conducted in Hidalgo County, Texas, primarily in the cities of Edinburg and McAllen. This area, the Lower Rio Grande Valley, has a population in excess of half a million people, 80% of whom are Mexican-Americans. The area is intermixed urban and rural, and includes one of the three poorest Standard Metropolitan Statistical Areas in the United States. Residents of McAllen and Edinburg are within 15 miles of the United States-Mexico border and experience much contact across the border. The interviewers were Mexican-American and Anglo-American students participating in an ethnographic research methods course at the University of Texas, Pan American, with the cooperation of Dr. Mark Glazer. The students are residents of the lower Rio Grande Valley, and used their individual networks to contact informants. We asked them to pick individuals with whom they had good personal contacts and who were knowledgeable about empacho. Equal numbers of men and women were selected from a residential community. The interviews were conducted in either Spanish or English, depending on the preference of the informants.

The Connecticut interviews were conducted in Hartford. The Latino population comprises one-third of the total population of Hartford and almost half (46.7%) of the students enrolled in the Hartford public school system (1990 Census). The greatest growth in the mainland Puerto Rican population is taking place not in large cities such as New York, but in medium and small cities such as Hartford (Backstrand and Schensul 1982). Informants were recruited from shops and stores in the community, social agencies, and the interviewer's social network. The sampling method consisted of a purposive community snowball sample, attempting to include a proportion of male and female, young and old informants. The interview schedule was administered by a bilingual Puerto Rican, Ms. Zaida Castillo, experienced in data collection. Respondent inclusion criteria included self identification of Puerto Rican descent, and having a family member who has had empacho. The interview schedule was administered in Spanish or English at the respondent's preference.

Study Questionnaire

The interview schedule was created from descriptions of empacho in previously published reports. It included true/false questions regarding who gets the illness; what are the symptoms, causes, and treatments; who can cure it, and what happens if it is left untreated or uncured. A master interview schedule was created consisting of items common to all sites and some items unique to specific sites. The final protocol consisted of 118 questions about empacho: 37 items were about causes of empacho and vulnerable populations, 33 about signs and symptoms, and 48 about treatments. Some questions related to other folk illnesses. Additional items recorded information about the respondent's age, gender, education, social class, etc. Level of acculturation was assessed in the Texas and Connecticut samples (but will not be presented in this report). Interview materials were translated into appropriate Spanish at each site.

Analysis

Analyses include a summary of demographic characteristics of respondents in each of the four samples and an examination of intra- and inter-sample variation in beliefs about empacho. Respondent characteristics include age, gender, and educational level, as well as household size information and a history of familial cases of empacho. Intra-cultural variation in beliefs is assessed by examining the agreement between informants in responding to the questions about empacho. The cultural consensus model is used to obtain aggregate responses for each sample. Inter-cultural variation is examined by comparing the aggregate responses between samples.

Identifying or creating a reliable description of cultural beliefs includes an assessment of variability in beliefs. If variability is high, that is, if people do not agree with one another and do not seem to have similar beliefs, then it does not make sense nor is it accurate to create a unitary, simple description of their beliefs

(Pelto and Pelto 1975). If, however, informants report similar or identical information, then we are justified in pooling the information to create an overall description of beliefs in a group. Consistency among informants is usually indicative of shared knowledge. When there is consistency among informants, the cultural consensus model (Romney, Weller, and Batchelder 1986) can be used to optimally combine responses. The consensus model also can help to identify sub-patterns in responses indicative of sub-cultural beliefs (Romney and Weller 1984). Thus, inter-informant concordance is estimated across all empacho questions.

Responses to the empacho questions are aggregated across informants and classified as "true/yes" or "false/no." Items are classified as "yes" or "no" by the proportion of responses in either direction. Because items with a 50:50 (50% yes and 50% no) split cannot be classified as either yes or no, a binomial test can be used to identify items significantly different from a 50:50 split. With 50 respondents, a partition of 34:66 or one more extreme is significantly different from 50:50. These items are clearly and strongly classified as either yes or no.

Additional items can be classified by accounting for individual cultural knowledge and weighting responses prior to aggregation. The cultural consensus model provides a method for estimating an individual's level of cultural knowledge and for weighting individuals' responses by their knowledge level. With consensus among informants, an individual's degree of cultural knowledge can be estimated from (1) the concordance between an individual and the rest of the group (Romney and Weller 1984; Weller 1987), or (2) from the pattern of inter-informant agreement (Romney, Weller, and Batchelder 1986). The latter provides a means to weight the answers of each respondent by his or her estimated competency prior to aggregation.

In this study, we examine both the binomial and the consensus model classification of items to estimate beliefs about empacho for each sample. Comparisons are then made between the samples in terms of the responses to the empacho questions, and in terms of the within site variability. Finally, analyses are conducted to interpret the intra-cultural variation by assessing the association between sociodemographic characteristics of individuals and their cultural competency (the degree to which their beliefs corresponded with others).

RESULTS

Between September 1990 and May 1991, 192 people were interviewed for this study: 62 in Guatemala, 40 in Mexico, 50 near the Texas-Mexico border, and 40 in Connecticut.[1] Demographic characteristics of each sample are summarized in Table I. The average age, household size, and number of empacho cases per household are similar across samples. Informants range in age from 19 to 78 (41.6 average) in Guatemala, from 17 to 53 (31.0 average) in Mexico, from 20 to 66 (41.5 average) in Texas, and from 18 to 73 (38.3 average) in Connecticut. The community samples include both female and male informants. Households tend to have at least two adults. The Guatemalan and Mexican samples have larger families than the two United States samples (3 vs. 1 child per household). Educational level varies widely across sites, from a low of 1.6 years (50% literacy) in Guatemala to a high of

TABLE I. Sample description.

	Guatemala	Mexico	Texas	Connecticut
Sample Size	62	40	50	37
Age	41.6	31.0	41.5	38.3
Female	68%	100%	54%	70%
# Adults/Household	2.5	2.6	3.1	2.2
# Children	3.4	3.2	1.2	1.1
Years Education	1.6	6.4	9.8	12.7
Own Home	81%	67%	88%	27%
Households with Empacho experience	80%	79%	78%	100%
# Cases/Household	+	7.8	1.8	1.0
Birthplace	+	+	31% Mexico	92% Puerto Rico
			67% United States	5% United States
Education, loc.	+	100% Mexico	19% Mexico	38% Puerto Rico
			9% Both	57% Both
			72% United States	5% United States

+Not asked

12.7 years in the Connecticut sample. Informants in the two United States samples also vary in their birthplace and the location of education.

Intracultural Variation in Empacho Beliefs

Although there is high variability in sociodemographic characteristics, there is low variability (i.e., high concordance) in empacho beliefs. Variability or concordance among respondents is a function of the number of times each pair of individuals give identical answers to the same questions. The proportion of shared cultural beliefs can be estimated from the magnitude and pattern of agreement among individuals and is provided by an analysis of cultural consensus. The average level of competency from the cultural consensus model is equivalent to the proportion of shared beliefs (Weller 1987). With regard to empacho, respondents within each sample tend to answer similarly. The highest overall agreement is observed in the Guatemalan sample (64% shared beliefs, .64 ± .11 average cultural competency). The lowest overall agreement is observed for the Texan sample (49% shared beliefs). Intra-cultural variation statistics are summarized in Table II. Concordance among respondents varies slightly by type of question asked. Agreement is highest for "causes" and, with the exception of Texas, agreement is lowest for symptoms. Overall and by each sub-type of question, there is sufficient concordance among respondents to warrant aggregation and classification of items.[2] Thus, the cultural consensus model was used to obtain the aggregate responses for each sample.

