The Case of Curers, Noncurers, and Biomedical Experts in Pichátoro, Mexico

Resiliency in Folk-Medical Beliefs

We explore potential conceptual and cultural change in folk-medical models within a Mexican community that may have taken place over the past 30 years. Building on a study from the 1970s, we explore the effects a government-supported biomedical clinic had on the content and distribution of folk-medical concepts. Surprisingly, we find that despite a dramatic increase in access to biomedicine and a host of socioeconomic shifts opening access to new medical ideas, folk-medical knowledge in Pichátoro, Michoacán, Mexico has remained largely unchanged with respect to its distribution and content. Curers and noncurers not only agree with one another but also continue to agree with a general model held in the 1970s. It is the medical models of clinic personnel that stand out as odd within the community. Yet, despite these conceptual differences, the biomedical facilities of the town are well attended.

Globalization studies have shown that large-scale economic and social changes do not entail the simple replacement of local ideas and practices with new models (Appadurai 1996, 2001; Tsing 2004). In the field of medical anthropological research it has been shown that increasing access to and use of biomedicine does not simply lead to the replacement of folk models and treatments with biomedical concepts and practices (Cominsky 1977; Giovanni and Heinrich 2009; Kleinman 1980; Nichter 1991; Whiteford 1999). However, little research has been done comparing the content and distribution of folk-medical models across time after significant changes in access to biomedical treatment options took place. Building on research conducted in the 1970s, we explore whether and how biomedical concepts and...
their distribution have changed over the last 30 years in the Tarascan–Purépecha community of Pichátraro (Mexico).

Although our research relates to work on “cultural models,” we call models “cultural” not because they describe a uniquely shared or correct response pattern but, rather, because they are socially acquired and systematically distributed within a population. Such models need not to be restricted to or shared by everyone in a population. In fact, the purpose of our research is to understand agreement and disagreement between experts and nonexperts across time and with differential access to the biomedical system. Agreement patterns allow us to make inferences about underlying sociocultural processes, exploring the history of folk-medical concepts and their distribution within a specific population.

Two points are important. First, we need to understand both change and resiliency as emergent phenomena, rather than concentrating on change as a process and stability as the assumed state of affairs. Second, we need to describe macrolevel processes as the outcome of interacting microprocesses (on the level of the individual). Microlevel processes need to be understood within the context of their specific social and cultural conditions (incl. the macrolevel phenomena), as well as the specific cognitive mechanisms at work. Culture thus becomes an emergent phenomenon to be analyzed, rather than a static unit to be described and compared (Medin et al. 2002; Ross 2004; Sperber 1996).

This has important consequences. To achieve agreement across generations, for example, concepts and models must be transmitted across time and individuals. As such we need to explore the processes of knowledge formation, acquisition, and transmission (Atran et al. 2005). Given the uncertainty of information transmission and the fact that learning comprises both (often faulty) copying, as well as active knowledge production (Atran et al. 2005; Ross and Medin 2011; Ross et al. 2011), change across individuals and generations can no longer be seen as an exception. Instead, it is the continuity of ideas, models, and values that needs our special attention. If we understand culture as more or less shared aspects of causally linked individual cognitions and their material expressions (Ross 2004), we need to study the content, structure, and channels that relate to information transmission and knowledge production. In this scenario, cultural change can take the form of (1) conceptual change (content and structure of knowledge), (2) change of agreement patterns both between individuals and generations, or (3) any combination thereof.

A first step in understanding these processes consists of exploring respective shifts in content and agreement patterns within a population over time. Next, we need to understand change and continuity with respect to underlying social and cognitive processes. These two steps are the main targets of the present study.

Background

In the 1970s, Young and Garro described therapeutic decision making in Pichátraro, Mexico (Young 1978, 1980; Young and Garro 1982). Garro (1986) specifically explored whether traditional healers hold specialized knowledge, or whether they are simply more expert with respect to a common body of knowledge. She administered a structured interview to female curers and noncurers asking 18 causal, symptom, and treatment questions for 22 illnesses. Curing in Pichátraro does not involve
supernatural forces and consists basically of an experience-based extension of home remedies (both herbal remedies and massage). Curers are essentially individuals who are called on based on their knowledge and accumulated reputation, yet they do not charge for their services.

Curer and noncurer women shared a common model, with curers agreeing more with one another than with noncurers or than noncurers agreed with one another. Older noncurers agreed more with curers than their younger counterparts (also Garro 1986, 2000), indicating that curers’ conceptual models and practices constituted a refinement of generally accessible knowledge.

At the time of the study, Pichatareños had only limited access to biomedical services in the nearby city of Pátzcuaro, allowing Young and Garro (1982) to compare existing concepts and therapeutic decisions with Uricho, a neighboring community with a governmental health center in the community, thus providing much greater access to biomedical resources. Although they identified shared folk-medical models, clear differences in treatment decisions emerged based on differential access to biomedical treatment options. Apparently, existing folk-medical models did not prevent people from attending to biomedical experts, nor did attending biomedical experts affect existing folk-medical models. Although these data speak directly to the questions asked in this article, Young and Garro do not mention for how long biomedical resources had been utilized in Uricho. Given overall governmental policies in Mexico (see below) we suspect that in the 1970s this might have been a fairly recent phenomenon, and hence one could argue that there might simply not have been enough time for conceptual and resulting cultural change to take place. Based on their comparative work, Young and Garro suggest that if Pichátaro gained better access to biomedicine, treatment patterns might change; yet they do not predict what might happen to folk-medical concepts. Change has happened in ways that prove Young and Garro right. Today Pichátaro has a clinic in the center of the town as well as several pharmacies. Because of improved road conditions, additional biomedical services are available in nearby cities. The clinic was opened in Pichátaro shortly after the initial study took place, making for approximately 30 years of heavy biomedical presence in town. Both the clinic as well as the pharmacies are well attended and form the most important treatment option in town (see below). However, while Pichatareños make ready use of the biomedical treatment options, it remains unclear whether or not their folk-medical models as well as the distribution thereof have changed correspondingly.

To answer these questions we returned to Pichátaro in 2007–08 for a six-month field project. The goals were to document (1) how the community had changed over the past 30 years, and (2) how these changes might have affected both the content and distribution of folk-medical knowledge. In addition to curers and noncurers, we extended our research by interviewing biomedical experts in the community to trace potential shifts toward the biomedical model.