A comparison of individual competency scores and socio-demographic characteristics revealed no detectable sub-patterns of beliefs within each sample. Age, educational level, gender, and a familial history of empacho are neither consistently nor significantly correlated with knowledge about empacho. Two possible explanations for the negative findings are that: there truly are no differences or, we do not have an adequate coverage of demographic variables. While the latter

remains a potential limitation, the former is a more likely explanation. The high overall level of concordance within each sample (Table II) and the low variance among informants (specifically, the standard deviations, less than .20 in Table II) indicate that the informants know a lot about empacho and knowledge is evenly distributed among informants. Furthermore, the only exception occurs in the Texas sample for empacho treatments, the sample with the most variability (standard deviation = .23); where a higher educational level is associated with less knowledge about treating empacho (r = −.44).

Intercultural Variation in Empacho Beliefs

Classification of items as "yes," "no," or "?" (unclassifiable) are compared *between* sites with contingency tables. Items are classified as "true"/"yes" or "false"/"no" using a binomial test and the cultural consensus model. The consensus model classifies all items significantly classified by the binomial test and significantly classified additional items. (All 118 questions, and the classification for each, appear as Appendix A.) Between 3% and 17% of items at each site are unclassifiable by either test. In the Guatemala, Mexico, and Connecticut samples, approximately half of the remaining items are classified as "yes" and half as "no." The Texas sample classifies 25% of items as "yes." (See Table III)

Results indicate high agreement between pairs of sites with identical classification of 60% to 69% questions. Table IV shows the cross-classification tables between sites for all items. For example (in the top left table), of the 116 questions asked in Guatemala and Mexico, 37 are classified "yes" in both samples and 34 as "no" in both samples. Thus, the two samples agree upon or match on 71/116 or 61% of the answers. This is 38% (Lambda) better than chance and is highly significant (p<.00005). This analysis is repeated for each sub-category of questions: causes, symptoms, and treatments. Results indicate that agreement between sites *tends* to be greatest (62% to 78% identical answers) for the subcategory of questions on causes (Table V).

Overall, 42 (36%) of items are classified identically in all four samples and 36 (31%) are classified identically in three of four samples. Thus, two-thirds of the items (67%) are classified identically in *at least* three of the sites. The core set of beliefs that all sites agree upon regarding empacho appear in Table VI. All sites

TABLE II. Average cultural consensus competency scores*
(± 1 standard deviation) by type of question.

	Causes	Symptoms	Treatments	Overall
Guatemala	.69 ± .14	.58 ± .20	.62 ± .15	.64 ± .11
Mexico	.58 ± .17	.48 ± .21	.50 ± .14	.54 ± .14
Texas	.61 ± .15	.43 ± .19	.41 ± .23	.49 ± .11
Connecticut	.62 ± .17	.53 ± .19	.60 ± .13	.58 ± .12

*Equivalent to the proportion of shared beliefs

TABLE III. Classification* of items by sites.

	Guatemala	Mexico	Texas	Connecticut
True/Yes	50%	41%	25%	42%
False/No	47%	42%	62%	42%
Unclassifiable	3%	16%	13%	17%

*Using cultural consensus model results.

agree that anyone can get it (babies, children, women, men, and old people). It is caused by food getting stuck in the stomach, from eating spoiled food, eating undercooked food, eating too much, or swallowing chewing gum. Symptoms include: stomachache, a swollen or bloated stomach, a lack of appetite, a hard stomach, and stomach cramps. It must be treated (it will not go away by itself and it gets worse if left untreated). Furthermore, death can occur if it is not treated. Typical treatment involves getting massages, e.g., a stomach massage with warm oil.

The interview also includes contrastive items (causes, symptoms, and treatments not necessarily associated with empacho) and items pertinent to other folk illnesses. Empacho is uniquely identified by what it is not. Other folk illnesses (*mal de ojo, susto*) that are usually classified with empacho are seen as distinct illnesses, with different causes and treatments. Empacho is not caused by witchcraft, nor would you go to a witch (*brujo*) for treatment. It is also not caused by mal de ojo or by staring at someone as mal de ojo is. It is not caused by sleeping late in the day, lying, or going outside with wet hair. Nor is it caused by taking medicine, drinking milk, eating hot foods, or not eating enough. Bloody stools, urination symptoms, back pain, red face, and fainting are not symptoms of empacho. For example, treatments reported for other folk illness, like susto, mal de ojo and mollera caida are not appropriate for empacho. It is *not* treated by brushing the person with a broom, putting holy water on the body in the shape of a cross, turning a child upside down and patting the bottom of its feet, or rolling an egg yolk on the stomach. It is also not cured by giving Lipton Tea, "the food that caused it," aspirin, or carbonated water.

Although the results from the samples are very similar, there are some systematic variations by site and category of question. A third of the items are classified identically by all four samples, constituting the short, unarticulated, or core description of empacho described above. An additional third of the items are classified similarly by three of the four sites. For example, the Guatemalan sample classifies five causes regarding the timing of meals and the hot-cold quality of foods as positive, while the other three samples classify those items as negative. Thus, Guatemalan beliefs about the causes of empacho consist of the core causes plus eating at the wrong time, missing a meal, eating cold foods after hot, eating cold foods (but not eating hot foods), and mixing different kinds of foods.

The Texan sample also has a slightly different pattern. The description of the symptomology of empacho, for the Texas sample is simpler than for the other samples being limited to the core description of a painful, bloated stomach, excluding the wider description with diarrhea and vomiting. The Texan informants

TABLE IV. Comparison of item classification between pairs of sites.

	MEXICO						TEXAS			
GUATE	yes	no	?			MEXICO	yes	no	?	
yes	37	12	9	58		yes	26	14	8	48
no	10	34	10	54		no	2	45	2	49
?	1	3	0	4		?	1	13	5	19
	48	49	19	116			29	72	15	116

61% Match (.38 Lambda) χ^2 (4) = 27.84, p < .00005   66% Match (.38 Lambda) χ^2 (4) = 49.48, p < .00005

	TEXAS						CONN			
GUATE	yes	no	?			MEXICO	yes	no	?	
yes	23	23	12	58		yes	34	5	6	45
no	5	46	3	51		no	5	30	6	41
?	1	3	0	4		?	4	8	6	18
	29	72	15	116			43	43	18	104

60% Match (.23 Lambda) χ^2 (4) = 25.27, p < .00005   67% Match (.45 Lambda) χ^2 (4) = 46.01, p < .00005

	CONN						CONN			
GUATE	yes	no	?			TEXAS	yes	no	?	
yes	37	6	9	52		yes	21	3	4	28
no	6	35	9	50		no	12	38	11	61
?	0	2	0	2		?	10	2	3	15
	43	43	18	104			43	43	18	104

69% Match (.53 Lambda) χ^2 (4) = 45.54, p < .00005   60% Match (.34 Lambda) χ^2 (4) = 32.83, p < .00005

are more likely to classify items as false or no; this is most evident for the symptoms. The Texas sample reports stomach pain, constipation, a swollen or bloated stomach, a lack of appetite, a hard stomach, nausea, fever, and colic. The other three samples agreed upon seven additional symptoms: cold sweat, dark circles under eyes, diarrhea, foul smelling stools, vomiting, and frequent bowel movements.