Patterns of Conceptual Change

We envisioned several potential outcomes. First, exploring newly available treatment options, nonexperts might be strongly influenced by the penetration of a biomedical system. Curers, in comparison, might be less willing to accept new models as this
may entail a loss of authority. This outcome relates to what Landy (1974) calls (1) the *adaptive role*, curers attempting to maintain authority by specializing in supernatural or spiritual illnesses or (2) the *attenuated role*, in which curers continue their traditional roles, accepting diminished prestige and limited roles in relation to biomedicine. In either scenario, noncurers today should agree more with biomedical experts, differing both from noncurers from 30 years ago and from today’s curers, who would continue to agree with the model from the 1970s. One might term this model the *cultural erosion model* (Edwards and Heinrich 2006), undermining the role of curers. Given the high utilization rates of the local clinic and pharmacies, this outcome is a strong possibility.

Second, following the literature on expertise in the cognitive sciences (Bailenson et al. 2002; Medin et al. 1997, 2002), curers and biomedical personnel might agree with one another on the basis of their expertise. In this scenario, the three groups would agree with one another, with curers and biomedical experts sharing higher agreement. In the 1970s, older women agreed more with experts on a folk model that integrated biomedical concepts like contagion and the effectiveness of biomedical remedies (Garro 1986), lending support to the likelihood of what we term the *expertise model*.

Third, curers might consciously maintain their special status as medical experts by either constructing new forms of healing or by including aspects of biomedical models. In the former, curers should come out as the odd group, different from both noncurers and biomedical experts alike, while in the latter they should be closer to biomedical experts, yet different from noncurers. We term this the *invention of tradition model* (Hobsbawm and Ranger 1983) or *emergent roles* (Landy 1974:992).

Shaded variations of these three models exist, yet they each indicate significant differences in underlying social processes linked to the construction and transformation of cultural models over time. Finally, there is the possibility that patterns of agreement or content of knowledge may not have changed significantly. In this scenario noncurers and curers would still share essentially the same model from the 1970s, yet differ substantially from biomedical experts. We term this model the *cultural resiliency model*. This model represents numerous anthropological traditions that took (and take) continuity as the norm and change as the exception.

Given the high acceptance of the clinic and general changes in lifestyle, education, economics, and access to biomedical resources (described below), a broad impact of the biomedical system on folk models seemed to be the most likely outcome. It is, however, important to note that our study focuses on illness concepts and their content, rather than treatment practices. Still, the ethnographic record on illness beliefs and practices shows that beliefs and practices do change over time, often reflecting integration and syncretism of multiple medical systems (Baer et al. 2004; DeWalt 1977; Giovanni and Heinrich 2009; Nigenda et al. 2001; Whiteford 1999). It is in this line of research that we locate our own work.

The National Health Project

Of course, one cannot discuss changes on the community level without looking at the Mexican State. In the late 1930s, Mexico pursued a policy of mexicanization of the indigenous population. To improve health conditions in rural areas a network
of medical services was established (Freyermuth 1992; Page Pliego 2002). By 1945, an academically trained medical profession became the exclusive body to practice medicine in Mexico, denouncing the traditional curing methods not only as ignorant and backward but also making other healing practices illegal (Page Pliego 2002:28–29). As a result, curers were often persecuted and imprisoned and thereby pushed into clandestine existence (Campos-Navarro 1996:62).

A less violent approach to institutionalize change and acculturation was enacted in 1949 with the creation of the Instituto Nacional Indigenista (INI), yet the goal remained the same: through educational programs, the provision of services, and economic incentives, the INI sought to transform the indigenous sector of the population to conform with the wider Mexican society (Favre 1973; Villas Rojas 1976). These policies included a special focus on medicine and sanitation. It should therefore not come as a surprise that the head of the INI and one of Mexico’s foremost anthropologists, Gonzalo Aguirre Beltrán, was not only a medical anthropologist but also an important politician dedicated to the acculturation of indigenous people (Aguirre Beltrán 1980, 1986).

In short, a negative attitude toward indigenous people and their ways of life guided official policy until the mid-1970s (Page Pliego 2002:29), when Mexican state policy took a populist shift. Financed mainly through oil money, this shift was partly an effort to appease a largely discontent population (a student demonstration and the massacre at Tlateloco, Mexico City, had just occurred), but also followed international policy changes (the Declaration of Alma Ata and focus on Primary Health Care). Acculturation and mexicanization of indigenous people were—at least on discourse level—replaced with ideas of ethnic pluralism and the rights of indigenous people (see Bonfil Batalla 1987; Ross 1997). Ideas of participatory politics, but also the realization that most development countries were not able to provide health and sanitary services to all of their citizens, led international organizations such as the WHO to propose the incorporation of traditional curers into the work of government-organized biomedicine.

It is also in this era (ca. 1979) that the Mexican Institute for Social Security created the IMSS–Coplamar program, which provided medical services to individuals lacking medical insurance. As part of this program the clinic in Pichátaro was established. Of course, there is much more to say about the development and changes as well as the underlying legal guidelines of the Mexican health system (see Page Pliego 2002 for a good overview). However, for the purpose of this article, it is important to note that the clinic in Pichátaro was not established with the intention to interrupt folk-medical knowledge or services. Especially in the 1980s—because of the Mexican financial crisis caused by dropping oil prices—rural populations increasingly relied on local knowledge and local medical systems to supplement the state-organized health care.

This is important for the present article. Providing extensive biomedical services to local communities happened at a time when the political discourse of integration of indigenous people had already given way to talks of a multiethnic nation. This together with the lack of federal funds restricted the initial impact of rural clinics in places such as Pichátaro, a clinic that is nowadays very well attended. We now turn to a description of Pichátaro as it presents itself today to the visitor.
Pichátaro Today

Pichátaro is a small Purépecha town (4,600 people) within the municipality of Tingambato, Michoacán. Although the community remains nearly the same size as in the 1970s, it has greater access to the nearby city of Pátzcuaro (50,000 urban inhabitants; see Instituto Nacional de Estadística y Geografía [INEGI] 2005), as well as the larger towns of Cheran and Uruapan, each with significant tourism and handicraft markets.

As of 30 years ago (Durand et al. 2001), the use of the Purépecha language is limited to the oldest residents, and, despite some efforts to teach Purépecha in schools, most individuals are monolingual Spanish speakers. People are aware of their indigenous roots, yet ethnic identity is not a salient aspect of everyday life, nor is it a source of conflict with urban mestizos (Farr 2006; Gisbert et al. 1994). We never heard complaints about subtle or open racism of the mestizo doctors or medical staff in the clinic (as observed in other parts of Mexico). Again, this apparently was not any different in the 1970s (Garro 2000; Young 1978, 1980; Young and Garro 1994). Other things, however, have changed.

Pichatareños shifted away from agriculture as their primary subsistence base. Today, most families work in the construction and commercialization of rustic furniture, the service and transportation sector, or local and regional commercial activities. This shift is in part a result of increased access to markets through a paved road, electricity, and the increase in tourism to the area. Education has increased, but attendance is highly influenced by gender roles and expectations; many women are functionally illiterate or reported only attending school for part of the first grade. According to the 2005 census, 21 percent of women in Pichátaro were illiterate (compared to 12.7 percent of men). Overall, 49 percent of the community members had less than basic education (primaria, or primary school; see INEGI 2005).

Migration has also become a major survival strategy. Michoacán has long been a key sending state to the United States (Durand et al. 2001). According to our census 25 percent of the households in Pichátaro had at least one member who was a current or returned migrant. Effects of transnational migration include the flow of goods and information as well as altering patterns of family and communal life (Farr 2006; Gisbert et al. 1994; Pribilisky 2007). In general, young Pichátaro men migrate to the United States for three to five years, sending remittances back to family members in the community. Remittances provide funds for education, house construction, businesses, and the subsistence of families. They clearly affect the health indices in the sending communities leading to lower mortality rates over time (Kanaiaupuni and Donato 1999). Higher wealth at a young age allows couples to create separate households much earlier than in the past. With the men in the United States, many young mothers become de facto household heads for most major household decisions. Data from other parts of Mexico show that these changes often lead to a more equitable investment of household income and marked improvement of the health status of female children (Chant 1991; Donato et al. 2003).

Changes in the Health Landscape

The ethnographic accounts of illness episodes we collected share many commonalities with those collected by Young and Garro, and are similar to accounts in other

Initial treatments are often home based, using herbal medicines or pharmaceuticals, which might either be purchased at local stores or pharmacies or simply left over from previous illness episodes in the family. More advanced and chronic illnesses are treated in clinics, pharmacies, or with local healers. Although many illnesses are caused by bodily imbalance, specific causal pathways can be complex, drawing on a number of possible forces (Garro 2000; Young and Garro 1994). Imbalance is most commonly brought about by exposure to natural phenomena such as cold air, wetness, or extreme heat, or by improper care of the body, such as eating at the wrong time or eating the wrong types of food. For example, the local illness of *latido* arises from not eating at the proper time, delaying eating too long, or eating at dangerous times (around 3 p.m. when the day’s heat is at its highest). Bodily imbalances can also be related to extreme emotions such as terror–fright (*susto*) or anger–irritation (*coraje*). Witchcraft or ill wishes exist but play a causal role only in a small number of illnesses such as *mal de ojo*. Ethnographic accounts and clinic records indicate that gastrointestinal diseases and diseases of the respiratory system are the most common medical problems. Most occurring diseases fall into one of these two categories, although hypertension and diabetes are increasingly salient, driven in part by a change of diet and activities as well as governmental attention and increased testing.

Despite similarities in the recognition and prevalence of illnesses in Pichátaro, what has changed is the population’s access to medical resources. As noted earlier, in the 1970s, Pichatareños did use biomedical resources and had exposure to biomedical conceptual models (Young and Garro 1994; Weller 1984); access, however, was very limited. Shortly after the initial study, the state constructed a clinic, which has developed into a well-accepted medical unit (open daily) providing free medical care to beneficiaries of the conditional cash transfer program *Oportunidades*, to which a majority of the community belongs. Three doctors, three nurses, and one dentist (with an on-call doctor after hours) staff the clinic, providing preventative and curative services. All but one of the medical professionals are from Pichátaro or other Purépecha communities in the area. The *Oportunidades* program is a conditional cash transfer program that offers an array of economic and social resources for beneficiaries, most of which are compulsory to qualify and continue in the program (Hanlon et al. 2010). These compulsory requirements include annual physical examinations for all household members, with more frequent checkups required of infants, children, the elderly, and chronic illness sufferers (high blood pressure and diabetes, in particular). Monthly health information talks are also required; furthermore, the clinic is charged with collecting information about whether requirements are being met (both on matters of health and school attendance requirements). Medical information is also disseminated through school extension work and home visits for vaccinations. Again, all of these practices were introduced after the initial study and have become the standard in the community today.

In addition to the clinic, five private pharmacies also provide diagnostic consultations and dispense medications. Pharmacy workers are positioned between local and biomedical systems, providing diagnosis and treatment often despite the lack of formal training or certification (Ferguson 1981). Finally, paved roads linking
Pichátaro with the cities of Pátzcuaro, Cheran, and Uruapan opened access to public and private hospitals, clinics, and pharmacies of the wider region. These changes have made the ambulant pharmaceutical dispensers, who visited Pichátaro on a regular basis, obsolete (Young and Garro 1994:775). Curers continue to practice in Pichátaro today. As in the 1970s, their work does not include prayer-based healing as known in other areas of Mexico (see Ross 1997 for an example from the Maya region, and Anzures y Bolaños 1995 for a general discussion of shamanism in Latin America), but is based on herbal medicine and massage. We identified nine curers, all women, compared to at least 15 women identified as curers in the 1970s. This decrease in curers is also reflected in a decrease of instances in which curers participate in treatments (from 13 percent reported by Young and Garro [1994:108] to 3 percent in 2007), indicating a dramatic drop in reliance on curers, although the range of their activities remains similar to that of the past.

Above we mentioned the important role migration has had in the community, and one might wonder whether migration has an important impact on folk-medical models in the community. In this context it is important to consider the specific pattern of transnational and regional migration in this community. Although returning young men clearly come equipped with new ideas (incl. ideas about business, tourism, and middle-class life aspirations from their experiences in the United States) and skills (ranging from language skills to skills in construction and woodwork), it is important to note that young single male Mexican migrants rarely get much exposure to the medical system and biomedical models proposed in the United States. In parallel research among Mexican migrants living in the greater Nashville area (see Maupin et al. 2011; Ross et al. 2011) we found that young male migrants rarely consult doctors or attend community-based educational programs. Often sharing apartments with other men, this sector of the population relies much more on their older peers for advice, or simply purchase over-the-counter medication based on the instructions provided on the labels. Also, Mexican stores often provide over-the-counter medication from Mexico, with which most people are familiar. Furthermore, the fact is that these young men usually watch Mexican and other Spanish-language programming in their free time, and hence the information received through commercials is not different from what inhabitants of present day Pichátaro receive. This is quite different for migrant families living in the United States. Mothers taking care of their children and receiving health-related information through the school system are much more exposed to the biomedical models proposed through these channels. In addition it is mostly migrant mothers who seek out and share information about available free medical care, often facilitated through churches or local NGOs in addition to volunteer programs provided by clinics. In fact, we found women on average to agree more with biomedical staff than their male peers (Maupin et al. 2011). But again, this is not the kind of migration emerging from Pichátaro.