TABLE V. Intercultural Comparison of item classifications by type of question.

	Causes		Symptoms		Treatment	
Comparison	% Match	Lambda	% Match	Lambda	% Match	Lambda
Guate-Mexico	62	.36*	67	.34*	57	.28*
Guate-Texas	68	.42**	58	.19	54	.17
Guate-Conn	70	.51**	67	.48***	71	.50**
Mexico-Texas	76	.57****	48	.07	70	.31***
Mexico-Conn	76	.56***	70	.37**	56	.25
Texas-Conn	78	.56****	48	.25**	50	.10

*p < .05
**p < .005
***p < .0005
****p < .00005

DISCUSSION

This paper presents new data on the folk illness empacho. Data were collected from four diverse samples of adults: a rural community-based sample of men and women in Northeastern Guatemala (half of whom were illiterate); a clinic-based sample of women from a large city in Western Mexico; a community-based sample of Mexican and Mexican-American men and women in a residential area of a U.S. town near the Texas-Mexico border; and a community-based sample of Puerto Rican men and women in a Northeastern U.S. city. In all, 192 people were interviewed for this study; each was asked the same series of questions about the causes, symptoms, and treatments for empacho. Results indicate high consistency (low intracultural variation) in responses within each sample. In fact, within-sample concordance is so high that there is no meaningful variability in responses by age, gender, or educational level. Furthermore, descriptions from informant responses are similar across the four samples.

Empacho appears to be an illness without psychogenesis. It is neither caused nor treated by witchcraft. It is distinct from susto and mal de ojo, and would not occur as a result of either. Most simply, empacho is a kind of gastrointestinal illness. It is characterized by a stomachache; a hard, swollen, or bloated stomach; cramps; and a lack of appetite. Anyone, old or young, is susceptible to getting it. Empacho is believed to be caused by food getting stuck in the stomach or intestines. Spoiled or undercooked food, as well as too much food, or swallowing nonfood items, such as chewing gum, can cause food to become lodged somewhere in the gastrointestinal tract. A stomach massage can dislodge the material and thus cure empacho. Empacho should be treated, or it may get worse, and sometimes, death can ensue.

The above description contains the core elements of empacho that are agreed upon by all four samples. The description of empacho, however, varies somewhat between sites for different categories of questions. The Guatemalan sample has more elaborate beliefs about the causes of empacho while the Texan sample has a simpler symptomology than the other samples. For Guatemalans, undesirable food combinations and the timing of meals also can cause empacho. For the Texas sample, the symptomology is limited to the core symptoms and is similar to indigestion. The Guatemalan, Mexican, and Connecticut sample descriptions are broader and include vomiting and diarrhea. The limited range of symptoms may be similar to the effect noted by Kay (1979).

A comparison of these findings with the earlier studies shows consistency despite methodological differences. (The classification of specific items by each site appears in Appendix A). The earlier description of empacho (causes, symptoms, and treatments) in Connecticut by Pachter, Bernstein, and Osorio (1992) is equivalent to that from the new Connecticut sample, although the previous study used open-ended interviews and a clinical sample. The Mexican results parallel those described by Baer et al. (1989) even though the earlier study included an Oaxacan group of informants as well. The Guatemalan description is equivalent to the earlier description by Weller, Ruebush, and Klein (1991), including the presence of a headache, although the earlier study was based on illness case histories from the Pacific Coast of Guatemala (both studies were done with Ladinos, but this study site is located in Northeastern Guatemala). The Texas results, especially the

symptoms, are slightly different than those reported by Trotter (1985a). Trotter's earlier studies, however, covered a much wider geographical area (Arizona, New Mexico, and Texas), sampling informants from clinics, and perhaps, was able to tap the broader description of empacho. Although the community sampled for this study is representative of the broader region,[3] it may be more acculturated than the previous larger sample.

Thus, the new results corroborate the old, yet some of the contradictions among the original studies remain. The variations, however, are minor in view of the overall agreement or consensus among sites. The systematic data collected at all four sites, facilitates an evaluation of the *overall similarity* in the empacho belief profile among different informants and between different geographic regions. In addition, the structured format allows us to identify the factors that are *not* associated with empacho. (Open-ended questions and previous reports usually list only those attributes associated with an illness.)

Systematic or structured interviewing may, in some senses, be considered a final step in ethnography because open-ended, background interviews must precede and inform the design of a structured interview. Furthermore, comparisons between groups of informants can only be made from systematically collected data. Systematic data collection methods are valid only when ethnographically informed. Thus, open-ended interviews must be done prior to structured interviews. (In this study, each investigator had conducted an earlier study on empacho at one of the sampling sites.) The limitation of open-ended interviews is that comparisons between informants are difficult, and comparisons between groups of informants are impossible. Comparisons can only be made when identical questions are asked of all informants. Open-ended interviews are also sensitive to memory bias (people "recall" less than they "recognize"); structured interviewing diminishes this effect by relying more on recognition effects. The value of open-ended techniques is that they result in conjectures and hypotheses. Systematic methods are a necessary compliment, facilitating the exploration and verification of hypotheses.

Only with a diversity of samples and a standard protocol can one determine variability in beliefs and make theoretical formulations regarding the distribution and diffusion of belief systems. Isolated samples are not sufficient for such generalizations. Prior to seeing the results, we might have predicted that: (1) intracultural variation would be highest for the two United States samples, and that: (2) United States samples would be the least concordant with the Latin American samples. Had we collected all samples except the Connecticut sample, we would have confirmed our hypotheses. Without the Connecticut sample, it would have been easy to conclude that the higher variability in the Texas sample and its lower agreement with the Mexican and Guatemalan samples was due to the possible diluting effects of contact with U.S. culture. However, the Connecticut sample indicates that such a simple explanation may not be adequate. In fact, it is the Connecticut sample that signals the need for reflection on the effects of migration, diffusion and acculturation on belief systems. The Connecticut sample was the most educated, and yet had high intra- and inter-sample agreement on items.

The consistency in results across samples suggests a common origin for the concept of empacho. The name, causes, symptoms, and treatments all suggest a common source. Also, intra- and inter-cultural variation seem to be related.

Questions on cause have the highest concordance, both within and between samples. Within each sample, the proportion of shared beliefs is highest for the causes of empacho. Similarly, samples agree more often with one another regarding causes, than for symptoms or treatments.

A comparative study based upon a standard protocol is one of the most powerful methodological tools there is. Unfortunately, the expense of mounting multiple field efforts is often prohibitive, especially if the investigators are new to the research areas. In addition, the emphasis in anthropology on individualistic work has probably impeded collaboration in comparative research. However, the advantages of such collaboration far outweigh the disadvantages. Such a design truly facilitates the study of variation in beliefs. By using the same interview format, we are able to make direct comparisons within and between samples. Even though the procedure varies somewhat between sites, namely, differences in samples and sampling procedures, results are consistent across the four samples. If the procedures had been identical, perhaps agreement would have been higher. Nevertheless, such consistency in results across four diverse settings leads to the inference that a similar consistency in beliefs about empacho might be found in the encompassed region.

ACKNOWLEDGMENTS

NOTES

1. Although 40 people were interviewed in the Connecticut sample, 3 were omitted from the analysis because they had more than 10% of the empacho questions as missing.
2. Results of the analysis reveal low intra-cultural variation; the cultural consensus model fit the data well. Pairwise similarity between informants' responses was measured with covariance (Batchelder and Romney 1986). The average competency level (concordance among respondents) is moderately high. Also, the extraction procedure implemented in ANTHROPAC (Borgatti 1989) for the competency scores shows a single factor structure for each sample (the ratio of the first and second eigenvalues all exceed four and all competency scores were positive). Thus, the cultural consensus model is used to obtain the aggregated responses for each sample.
3. The sociodemographic characteristics and acculturative level of the Texan sample is comparable to those of the lower Rio Grande Valley and not necessarily of the three state area in the original study (see Trotter 1991).

APPENDIX A. Classification of interview items.

| Causes (and vulnerable populations) | | | | | |
Conn	Tex	Mex	Gua		
N	N	N	N	1	Does *brujeria* (witchcraft) cause empacho? Estar embrujado causa empacho? (Gua, Mex, T-M) Puede causar empacho brujeria? (Conn)
Y	Y	Y	Y	2	Can Children get empacho? A los ninos les da empacho? (Gua, Mex, T-M) Le da empacho a los ninos? (Conn)
—	—	—	Y	3	Can eating at the wrong time give you empacho? Comer fuera de horas causa empacho? (Gua, Mex, T-M) Puede causar empacho comer fuera de hora? (Conn)
—	—	Y	Y	4	Can swallowing something that is not food cause empacho? Tragarse cosas que no sean comida causa empacho? (Gua) Comere cosas que no sea comida causa empacho? (Mex, T-M) Puede causar empacho tragarse algo que no sea comida? (Conn)
n	N	—	N	5	Can teething cause empacho? La salida de los dientes causa empacho? (Gua, Mex, T-M) Puede causar empacho el echar dientes? (Conn)
N	N	N	n	6	Can not eating enough food cause empacho? Si uno no come suficiente comida le da empacho? (Gua) Le puede dar empacho por no comer suficiente? (Mex, T-M) Puede causar empacho el no comer suficient? (Conn)
N	N	N	N	7	Can staring at someone cause empacho? Por mirar a una persona le da empacho? (Gua) Le puede dar empacho por mirar a una persona? (Mex, T-M) Puede causar empacho el mirar *frija* a una persona? (Conn)
—	N	Y	N	8	Does living in an unclean house cause empacho? Vivir en una casa sucia produce empacho? (Gua, Mex, T-M) Puede causar empacho el vivir en una casa sucia? (Conn)
Y	Y	Y	Y	9	Can men get empacho? A los hombres les da empacho? (Gua) Les puede dar empacho a los hombres? (Mex, T-M) Le da empacho a los hombres? (Conn)
y	N	y	n	10	Does drinking unboiled water cause empacho? Tomar agua sin hervir produce empacho? (Gua, Mex, T-M) Puede causar empacho tomar agua que no ha sido hervida? (Conn)
n	y	y	Y	11	Does eating dry food cause empacho? Comer en seco produce empacho? (Gua) Comer comida seca produce empacho? (Mex, T-M) Puede causar empacho el comer alimentos secos? (Conn)
N	N	n	Y	12	Can empacho be caused by missing a meal? No comer a tiempo puede causar empacho? (Gua, Mex, T-M) Puede causar empacho el faltarle una de las comidas? (Conn)
Y	—	y	Y	13	Can changing a baby's formula cause empacho? Cambiar la leche de los ninos produce empacho? (Gua, Mex, T-M) Puede causar empacho el cambiar la formula el bebe? (Conn)
—	n	N	n	14	Can empacho be caused by adding cereal to a baby's formula? Agregar cereal a la leche de los ninos puede producir empacho? (Gua, Mex, T-M) Puede causar empacho el anadirle cereal a la formula de bebe? (Conn)

(continued)

APPENDIX A. (*continued*).

Causes (and vulnerable populations)					
Conn	Tex	Mex	Gua		
N	N	N	N	15	Does sleeping late in the day cause empacho? Dormir durante el dia produce empacho? (Gua) Dormir durante la tarde produce empacho? (Mex, T-M) Puede causar empacho el dormir tarde en el dia? (Conn)
Y	Y	Y	Y	16	Can women get empacho? A las mujeres les da empacho? (Gua) Le puede dar empacho a las mujeres? (Mex, T-M) Les da empacho a las mujeres? (Conn)
Y	y	Y·	Y	17	Can you get empacho by eating spoiled food? Comer comidas pasadas (o descompuestas) puede producir empacho? (Gua) Comer comidas hechadas a perder puede producir empacho? (Mex, T-M) Puede causar empacho comer alimentos donados? (Conn)
N	N	n	N	18	Can mal de ojo cause empacho? Cuando al nino le hacen ojo le causa empacho? (Gua) Cuando le hacen mal de ojo le causa empacho? (Mex, T-M) Puede causar empacho el mal de ojo? (Conn)
N	N	N	N	19	Does lying cause empacho? Decir mentiras produce empacho? (Gua) Mentir produce empacho? (Mex, T-M) Puede causar empacho el mentir? (Conn)
Y	Y	Y	Y	20	Can babies get empacho? A los bebes les da empacho? (Gua, Mex, T-M) Les da empacho a los bebes? (Conn)
y	n	—	Y	21	Can you get empacho by eating too fast? Comer muy rapido produce empacho? (Gua, Mex, T-M) Puede causar empacho comer muy ligero? (Conn)
n	N	n	y	22	Can eating cold food after eating hot food cause empacho? Las comidas frias despues de comer caliente producen empacho? (Gua) Comer comidas frias despues de comer comidas caliente causa empacho? (Mex, T-M) Puede causar empacho comer alimentos frios despues de alimenos calientes? (Conn)
N	N	—	N	23	Can susto cause empacho? El susto causa empacho? (Gua, Mex, T-M) Puede causar empacho susto? (Conn)
Y	N	—	Y	24	Can eating cold meat late at night cause empacho? Comer carne fria en la noche puede causar empacho? (Gua, Mex, T-M) Puede causar empacho el comer carnes fria tarde en la noche? (Conn)
N	N	n	Y	25	Can cold foods cause empacho? Las comidas frias causan empacho? (Gua, Mex, T-M) Puede causar empacho comidas frias? (Conn)
Y	y	y	Y	26	Can you get empacho from eating too much? Comer mucho causa empacho? (Gua, Mex, T-M) Puede causar empacho comer mucho? (Conn)

APPENDIX A. (*continued*).