Methods

Following Young and Garro (1994), we interviewed all available curers and ten nonexpert females matching the number and age of the participants in the original study (see Table 1). All were born and raised in Pichátaro, although some had migrated at times to larger cities, including Mexico City and Pátzcuaro. We extended
Table 1. Study Participants

<table>
<thead>
<tr>
<th>Group</th>
<th>n (gender)</th>
<th>Mean Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noncurers</td>
<td>10 (female)</td>
<td>46</td>
</tr>
<tr>
<td>Curers</td>
<td>6 (female)</td>
<td>52</td>
</tr>
<tr>
<td>Biomedical personnel</td>
<td>5 (5 female, 1 male)</td>
<td>32</td>
</tr>
</tbody>
</table>

our study by interviewing all biomedical personnel available (two medical doctors and three nurses). One doctor (clinic director) was on his required rural service rotation from Uruapan. The remaining biomedical personnel were from Pichátaro or the neighboring hamlet of Huiramangaro. Nonexperts were selected by a convenience sample across the community. The sample was carefully age matched to the original study. This was not done to tap into women with presumably similar life experiences as the original sample but, rather, to test whether women today would have similar life circumstances leading to similar folk-medical knowledge. Numbers for curers and biomedical practitioners are necessarily small, yet such small sample sizes are permitted in the Cultural Consensus Model if individuals show high agreement (Boster and Johnson 1989; Nakao and Romney 1984; Romney 1999; Romney et al. 1986; Weller and Romney 1988; Weller 2007).

We conducted several interviews, with the main focus being the direct restudy of Young and Garro’s sentence frame interview providing the core set of data for the present study on conceptual change. Sentence frames provide a detailed perspective on a domain, allowing for straightforward analyses with respect to knowledge content and its distribution. For comparative purposes we used the same 22 questions and 18 illnesses as described by Garro (1986), resulting in 396 questions (see Tables 2 and 3 for the illnesses and questions included in the interviews). Questions were framed to elicit underlying concepts (Can you treat X with home remedies?) rather than behavior reports (Do you treat X with home remedies?). Interviews lasted an hour and all participants were reimbursed for their time.

We used the cultural consensus model (CCM) to measure the existence of a consensus among groups of participants and the extent to which an individual agrees with the overall model (Nakao and Romney 1984; Romney 1999; Romney et al. 1986; Weller 2007) The CCM is a factor analytical technique that explores the observed participant agreement matrix in terms of variance explained by the first factor. Consensus can be assumed if (1) the ratio of first- and second-factor eigenvalues is greater than three, (2) the first factor explains a large amount of variance, and (3) all participants’ first-factor loadings are high and positive. To be sure, there are several strategies for pursuing the consensus model. What has been called “the formal model” (Romney et al. 1986; Weller 2007) is a mathematical model to estimate individuals’ true knowledge levels. Here, the researcher assumes that there is a “cultural truth” from which all participants draw and thus there are “correct” answers to each question, all questions have the same level of difficulty, and responses have to be adjusted for guessing. In an exploratory research such as ours this is impossible. Not only can we not assume the existence of “correct answers,” but there is also no way of knowing the difficulty of any given question. Furthermore, while guessing might occur, it is not clear whether guessing occurs...
Table 2. Illness Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enfermedad de corazón</td>
<td>Heart illness</td>
</tr>
<tr>
<td>Empacho</td>
<td>Digestive blockage</td>
</tr>
<tr>
<td>Cólico</td>
<td>Colic; Sharp stomach pains</td>
</tr>
<tr>
<td>Mollera Caída</td>
<td>Fallen fontanel</td>
</tr>
<tr>
<td>Disentería</td>
<td>Dysentery</td>
</tr>
<tr>
<td>Calor Subido</td>
<td>Risen heat to head</td>
</tr>
<tr>
<td>Gripa</td>
<td>Cold or flu</td>
</tr>
<tr>
<td>Desposiciones</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Sofocado de estómago</td>
<td>Bloating</td>
</tr>
<tr>
<td>Latido</td>
<td>Palpitations in the upper stomach</td>
</tr>
<tr>
<td>Broncomonía</td>
<td>Bronchopneumonia</td>
</tr>
<tr>
<td>Anginas</td>
<td>Swollen glands in the neck</td>
</tr>
<tr>
<td>Bilis</td>
<td>Bile illness caused by emotions</td>
</tr>
<tr>
<td>Punzadas</td>
<td>Sharp headaches</td>
</tr>
<tr>
<td>Pulmonía</td>
<td>Pneumonia</td>
</tr>
<tr>
<td>Mal de ojo</td>
<td>Evil eye</td>
</tr>
<tr>
<td>Fogazo</td>
<td>Fever sores</td>
</tr>
<tr>
<td>Bronquitis</td>
<td>Bronchitis</td>
</tr>
</tbody>
</table>

Note: Translation of illness terms based on Garro (1986:355) and Young and Garro (1994).

Table 3. Question Themes

<table>
<thead>
<tr>
<th>Causal Questions</th>
<th>Symptom Questions</th>
<th>Treatment Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can X illness come from</td>
<td>With X illness do you have</td>
<td>Can you treat X with</td>
</tr>
<tr>
<td>anger</td>
<td>chest pains</td>
<td>home remedies</td>
</tr>
<tr>
<td>cold</td>
<td>headaches</td>
<td>medical remedies</td>
</tr>
<tr>
<td>heat</td>
<td>fever</td>
<td>hot things</td>
</tr>
<tr>
<td>walking without shoes</td>
<td>loss of appetite</td>
<td></td>
</tr>
<tr>
<td>leaving a hot area and entering cold air from eating hot things from a aire (air, wind) microbes</td>
<td>stomachache</td>
<td></td>
</tr>
<tr>
<td>not eating at the right time eating fresh things getting wet witchcraft contagion from other people fear</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

in a truly random fashion (flip of a coin) or whether individuals follow specific patterns—maybe even group-specific patterns (see Medin et al. 2006; Ross 2004 for adjustment for guessing based on response bias; and Ross et al. 2011 for cultural processes involved in knowledge production).

The “informal method” is based on a factor analysis over an agreement table, where agreement consists of the Pearson correlation coefficient (Weller 2007).
Here, agreement is not adjusted for guessing. We opted for a somewhat in-between solution (previously explored by Medin et al. 2006; Ross 2002, 2004). Given our data (binary responses are not suitable for correlation analyses) and our interest in residual analysis, we opted to calculate agreement by matching answers (see below). For one set of analyses we used agreement adjusted for guessing to gain formal justification to aggregate the data across individuals. Given the above discussion on guessing, we conducted a second line of analysis where agreement was not adjusted for guessing. This line was followed to explore the existence of residual agreement across groups. It is important to note that random guessing increases the appearance of agreement yet does not affect its distribution. In other words, we need to adjust for guessing when we argue about the strength of agreement (common model), yet adjusting for guessing is not imperative when we explore the distribution thereof.

Our analysis of residual agreement explores the agreement not explained by two individuals’ participation in the overall consensus (Ross 2004; see also Boster and Johnson 1989). Rather than artificially aggregating the data into one synthetic cultural model, we are interested in understanding which aspects of folk-medical knowledge are shared by whom and why. Systematic disagreement is not treated as noise, but as signaling important processes. In fact it is the distribution of agreement, rather than the existence of group specific consensus, that is the focus of our research.