Causes (and vulnerable populations)					
Conn	Tex	Mex	Gua		
Y	Y	Y	Y	27	Can food stuck in the stomach cause empacho? La comida que se pega al estomago causa empacho? (Gua, Mex, T-M) Puede causar empacho alimentos que se queden pegados en el estomago? (Conn)
N	N	N	n	28	Can eating hot foods cause empacho? Las comidas calientes causan empacho? (Gua, Mex, T-M) Puede causar empacho alimentos calientes? (Conn)
Y	Y	Y	y	29	Can old people get empacho? A las personas ancianas les da empacho? (Gua, Mex, T-M) Le da empacho a personas mayores? (Conn)
N	N	N	N	30	Can drinking milk cause empacho? Da empacho tomar leche? (Gua) Puede producir empacho el tomar leche? (Mex, T-M) Puede causar empacho tomar leche? (Conn)
Y	Y	Y	Y	31	Can you get empacho from eating food that is undercooked? Comer comida que no esta bien cocinada causa empacho? (Gua) Comer comida que no esta bien guisada causa empacho? (Mex, T-M) Puede causar empacho alimentos que no se han cocido bien? (Conn)
Y	—	y	Y	32	Can a baby get empacho by changing its formula to milk? Darle comida solida al bebe en vez de darle leche le causa empacho? (Gua) Cambiarle la leche al bebe causa empacho? (Mex, T-M) Puede causar empacho al bebe combiar de formula a leche regular? (Conn)
—	—	—	y	33	Does mixing different kinds of food cause empacho? Mezclar diferentes clases de comidas causa empacho? (Gua, Mex, T-M) Puede causar empacho elmezclar distintas clases de alimentos? (Conn)
N	N	N	N	34	Can taking medicine cause empacho? Tomar medicinas da empacho? (Gua, Mex, T-M) Puede causar empacho tomar medicinas? (Conn)
y	y	Y	Y	35	Can empacho be caused by swallowing chewing gum? Tragarse los chicles (goma de mascar) causa empacho? (Gua) Pasarse los chicles causa empacho? (Mex, T-M) Puede causar empacho tragar chicle? (Conn)
N	N	N	—	36	Can drinking a lot of water cause empacho? Tomar mucha agua causa empacho? (Gua, Mex, T-M) Puede causar empacho tomar mucha agua? (Conn)
N	N	N	N	37	Can going outside with wet hair cause empacho? Salir afuera con la cabeza mojada causa empacho? (Gua, Mex, T-M) Puede causar empacho salir afuera con la cabeza majada? (Conn)

APPENDIX A. (*continued*).

Symptoms and Signs					
Conn	Tex	Mex	Gau		
Y	Y	Y	Y	38	Is a stomach pain or stomach ache a symptom of empacho? El dolor de estomago es senal de empacho? (Gua, Mex, T-M) Es el dolor de estomago un sintoma de empacho? (Conn)
—	N	n	y	39	Is a headache a symptom of empacho? El dolor de cabeza es senal de empacho? (Gua, Mex, T-M) Es el dolor de cabeza un sintoma de empacho? (Conn)
y	N	Y	y	40	Is a cold sweat a symptom of empacho? El sudor frio es senal de empacho? (Gua, Mex, T-M) Es sudor frio un sintoma de empacho? (Conn)
—	y	n	N	41	Is constipation a symptom of empacho? El estrenimiento es senal de empacho? (Gua, Mex, T-M) Es estrenmiento un sintoma de empacho? (Conn)
N	N	n	N	42	Is getting red in the face a symptom of empacho? Ponersele roja la cara es senal de empacho? (Gua, Mex, T-M) Es la cara ponerse roja un sintoma de empacho? (Conn)
N	N	Y	n	43	Is caida de la mollera a symptom of empacho? La mollera caida es senal de empacho? (Gua, Mex, T-M) Es caida de mollera un sintoma de empacho? (Conn)
Y	Y	Y	Y	44	Is a swollen or bloated stomach a symptom of empacho? El estomago hinchado o inflado es senal de empacho? (Gua) El estomago hinchado o inflamado es senal de empacho? (Mex, T-M) Es hinchazon o aventamiento del estomago un sintoma de empacho? (Conn)
N	N	N	N	45	Is a pain in the back a symptom of empacho? El dolor de espalda es senal de empacho? (Gua, Mex, T-M) Es dolor de espalda un sintoma de empacho? (Conn)
N	N	N	N	46	Is it a symptom of empacho to urinate less frequently? El orinar con menos frecuencia es senal de empacho? (Gua, Mex, T-M) Es orinar poco un sintoma de empacho? (Conn)
y	—	Y	N	47	Is paleness a symptom of empacho? La palidez es senal de empacho? (Gua, Mex, T-M) Es palidez un sintoma de empacho? (Conn)
y	—	Y	Y	48	Are loose or runny stools a symptom of empacho? Tener asientos o estar flojo del estomago son senales de empacho? (Gua, Mex, T-M) Es la excreta liquida un sintoma de empacho? (Conn)
—	N	Y	Y	49	Is weight loss a symptom of empacho? La perdida de peso es senal de empacho? (Gua, Mex, T-M) Es perdida de peso un sintoma de empacho? (Conn)
Y	Y	Y	Y	50	Is a lack of appetite a symptom of empacho? La falta de apetito es senal de empacho? (Gua, Mex, T-M) Es falta de apetito un sintoma de empacho? (Conn)
Y	Y	Y	y	51	Is a hard stomach a symptom of empacho? El estomago duro es senal de empacho? (Gua, Mex, T-M) Es el estomago duro un sintoma de empacho? (Conn)

APPENDIX A. (*continued*).

Symptoms and signs					
Conn	Tex	Mex	Gua		
N	N	N	n	52	Is fainting or passing out a symptom of empacho? Desmayarse (tener vahido) es senal de empacho? (Gua) Desmayarse es senal de empacho? (Mex, T-M) Es desmayarse un sintoma de empacho? (Conn)
N	N	n	N	53	Is blood in the feces or stool a symptom of empacho? La sangre en las heces (el popo) es senal de empacho? (Gua) La sangre en las heces (los exrementos) es senal de empacho? (Mex, T-M) Es sangre en la excreta un sintoma de empacho? (Conn)
Y	y	Y	Y	54	Is nausea a symptom of empacho? La nausea es senal de empacho? (Gua, Mex, T-M) Es nauseas un sintoma de empacho? (Conn)
—	N	—	n	55	Is wanting to sit still and not move a symptom of empacho? No querese ni mover es senal de empacho? (Gua) Estar sentado sin querer mover es senal de empacho? (Mex, T-M) Es querer estar sentando quieto y no movarse un sintoma de empacho? (Conn)
—	Y	Y	n	56	Can medicines help you feel better when you have empacho? Las medicinas ayudan a sentirse mejor si uno tiene empacho? (Gua, Mex, T-M) Pueden las medicinas hacerle sentir mejor si tiene empacho? (Conn)
y	N	Y	Y	57	Are dark circles under the eyes a symptom of empacho? Las ojeras son senal de empacho? (Gua, Mex, T-M) Son las sombras debajo de los ojos sintomas de empacho? (Conn)
N	N	—	N	58	Are nerves (los nervios) a symptom of empacho? Los nervios son senal de empacho? (Gua, Mex, T-M) Son los nervios sintomas de empacho? (Conn)
N	N	N	N	59	Is frequent urination a symptom of empacho? El orinar con mas frecuencia es senal de empacho? (Gua, Mex, T-M) Es orinar frecuente un sintoma de empacho? (Conn)
—	n	n	N	60	Can doctors cure empacho? Los doctores ayudan a que uno se sienta mejor con empacho? (Gua) Los doctores curan el empacho? (Mex, T-M) Puede el doctor hacerle sentir mejor si tiene empacho? (Conn)
y	—	Y	Y	61	Is diahrrea a symptom of empacho? La diarrea es senal de empacho? (Gua, Mex, T-M) Es diarrea un sintoma de empacho? (Conn)
Y	n	Y	Y	62	Is a foul smelling stool a symptom of empacho? El mal olor de las heces (el popo) es senal de empacho? (Gua) El mal olor de las heces (excremento) es senal de empacho? (Mex, T-M) Es excreta con olor fuerte un sintoma de empacho? (Conn)