The sentence frame questions resulted in an illness-by-question matrix for each participant, filled with either 1 (YES) or 0 (NO). Individual matrices were compared across individuals (average agreement across all questions), resulting in an informant-by-informant observed agreement matrix. The rationale is threefold: first, within the context of person-by-person interviews, guessing is rarely taking place in a random fashion. Second, the adjustment for guessing simply lowers agreement overall, yet it does not affect the distribution of agreement–disagreement across informants. Third, given the small \( n \) in our studies, we wanted to keep the resolution for finding differences in agreement–disagreement high. However, we conducted consensus analysis for each group using a matrix adjusted for guessing. These data provide us with the justification to aggregate the data on the group level for comparisons of modal group responses. The resulting agreement matrix provided the input for principal component analyses exploring the existence of a consensus (1) across all three groups of study participants, (2) across each of the two pairs of groups, and (3) for each group individually. These group comparisons themselves rest on statistical analyses that do not require the existence of a consensus.

We explored the existence of subgroups based on patterns of residual agreement. Residual agreement is calculated by subtracting predicted agreement (the product of two participants’ individual agreement with the consensual model) from observed agreement. The resulting agreement matrix can be explored with respect to specific group differences (is within-group residual agreement higher than between-group residual agreement?).

Distribution of residual agreement does not have to be symmetrical; that is, members of one group might agree more with their peers than with members of the other group but not vice versa (see Medin et al. 2006, for an example). In this case, the first group holds a submodel not shared by the members of the second group, which
Table 4. Cultural Consensus Analysis Results

<table>
<thead>
<tr>
<th>Groups Compared</th>
<th>1st:2nd Eigenvalue Ratio</th>
<th>Variance Explained</th>
<th>Mean 1st Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>17.5</td>
<td>78%</td>
<td>0.88</td>
</tr>
<tr>
<td>C</td>
<td>11.1</td>
<td>78%</td>
<td>0.88</td>
</tr>
<tr>
<td>MP</td>
<td>14</td>
<td>84%</td>
<td>0.91</td>
</tr>
<tr>
<td>NC v C v MP</td>
<td>10</td>
<td>72%</td>
<td>0.85</td>
</tr>
<tr>
<td>NC v C</td>
<td>20.5</td>
<td>76%</td>
<td>0.87</td>
</tr>
<tr>
<td>NC v MP</td>
<td>7.7</td>
<td>72%</td>
<td>0.85</td>
</tr>
<tr>
<td>C v MP</td>
<td>8.7</td>
<td>74%</td>
<td>0.86</td>
</tr>
<tr>
<td>Causal questions</td>
<td>6.9</td>
<td>67%</td>
<td>0.82</td>
</tr>
<tr>
<td>Symptom questions</td>
<td>5</td>
<td>64%</td>
<td>0.80</td>
</tr>
</tbody>
</table>

Note: NC = Noncurers, C = Curers, MP = Biomedical personnel; the final two rows include all three groups.

does not have a group–specific submodel. Residual analysis also allows us to explore whether specific personal attributes predict higher residual agreement. Combined, these analyses provide powerful tools to explore the structure and distribution of domain-specific knowledge.

Unfortunately, we were not given access to the original data. However, using the published results of the original study by Young and Garro (1994), we were able to reconstruct a group response, permitting us to compare the different models held by sectors of the population today with an average model held by noncurers in the 1970s. These data allow us to determine which aspects of folk-medical knowledge have changed within which sectors of the community and to make inferences about the underlying processes of change.

Results

For each of the three groups we find a strong consensus, providing the formal justification for group comparisons (see Table 4). Next, we explored whether consensus exists (1) across all three groups combined, and (2) for each individual pair of groups. We were specifically interested in whether (1) curers and noncurers still share a common model, (2) biomedical personnel share this model, and (3) either curers or noncurers agree more with the biomedical personnel.

As mentioned, we also conducted the consensus analyses over agreement adjusted for guessing. We continue to find consensus, albeit significantly lower, formally allowing us to aggregate the individual data into group modal responses for comparison. In all the cases the ratio of first- and second-factor eigenvalue is greater than three, and variance explained by the first factor is greater than 45 percent. In all but the medical personal the average first-factor score is 0.5 or higher. In the case of the medical personal our \( n \) is extremely low yet includes all available medical personal working in the community. In this case the average first-factor score is 0.33, which we call borderline consensus given the small \( n \).

As mentioned above, for the purpose of this study existing consensus is not as important as the relative agreement and disagreement across the groups. These
First it is important to note that the three-group consensus is paired with significant group differences on first-factor loadings. Biomedical personnel have significantly lower first-factor loadings than curers and noncurers who do not differ from one another. This indicates that biomedical personnel on average agree less with the common model than noncurers and curers do. Biomedical personnel also differ significantly on their second-factor loadings, indicating the existence of a submodel compared to both noncurers and curers. Curers and noncurers still share a common model. The data suggest that if change has occurred because of the presence of biomedicine, the results are at best subtle. Next we undertook three paired group comparisons.

Analysis of agreement between noncurers and curers constitutes the core of our restudy. We find strong consensus between the two groups (see Table 4) and no group differences with respect to the distribution of first-factor scores. Additionally individuals’ first-factor loadings are unrelated to a person’s education, literacy, or ability to speak Purépecha. These data reflect the above finding that curers and noncurers form one group when compared with biomedical personnel. Analysis of residual agreement revealed curers to agree significantly more with one another than with noncurers, but not vice versa. This indicates subtle expertise differences, with more expert individuals sharing a model, which is partially known to the rest of the community. That this difference is expertise related is signaled by the fact that the number of children a (noncurer) woman has—an index of practice-related expertise in folk medicine—predicts her residual agreement with curers. This is essentially what Garro found 30-some years back. Interestingly, we do not find a direct correlation between the age of a noncurer and the agreement of a noncurer with the curers. Unfortunately Garro (1986) does not provide the number of children each noncurer she interviewed has had. We suspect that at the time of her research a strong correlation existed between the number of children a woman had and her age. Given new patterns of migration and education, and related changes in gender roles and the ideas of family, we suspect that these relations have changed quite a bit, to the extent that we do not find the age of a woman to be correlated with her agreement with curers—for the small n, this is.

Noncurers and biomedical personnel share a consensual model (see Table 4). Residual analysis reveals that both groups hold individual submodels not shared with the other group. Curers and biomedical personnel also share a consensual model (see Table 4). Residual analysis revealed the existence of group-specific submodels for both curers and biomedical personnel.