APPENDIX A. (*continued*).

Symptoms and Signs					
Conn	Tex	Mex	Gua		
Y	—	Y	Y	63	Is vomiting a symptom of empacho? Los vomitos son senal de empacho? (Gua) El vomito es senal de empacho? (Mex, T-M) Es vomitar un sintoma de empacho? (Conn)
Y	Y	Y	Y	64	Are stomach cramps a symptom of empacho? Los retorcijones son senal de empacho? (Gua, Mex, T-M) Son dolores de barriga (retorcijones) sintomas de empacho? (Conn)
—	N	—	n	65	Is dizzyness a symptom of empacho? El mareo es senal de empacho? (Gua) Vahido (El mareo, vertigo, vaguido) es senal de empacho? (Mex, T-M) Es mareos un sintoma de empacho? (Conn)
y	n	Y	Y	66	Is having frequent bowel movements a symptom of empacho? Tener que ir al bano con frecuencia es senal de empacho? (Gua, Mex, T-M) Es evacuar mas a menudo un sintoma de empacho? (Conn)
—	y	Y	Y	67	Is fever a symptom of empacho? La calentura es senal de empacho? (Gua, Mex, T-M) Es fiebre un sintoma de empacho? (Conn)
y	y	Y	N	68	Is colic a symptom of empacho? Los colicos en los bebes son senal de empacho? (Gua, Mex) Los colicos son senales de empacho? (T-M) Es colico un sintoma de empacho? (Conn)
y	—	Y	n	69	Is a change in the color of bowel movements a symptom of empacho? Un cambio en el color de las heces (el popo) es senal de empacho? (Gua) Un cambio en el color de las heces (excremento) es sena de empacho? (Mex, T-M) Es cambio de color en la excreta un sintoma de empacho? (Conn)
n	N	y	N	70	Is a bad temper a symptom of empacho? El mal humor (caracter) es senal de empacho? (Gua) El mal humor (caracter irascible) es senal de empacho? (Mex, T-M) Es estar de mal humor un sintoma de empacho? (Conn)

Treatments					
Conn	Tex	Mex	Gua		
N	N	N	N	71	Does brushing a person with a broom cure empacho? Para curar el empacho se le pasa una escoba encima al enfermo? (Gua) Para curar el empacho se le pasa una escoba por encima de enfirmo? (Mex, T-M) Para tratar empacho le pasarias una escoba por el cuerpo a la persona? (Conn)

(*continued*)

APPENDIX A. (*continued*).

Treatments					
Conn	Tex	Mex	Gua		
N	N	N	N	72	Does empacho go away by itself? El empacho se cura solo? (Gua, Mex, T-M) Desaparece el empacho por si salosino se trata? (Conn)
N	—	—	Y	73	Can a stomach massage with lard and baking soda cure empacho? El empacho se cura dando sobadas de manteca y polvo royal en el estomago? (Gua) El empacho se cura dando sobadas de manteca y soda de martillo en el estomago? (Mex, T-M) Para tratar empacho sobarias el estomago con manteca y bicarbonato de soda? (Conn)
—	N	—	N	74	Do you need to go to a doctor to treat empacho? Para curar el empacho hay que ir donde el doctor? (Gua) Para curar el empacho hay que ir con el doctor? (Mex, T-M) Para tratar empacho irias al medico? (Conn)
N	N	—	N	75	Would you eat epazote to cure empacho? Para curar el empacho hay que tomar apazote? (Gua) Para curar el empacho hay que comer epazote? (Mex, T-M) Para tratar empacho tomarias epazote? (Conn)
Y	n	—	y	76	Would you drink mineral water to cure empacho? Para cuar el empacho hay que tomar agua mineral? (Gua, Mex, T-M) Para tratar empacho tomarias agua mineral? (Conn)
N	N	N	N	77	Would you drink Lipton tea to cure empacho? Para curar el empacho hay que tomar te lipton? (Gua, T-M) Para curar el empacho hay que tomar te negro? (Mex) Para tratar empacho tomarias te de Lipton? (Conn)
Y	—	—	Y	78	Would you take Milk of Magnesia or Pepto Bismol to cure empacho? Para curar el empacho hay que tomar Leche de Magnesia o Peptobismol? (Gua, Mex, T-M) Para tratar empacho tomarias leche de magnesia o Pepto Bismol? (Conn)
*	n	n	y	79	Would you give an herbal enema to cure empacho? Para curar el empacho hay que hacerse lavados de hiervas? (Gua) Para curar el empacho hay que hacerse lavados de yerbas (una ayuda, una enema)? (Mex, T-M)
N	N	N	N	80	To cure empacho, would you give someone the same food that caused it? Para curar el empacho hay que comer la misma comida que lo ocasino? (Gua) Para curar el empacho hay que comer la misma comida que ha causado? (Mex, T-M) Para tratar empacho darias de nuevo el alimento que lo causo? (Conn)

(*continued*)

APPENDIX A. (*continued*).