Analysis of the Content of Group Submodels

As mentioned, we reconstructed a modal response from the 1970s for 256 of our 396 questions. This reconstructed model is based on responses from six noncurer women and four men. Comparing this model to our own data, we find that the modal responses of both contemporary curers and noncurers are more similar to the 1970s responses than to those of today’s biomedical personnel. Agreement between
today’s models of curers and noncurers is about the same as the agreement between each group’s model with the 1970s model. Biomedical personnel are the odd group out both with respect to contemporary curers and noncurers as well as the 1970s model. This indicates that the models of curers and noncurers remained remarkably stable and that despite the access of the biomedical facilities and knowledge, the new generation of curers and noncurers has acquired knowledge similar to their peers some 30 years ago.

To locate the sources of agreement and disagreement we explored the responses to our sentence frame questionnaire according to questions regarding (1) causes (252 questions), (2) symptoms (90 questions), and (3) treatments (54 questions). Only for questions related to causes and symptoms did we find consensus across the three groups (see Table 4). Although we expected to see consensus on symptom questions, as these are largely directly observable phenomena indicating illness, we were somewhat surprised that biomedical personnel agreed with curers and noncurers on causes for illnesses as well. However, in both cases this agreement is paired with systematic group differences. Compared to the other two groups, medical personnel tend to reject ideas that cold, heat, and dampness can cause illnesses. Similarly, while curers and noncurers tend to associate the loss of appetite and fever with illnesses in general, medical personnel have a more differentiated view of these symptoms, attributing them to fewer illnesses. Within this folk system eating correctly and avoiding extreme temperature are measures to prevent illness. The consensus found across the three groups lies largely in the fact that all groups rejected certain causes and symptoms for specific illnesses—such as “can walking without shoes cause heart disease?”

In treatment questions, we find consensus only for curers and noncurers together. Biomedical personnel hold their own consensus not shared with either of the other groups. One aspect of these differences is to be expected, namely that biomedical personnel reject certain folk treatments, such as hot remedies, and folk illnesses not recognized by biomedicine, including mal de ojo and latido. Surprisingly curers and noncurers attribute greater healing efficacy to biomedical treatments than biomedical personnel. This indicates that disagreement with the biomedical system is not related to a rejection of it but, rather, the opposite: hyper-confidence. Lay people think of biomedical cures as potentially more effective for a wider range of illness than do the biomedical experts. Although the impact of this conceptual difference on actual treatment behaviors remains to be explored, the general finding is supported by the fact that the biomedical facilities are well attended.

Finally, we examined differences between curers and noncurers. Differences between these two groups arise largely from noncurers’ tendency to respond affirmatively to more questions than curers, who again seem to have a more differentiated view. For example, noncurers associated a headache with more illnesses than curers. This may arise from curers’ more detailed knowledge of illness symptoms and noncurers’ more generalized concept of illness itself, rather than specific illnesses. Both groups equally attribute high effectiveness to pills and other biomedical treatments dispensed in the clinic or local pharmacies, yet differ significantly on more traditional treatments including the effectiveness of home remedies and the inclusion of the “hot–cold” system for treatment. Interestingly, noncurers are significantly
more likely to accept the curing power of home remedies and the influence of the hot–cold humoral system than curers. We see this as another instance of hyperconfidence by lay people.

Discussion

In this study we set out to explore four different potential models of how the content and distribution of folk-medical knowledge might have been affected by the presence of a clinic in Pichátaro, Mexico. First, we presented the cultural erosion model, where curers may be regarded as the “traditional sector” of the community with nonexperts increasingly accepting the biomedical system and conceptual model. Although there is a clear decrease in the number of curers and their use, neither the folk-medical models of curers nor those of noncurers have been significantly altered by the presence of biomedicine. Second, we suggested the expertise model as a potential outcome in which both biomedical and folk-medical experts would agree more with one another based on their experience. Expertise clearly is an important dimension with respect to the distribution of folk-medical knowledge in Pichátaro, and folk concepts revealed by the original study do not stand in opposition to biomedical models. Ideas of contagion and the general effectiveness of biomedical remedies were part of a widely shared conceptual model even prior to the advent of local and accessible biomedical resources (Weller 1984; Young and Garro 1994). However, despite some general similarities, curers in Pichátaro clearly agree more with the noncurers of their community than with the biomedical personnel, leading us to reject the expertise model. Third, we suggested an invention of tradition model, arguing that curers might consciously act to maintain their special status by either constructing new forms of healing or by including aspects of the biomedical model. Neither of this seemed to have happened. Curers continue to agree with noncurers today and the folk-medical models of the 1970s. They disagree with biomedical personnel to the same extent as noncurers do. Curers interviewed by Garro in the late 1970s in Pichátaro did not rely on any sacred special status, a calling, or powers relating them to the supernatural (see Page Pliego 2005, 2006 for a different case from southern Mexico). Therefore it is not surprising that new generations of curers did not resist the introduction of a new system. Fourth and finally, we discussed the possibility of what we called the cultural resiliency model, in which neither the distribution nor the content of knowledge would have changed systematically over the last 30 years. Noncurers and curers would still share essentially the same model as some 30 years ago, yet both might differ substantially from biomedical experts. This is essentially what our data reveal. Not only do curers and noncurers continue to share a model, but also this model is in basic agreement with the model held some 30 years ago, yet it differs systematically from the models of biomedical experts of the community. Again, this has to be seen in terms of acquired models. Knowledge and models are not just passed on as a disease or acquired like one gets a sunburn. Instead, models and knowledge are actively created by individuals within specific sociocultural contexts. From such a perspective, resiliency of folk-medical models is indeed surprising.

Over the past 30 years, Pichátaro has experienced huge changes directly altering biomedical treatment options of community members. As a result, matching ages
and gender does not recreate life circumstances, yet looks at related changes in a more systematic fashion. As a result, we expected large changes with respect to folk-medical models of curers and noncurers. Yet, with respect to folk-medical knowledge explored in our research, this has not happened. After 30 years, a new generation of curers and noncurers not only agree with one another but also with the model held by their peers some 30 years ago. Despite a huge impact in the treatment of illnesses, biomedical personnel are the odd group out with respect to medical models.

As expected, biomedical personnel reject certain traditional treatments. Much to our surprise, curers and noncurers attribute significantly more efficacy to biomedical remedies than biomedical experts do. This may explain why biomedical facilities are well attended. We find similar expertise differences with respect to the judged effectiveness of home remedies. Noncurers overestimate the healing power of such treatments when compared to curers. Our data fit recent accounts of culture and expertise as well as knowledge acquisition across culture and expertise in the cognitive sciences (Medin et al. 2002, 2006; Ross et al. 2003). This research indicates that knowledge is acquired in culturally specific ways, along frameworks provided by implicit cultural theories. The advent of a clinic seems not to have affected these wider frameworks and hence the acquisition and generation of knowledge and the development of culture-specific expertise seem to continue within the same frameworks—significantly different from the biomedical model.