Treatments					
Conn	Tex	Mex	Gua		
Y	Y	Y	Y	81	Do you need to go to a "masseur" to cure empacho? Para curar el empacho hay que ir con un sobador? (Gua) Para curar el empacho hay que ir por masajes? (Mex, T-M) Para tratar empacho irias donde una santiguadora? (Conn)
N	N	n	N	82	Can you cure empacho by turning a child upside down and patting them on the bottom of their feet? Para curar el empacho hay que voltear al nino de arriba a abajo (pies para arriba) y darle palmadas en los pies? (Mex, T-M) Para curar el empacho hay que voltear al nino de arriaba a abajo (patas arriba) y darle palmadas en los pies? (Gua) Para tratar empacho pondrias al bebe cabeza abajo y le darias por los pies? (Conn)
n	N	N	N	83	Can you cure empacho by putting holy water on the body in the shape of a cross? Para curar el empacho hay que hacer una cruz en el cuerpo con agua bendita? (Gua, Mex, T-M) Para tratar empacho hacias la cruz en el cuerpo con agua bendita? (Conn)
*	N	N	N	84	Can you cure empacho by placing hot warm towels on the body? Para curar el empacho hay que poner toallas mojadas en agua tibia sobre el cuerpo del enfermo?
—	n	—	y	85	Will an enema cure empacho? Para curar el empacho hay que ponerle un lavado? (Gua) Para curar el empacho hay que ponerle un lavado (una ayuda, enema)? (Mex, T-M) Para tratar empacho pondrias una enema? (Conn)
y	N	n	N	86	Will drinking tea with lemon cure empacho? Para curar el empacho hay que tomar te con limon? (Gua, Mex, T-M) Para tratar empacho tomarias te con limon? (Conn)
n	N	y	N	87	Can you cure empacho by going to the hospital? Para curar el empacho hay que ir al hospital? (Gua, Mex, T-M) Para tratar empacho irias al hospital? (Conn)
*	n	n	—	88	Can you cure empacho by taking herb tea with salt and sugar? Para curar el empacho hay que tomar te de yerbas con sal y azucar? (Gua, Mex, T-M)
Y	Y	y	Y	89	Can you cure empacho by massaging the stomach with warm oil? Para curar el empacho hay que dar en el estomago masajes con aceite tibio? (Gua, Mex, T-M) Para tratar empacho sobarias el estomago con aceite tibio? (Conn)
N	N	—	N	90	Can you cure empacho with antibiotics? Para cuar el empacho hay que tomar antibioticos? (Gua, Mex, T-M) Para tratar empacho tomarias antibioticos? (Conn)

(continued)

APPENDIX A. (*continued*).

Treatments					
Conn	Tex	Mex	Gua		
n	y	—	N	91	Would you go to an herbalist or a curandero to cure empacho?
					Para curar el empacho hay que ir con un herbolario o curandero? (Gua)
					Para curar el empacho hay que ir con una yerbera o curandero? (T-M)
					Para curar el empacho hay que ir con una yerbera o curandera? (Mex)
					Para tratar empacho irias a una botanica? (Conn)
Y	—	n	Y	92	Would you give a purgative to cure empacho?
					Para curar el empacho hay que tomar un purgante? (Gua, Mex, T-M)
					Para tratar empacho tomarias un purgante? (Conn)
N	N	N	N	93	Would rolling an egg yolk on the stomach cure empacho?
					Para curar el empacho hay que pasar un yema (una llema) de huevo en estomago? (Gua, Mex, T-M)
					Para tratar empacho sobarias el estomago con yema de hueve? (Conn)
N	N	N	N	94	Can you cure empacho by taking aspirin?
					Para curar el empacho hay que tomar aspirina? (Gua, Mex, T-M)
					Para tratar empacho tomar una aspirina? (Conn)
N	—	—	N	95	Would you go to a curandero to cure empacho?
					Para curar el empacho uno tiene que ir con un curandero? (Gua, T-M)
					Para curar el empacho uno tiene que ir con una curandera? (Mex)
					Para tratar empacho irias a un curandero o espiritista? (Conn)
*	Y	Y	Y	96	Can you cure empacho by giving stomach massages?
					Para curar el empacho hay que dar sobadas en el estomago? (Gua, Mex, T-M)
y	N	Y	y	97	Does pedialyte cure empacho in children?
					Para curar el empacho se les da suero oral (Pedialyte) a los ninos? (Gua, Mex, T-M)
					Para tratar empacho le darias al bebe Pedialyte? (Conn)
—	N	N	N	98	Can you cure empacho by carrying a baby for an hour?
					Para curar el empacho hay que cargar al bebe por una hora? (Gua, Mex, T-M)
					Para tratar empacho cargarias al bebe en los brazos por una hora? (Conn)
*	N	—	Y	99	Can you cure empacho by drinking mineral water?
					Para curar el empacho hay que tomar agua mineral? (Gua, Mex, T-M)
—	N	n	Y	100	Can you cure empacho by drinking cooking oil?
					Para curar el empacho hay que tomar aceite de cocina? (Gua, Mex, T-M)
					Para tratar empacho tomarias aceite de comer o de oliva? (Conn)
*	N	Y	y	101	Can you cure empacho with oral rehydration solution?
					Para curar el empacho hay que dar suero oral (en sobre)? (Gua, Mex, T-M)

(continued)

APPENDIX A. (*continued*).

Treatments					
Conn	Tex	Mex	Gua		
Y	N	n	N	102	Can you cure empacho by praying?
					Para curar el empacho hay que rezar? (Gua, Mex, T-M)
					Para tratar empacho rezarias? (Conn)
*	n	y	Y	103	Can you cure empacho by taking a spoonful of oil?
					Para curar el empacho hay que tomar una cucharada de aceite? (Gua, Mex, T-M)
N	N	N	N	104	Would you go to a brujo to cure empacho?
					Para curar el empacho hay que ir con un brujo? (Gua, Mex, T-M)
					Para tratar empacho irias a un brujo? (Conn)
Y	N	Y	y	105	Can you cure empacho by going on a liquid diet?
					Para curar el empacho hay que tomar solamente liquidos? (Gua, Mex, T-M)
					Para tratar empacho te pondrias en dieta liquida? (Conn)
y	N	n	Y	106	Can you cure empacho with soda bicarbonate or alka-seltzer?
					Para curar el empacho hay que tomar bicarbonato de soda o alka-selzer? (Gua, Mex, T-M)
					Para tratar empacho tomarias bicarbonato de soda o Alka Seltzer? (Conn)
Y	—	Y	y	107	Does yerbabuena (spearmint) tea cure empacho?
					Para curar el empacho hay que tomar te de yerbabuena? (Gua, Mex, T-M)
					Para tratar empacho tomarias te de yerba buena? (Conn)
Y	Y	Y	Y	108	If you do not treat empacho, does it get worse?
					Si no se le trata, el empacho empeora? (Gua, Mex, T-M)
					Se pone peor empacho sino se trata? (Conn)
—	y	Y	N	109	Does chamomile tea cure empacho?
					Para curar el empacho uno toma te de manzanilla? (Gua, Mex, T-M)
					Para tratar empacho tomarias te de manzanilla? (Conn)
*	N	N	—	110	Can eating a regular diet or regular food cure empacho?
					Para curar el empacho uno dija de comer comida corriente? (Gua)
					Para curar el empacho uno tiene que comer comida corriente? (Mex, T-M)
*	N	N	N	111	Can you cure empacho with carbonated water (soda water)?
					Para curar el empacho uno toma agua gaseosa? (Gua, Mex, T-M)
N	Y	Y	—	112	Can you cure empacho by pulling up the skin in the small of the back until it pops?
					Para curar el empacho hay que jalar la piel detras de la nuca? (Gua)
					Para curar el empacho hay que jalar la piel detras de la espalda? (Mex, T-M)
					Para tratar empacho estiras la piel de la espalda hasta que suene? (Conn)
*	N	N	N	113	Can you cure empacho by massaging the stomach with alcohol and salt?
					Para curar el empacho se soba el estomago con alcohol y sal? (Gua, Mex, T-M)

APPENDIX A. (*continued*).