These findings are somewhat surprising as responses to our questions—judgments about illnesses, their causes, symptoms, and treatments—do not form part of a general public discourse to be observed or copied by members of the community. As a result, participants generated responses on the spot, making agreement and the systematic disagreement we found even more surprising.

We want to underscore the fact that the hyperconfidence in biomedical treatments predates the clinic, confirming the cross-community findings by Young and Garro (1982), who reported access-driven differences in treatment choices despite common folk-medical models. Curers, noncurers and biomedical personnel are linked by a common belief system of cause and symptoms, allowing the integration of new treatment options without challenging the general framework of beliefs and expertise.

We suggest several reasons for this phenomenon. First, differences are largely located in the domain of treatments, rather than causes or symptoms of diseases. We argue that causes and symptoms are much more essential to illness concepts than treatments. Causes and symptoms are used to identify and classify illnesses, while treatments are usually based on these identifications. Treatments can be changed without necessarily affecting the overall structure of the illness concept. Thus, the advent of new treatment options did not challenge existing notions of folk medicine. This is in essence what many of our participants said when describing pills as the modern version of herbal teas. Second, certain folk illnesses, such as mal de ojo, are not recognized by the biomedical system. These illnesses are simply not treated in the clinic, providing space for a division of labor among different kinds of medical experts.

Third, existing frameworks of illness categorization provide the basis for inferences made about symptoms, causes, and treatments (see Ross et al. 2011). This ensures the continuation of the models across individuals in the absence of direct
learning. In the case of Pichátaro, newly accessible treatments did not undermine the common understanding of illness in general (cause and symptoms) and hence did not affect how individuals produce this knowledge. As described above, curers in Pichátaro basically extend home-based curing strategies (rather than using an entirely different approach such as prayer and communication with the gods). This has been recognized by the governmental health agencies and put to use in the introduction of biomedical facilities. In fact, the governmental health system in Michoacán has actively partnered with local traditional curers throughout the state to develop a traditional medicine training program.

This allows us to tentatively answer the question of stability in emerging cultural systems. If learning is a process of knowledge production, rather than copying existing models from peers or potential experts, then stability must be achieved through mechanisms guiding the generation of knowledge (see Ross et al. 2011; Ross and Medin 2011). The answer must necessarily lie in the interplay of social and cognitive factors; base information and reasoning strategies are not randomly distributed across a population and neither is the outcome of their interaction, here newly produced knowledge. Shared models—such as the categorization of illnesses and cures—allow for the generation of similar inferences by individuals in the absence of a teacher–learner environment. In our case, for example, shared category membership of illnesses might trigger inferences about similar causes and treatments (new knowledge) without individuals necessarily being instructed or in contact to one another (see Ross et al. 2011 for evidence from a related study among Mexican migrants in the Nashville area).

Our data are restricted to one field site and one specific set (albeit a large set) of questions. Specifically, we find that the improved access to and increased use of biomedicine did not upset existing folk-medical models either with respect to their content or to patterns of agreement. We argue that this is because of the compatibility of the two systems, which allowed maintaining existing beliefs of cause and symptoms while extending the treatment options available. First, certain folk diseases are simply ignored by the biomedical system, and as a result the effectiveness of traditional treatment options is not undermined. Second, illness treatments offered from both the biomedical and the folk-medical system do not entail a rethinking of the causal models of the diseases. Different treatment options are seen as either complementary or similar in the way they cure. The findings of our study have further implications. Both curers and noncurers accept biomedical treatments without necessarily changing their underlying causal structures. We argue that this is not much different from the United States. However, in pluralistic medical systems such as Pichátaro it has the further consequence of not challenging the role of existing folk models and experts. As such it allows for the continuance of a traditional system of well-proven home remedies (incl. the use of curers) while actively integrating biomedical options accessible in the community. Together it seems to provide the members of Pichátaro with the best of both worlds—rather than facing them fight about and struggle over different options and their meanings.

Notes

Acknowledgments. We thank the many people of Pichátaro enabling this research by their participation as well as three anonymous reviewers for their excellent comments on
drafts of this article. This research was generously funded by a National Science Foundation Grant (NSF#05277077).

Note: When a statistical difference is noted it relates to a cutpoint of \( p < .05 \).

1. The researchers also had limited analytical options at hand, and their tools might have simply not captured existing differences.

2. Figure based on an opportunistic sample of 586 households, with 55 percent of households reported attending the clinic and 38 percent utilizing the local pharmacies over the past six months.

3. We identified nine curers; one curer was too ill to interview, one curer withdrew from the study, and one had moved outside the community.

4. We created an average match agreement matrix using Systat for consensus analysis.

5. The differences in first-factor scores were calculated through one-way ANOVAs and post hoc tests (LSD). Mean first-factor score for biomedical personnel was 0.80. First-factor scores: \( F = 5.775, \text{MSE} = 0.007, p = .012 \); LSD post hoc tests found significant difference between biomedical personnel and both other groups, \( p < .000 \).

6. ANOVAs of second-factor scores found significant difference (\( F = 41.659, \text{MSE} = 0.609, p = .000 \)), LSD post hoc tests of biomedical personnel versus curers (\( p < .000 \)) and noncurers (\( p < .000 \)).

7. ANOVA results for noncurers’ within-group agreement versus agreement with curers \( F = 3.486, \text{MSE} = 0.000, p = .078 \); results for curers’ within-group agreement versus agreement with noncurers (\( F = 6.152, \text{MSE} = 0.001, p = .033 \)).

8. Correlation over observed agreement with curers and number of children of noncurers (\( r = 0.544 \) and \( p = .105 \)). Given the low \( n \), the correlation is fairly high and marginally significant.

9. Residual analysis of noncurers’ within-group agreement versus agreement with biomedical personnel: \( F = 49.125, \text{MSE} = 0.045 \) and \( p < .000 \). Biomedical personnel within-group agreement versus agreement with noncurers: \( F = 143.664, \text{MSE} = 0.088 \), \( p < .000 \).

10. Residual analysis of curers’ within-group agreement versus agreement with biomedical personnel: \( F = 88.681, \text{MSE} = 0.027 \) and \( p < .000 \). For biomedical personnel within-group agreement versus agreement with curers: \( F = 45.582, \text{MSE} = 0.032 \) and \( p < .000 \).

11. Similarity between the 1970s model and noncurers from the present study, \( J = 0.690 \); similarity between 1970s model and curers from the present study, \( J = 0.643 \); and similarity between the 1970s model and biomedical personnel, \( J = 0.165 \).