Treatments					
Conn	Tex	Mex	Gua		
y	y	Y	Y	114	Can a person die if their empacho is not treated?
					Si el empacho no se trata uno puede morir? (Gua, Mex, T-M)
					Se puede morir de empacho si no se trata? (Conn)
*	N	N	N	115	Is spearmint tea bad for empacho?
					El te de yerbabuena es malo para el empacho? (Gua, Mex, T-M)
*	N	n	Y	116	Can eating a burned tortilla cure empacho?
					Hay que comer tortilla quemada para curar el empacho? (Gua, Mex, T-M)
N	*	*	*	117	Can warm Coca-Cola cure empacho?
					Para tratar empacho tomarias Coca-Cola tibia? (Conn)
Y	*	*	*	118	Can drinking ginger ale or 7-Up cure empacho?
					Para tratar empacho tomarias ginger ale o 7-Up? (Conn)

Key
Y, N Classified by binomial test (p < .05) and consensus analysis (p ≤ .001)
y, n Classified by consensus analysis (p ≤ .001)
— Unclassified
*Unasked, not included

REFERENCES

Backstrand, J., and S. Schensul
  1982   Co-evolution in Outlying Ethnic Communities: The Puerto Ricans of Hartford, Connecticut. Urban Anthropology 11(1):9–37.
Baer, R., and A. Ackerman
  1988   Toxic Mexican Folk Remedies for the Treatment of *Empacho*: The Case of Azarcon, Greta, and Albayalde. Journal of Ethnopharmacology 24:31–39.
Baer, R., D. J. Garcia de Alba, L. M. Cueto, A. Ackerman, and S. Davison
  1989   Lead Based Remedies for *Empácho*: Patterns and Consequences. Social Science and Medicine 29(12):1373–1379.
Batchelder, W. H. and A. K. Romney
  1986   The Statistical Analysis of a General Condorcet Model for Dichotomous Choice Situations. *In* Information Pooling and Group Decision Making. B. Grofman and G. Owen, eds. Connecticut: JAI Press.
Borgatti, S. P.
  1989   Provisional Documentation; ANTHROPAC 2.6.
Bose, A., K. Vashistha, and B. J. O'Loughlin
  1983   Azarcon por *Empacho*. Another Cause of Lead Toxicity. Pediatrics 72:106–108.
Boster, J. S., and S. C. Weller
  1990   Cognitive and Contextual Variation in Hot-Cold Classification. American Anthropologist 92:171–179.
Cassidy, C. M.
  1982   Protein-Energy Malnutrition as a Culture-Bound Syndrome. Culture, Medicine, and Psychiatry 6:325–345.
Collado-Ardon, R., A. J. Rubel, C. W. O'Nell, R. H. Murray
  1983   A Folk-Illness (Susto) As an Indicator of Real Illness (letter). Lancet Dec:1362.
Foster, G. M., and B. G. Anderson
  1978   Medical Anthropology. New York: John Wiley and Sons.
Heider, K. G.
  1988   The Rashomon Effect: When Ethnographers Disagree. American Anthropologist 90:73–81.

Kay, M.
  1979   Lexemic Change and Semantic Shift in Disease Names. Culture, Medicine, and Psychiatry 3:73–94.
Kendall, C., D. Foote, and R. Martorell
  1983   Anthropology, Communications, and Health: The Mass Media and Health Practices Program in Honduras. Human Organization 42(4):353–360.
Logan, M. H., and W. T. Morrill
  1979   Humoral Medicine and Informant Variability: An Analysis of Acculturation and Cognitive Change among Guatemalan Villagers. Anthropos 74:785–802.
Low, S. M.
  1985   Culturally Interpreted Symptoms or Culture-Bound Syndromes: A Cross-Cultural Review of Nerves. Social Science and Medicine 21:187–196.
Mathews, H. F.
  1983   Context-Specific Variation in Humoral Classification. American Anthropologist 85(4):826–847.
Molony, H. F.
  1975   Systematic Valence Coding of Mexican "Hot"–"Cold" Food. Ecology of Food and Nutrition 4:67–74.
Morbidity and Mortality Weekly
  1982   Lead Poisoning from Lead Tetroxide Used as a Folk Remedy 30(52):647–648.
Murdock, G. P., S. F. Wilson, and V. Frederick
  1978   World Distribution of Theories of Illness. Ethnology XVII:449–470.
Osgood, C. E., W. H. May, and M. S. Miron
  1975   Cross-Cultural Universals of Affective Meaning. Urbana, Illinois: University of Illinois Press.
Pachter, L. M., B. Bernstein, and A. Osorio
  1992   Empacho in a Mainland Puerto Rican Clinic Population. Medical Anthropology 13(4):285–299.
Pelto, P. J. and G. H. Pelto
  1975   Intra-Cultural Diversity: Some Theoretical Issues. American Ethnologist 2:1–18.
Prince, R., and F. Tcheng-LaRoche
  1987   Culture-Bound Syndromes and International Disease Classifications. Culture, Medicine and Psychiatry 11:3–19.
Romney, A. K. and S. C. Weller
  1984   Predicting Informant Accuracy from Recall Data. Social Networks 6:19–37.
Romney, A. K., S. C. Weller, and W. Batchelder
  1986   Culture as Consensus: A Theory of Culture and Informant Accuracy. American Anthropologist 88:313–338.
Rubel, A. J.
  1990   Ethnomedicine. *In* Medical Anthropology: Contemporary Theory and Methods. T. M. Johnson and C. F. Sargent, eds. Pp. 120–122. New York: Praeger.
Rubel, A. J., C. W. O'Nell, and R. Collado-Ardon
  1984   *Susto*, A Folk Illness. Berkeley, California: University of California Press
Simons, R. C.
  1987   A Feasible and Timely Enterprise: Commentary on "Culture-Bound Syndromes and International Disease Classifications" by Raymond Prince and Francoise Tcheng-LaRoche. Culture, Medicine and Psychiatry 11:21–28.
Simons, R. C. and C. C. Hughes, eds.
  1985   The Culture-Bound Syndromes. Dordrecht, Holland: D. Reidel.
Trotter, R. T., B. R. 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.
Trotter, R. T.
  1985a Folk Medicine in the Southwest, Myths and Medical Facts. Postgraduate Medicine 78(8): 167–179.
  1985b Greta and Azarcon: A Survey of Episodic Lead Poisoning from a Folk Remedy. Human Organization 44(1):64–72.
  1991   A Survey of Four Illnesses and Their Relationship to Intra-cultural Variation in a Mexican-American Community. American Anthropologist 93:115–125.

Weller, S. C.

1983   New Data on Intracultural Variability: The Hot-Cold Concept of Medicine and Illness. Human Organization 42(3):249–257.

1984   Cross-Cultural Concepts of Illness: Variation and Validation. American Anthropologist 86: 341–350.

1987   Shared Knowledge, Intercultural Variation, and Knowledge Aggregation. American Behavioral Scientist 31:178–193.

Weller, S. C., T. K. Ruebush, and R. E. Klein

1991   An Epidemiological Description of a Folk Illness: A Study of Empacho in Guatemala. Medical Anthropology 13:19–31.

Whiting, B. B. (ed.)

1963   Six Cultures: Studies of Child Rearing. New York: John Wiley and Sons, Inc.