12. For causal questions, first-factor scores \( F = 7.249, \text{MSE} = 0.000, p = .005 \); post hoc tests for noncurers and curers (\( p = .011 \)) and for biomedical personnel and curers (\( p = .002 \)). For symptom questions, first-factor scores \( F = 4.774, \text{MSE} = 0.007, p = .023 \); post hoc tests for noncurers and curers (\( p = .016 \)) noncurers and biomedical personnel (\( p = .025 \)).

13. Residual analysis of noncurer within-group agreement versus agreement with curers and biomedical personnel on causal questions: \( F = 135.453, \text{MSE} = 0.084 \), \( p < .000 \), versus curers and biomedical personnel \( p < .000 \). Residual analysis of curer within-group agreement versus agreement with noncurers and biomedical personnel on causal questions: \( F = 172.747, \text{MSE} = 0.075, p < .000 \), versus noncurers and biomedical personnel \( p < .000 \). Residual analysis of biomedical personnel within-group agreement versus agreement with on causal questions: \( F = 68.395, \text{MSE} = 0.026, p < .000 \), versus noncurers and curers \( p < .000 \). Residual agreement for noncurer within-group agreement versus agreement with curers and biomedical personnel on symptom questions: \( F = 187.886, \text{MSE} = 0.141 \), versus curers \( p < .000 \) and versus biomedical personnel \( p < .000 \). Residual analysis of curer within-group agreement versus agreement with noncurers and biomedical personnel
on causal questions: $F = 22.360, \text{MSE} = 0.079$, versus noncurers $p < .000$ and versus biomedical personnel $p < .000$. Residual analysis of biomedical personnel within-group agreement versus agreement with noncurers and curers on causal questions: $F = 74.331, \text{MSE} = 0.076$, versus noncurers $p < .000$ and versus curers $p < .000$.

14. For noncurers and curers, the ratio is four and mean factor score is 0.799; 64 percent of variance is explained by the first factor. For biomedical personnel, the ratio is 15.5 and the mean first-factor score is 0.934; 87 percent of variance is explained by the first factor.

15. An ANOVA showed that treatment questions were significantly different across all groups ($F = 4.231, \text{MSE} = .011, p = .030$); post hoc tests indicate significant difference between treatment and causal questions ($p = .009$) and approach significance between treatment and symptom questions ($p = .060$). Analysis of the treatment questions identified 34 of 54 questions where the modal response of biomedical personnel differed from noncurer and curer modal responses.

16. ANOVA results: $F = 71.54, \text{MSE} = 5.826, p < .000$, with noncurers asserting efficacy for biomedical treatments for 71 percent of illnesses, curers asserting biomedical treatment efficacy for 32 percent of illnesses, and biomedical only identifying 8 percent of illnesses as being treatable with biomedicine.

17. ANOVA results: $F = 32.381, \text{MSE} = 3.181, p < .000$, with noncurers asserting the efficacy of traditional treatments for 80 percent of illnesses, and curers only asserting the efficacy for 38 percent.

References Cited

Aguirre Beltrán, Gonzalo
1980 Medicina y Magia: El proceso de aculturación en la estructura colonial. INI, Mexico.
1986 Antropología medica. UNAM, Mexico.

Anzures y Bolaños, María del Carmen
1983 La medicina tradicional en Mexico. UNAM, Mexico.

Appadurai, Arjun

Appadurai, Arjun, ed.
Atran, Scott, Douglas L. Medin, and Norbert O. Ross
Baer, Roberta D., Susan C. Weller, Javier García de Alba García, and Ana L. Salcedo Rocha
Bailenson, Jeremy N., Mon Shum, Scott Atran, Douglas L. Medin, and John Coley
Bonfil Batalla, G.
Boster, James, and Jeffrey Johnson

Campos Navarro, Roberto
1996 Legitimidad social y proceso de legalización de la medicina indígena en América Latina, Estudios de Mexico y Bolivia. UNAM, Mexico.

Chant, Steve

Cominsky, Sheila

DeWalt, Kathleen M.

Donato, Katharine M., Shawn Malia Kanaiaupuni, and Melissa Stainback

Durand, Jorge, Douglas S. Massey, and Rene M. Zeneteno

Edwards, S. E., and Michael Heinrich

Farr, Marcia
2006 Rancheros in Chicoacán: Language and Identity in a Transnational Community. Austin: University of Texas.

Favre, H.
1973 Cambio y continuidad entre los Mayas de Mexico. Editorial Siglo XXI, Mexico.

Ferguson, Anne E

Freyermuth Enciso, G.
1992 Medicina indígena y medicina alopata: Un encuentro difícil en los Altos de Chiaipas. CIESAS-Sureste, Mexico.

Garro, Linda C.

Giovanni, Peter, and Michael Heinrich

Gisbert, María Elena, Michael Painter, and Mery Quitón
Hanlon, Joseph, Armando Barrientos, and David Hulme  
2010 Just Given Money to the Poor: The Development Revolution from the Global South. Sterling, VA: Kumarian Press.

Hobsbawm, Eric, and Terence Ranger  

Huber, Brad R., and Alan R. Sandstrom, eds.  
2001 Mesoamerican Healers. Austin: University of Texas.

Instituto Nacional de Estadística y Geografía (INEGI)  

Kanaiaupuni, Shawn Malia, and Katharine M. Donato  

Kleinman, Arthur M.  

Landy, Daniel  

Maupin, Jonathan, Norbert Ross, and Catherine Timura  

Medin, Douglas, Elizabeth Lynch, John D. Coley, and Scott Atran  

Medin, Douglas L., Norbert Ross, Scott Atran, Russ Burnett, and Sergey Blok  

Medin, Douglas L., Norbert Ross, Scott Atran, Douglas Cox, John D. Coley, Julia B. Proffitt, and Sergey Blok  

Nakao, Keiko, and A. Kimball Romney  

Nichter, Mark  

Nigenda, Gustavo, Lejeune Lockett, Cristina Manca, and Gerardo Mora  

Page Pliego, J.  

2005 El mandato de los dioses. Etnomedicina entre los Tzotziles de Chamula y Chenalho, Chiapas. Universidad Autónoma de Mexico. D.F.

D.F. Pribilisky, Jason

Romney, A. Kimball

Romney, A. Kimball, Susan C. Weller, and William H. Batchelder

Ross, Norbert

Ross, Norbert, Douglas Medin, John D. Coley, and Scott Atran

Ross, Norbert, Jonathan Maupin, and Catherine A. Timura

Ross, Norbert, and Douglas L. Medin

Ryan, Gery, and Homero Martinez

Sperber, Dan

Tsing, Anna

Villa Rojas, A.

Weller, Susan C.

Weller, Susan C., and A. Kimball Romney

Whiteford, Michael B.
Young, James C.
Young, James C., and Linda C. Garro
1982 Variation in the Choice of Treatment in Two Mexican Communities. Social Science and Medicine 16:1453–1465.