ME' WINIK: DISCOVERY OF THE BIOMEDICAL EQUIVALENCE FOR A MAYA ETHNOMEDICAL SYNDROME

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Abstract—Investigation of the correspondence of ethnomedical illness syndromes and biomedical disease classification has led to the identification of a high prevalence of gallbladder disease among the Tzeltal and Tzotzil Maya populations of Highland Chiapas. This condition, known to demonstrate exceptionally high rates among North American Indians, has not previously been described among the Highland Maya. The failure to recognize this serious health problem has been due primarily to cultural differences in understanding the anatomy and difficulties arising from communication of symptomatology. A focus on the interface of ethnomedicine and biomedicine is shown to have significance from both theoretical and applied perspectives.

Key words—gallbladder disease, ethnomedicine, epidemiology, cross-cultural health care, Native American health, Maya, Mexico

Findings presented here represent the first documentation of biliary disease among the Tzeltal and Tzotzil-speaking Maya Indians of Southern Mexico. Medical diagnosis has heretofore been confounded by cross-cultural communication in the description and interpretation of symptoms and nature and the location of pain. By employing an interdisciplinary approach, the authors were able to elucidate the interface between the ethnomedical illness model and the biomedical disease complex.

This report represents the initial results of collaborative efforts of medical and anthropological scientists in the study of a folk illness syndrome and correlation of folk concepts into biomedical terms of reference and resolution of the mystery of me' winik [1]. These results demonstrate the plausibility and benefits of an integrated interdisciplinary approach.

THE ETHNOMEDICAL SYNDROME

Ethnoanatomy

Surveys based on self reports of most recent health problems by Maya community members describe the condition known as me' winik as a major health problem with high prevalence of morbidity and relatively low but known attributed mortality. These preliminary ethnoepidemiological surveys also indicate that women have a relative risk of 6.6:1 for this condition. Interdisciplinary investigation revealed close correspondence between this folk syndrome and the biomedical definition of biliary disease.

Me' winik, literally 'mother-man', is usually described as an organ located approximately as seen in Fig. 1. The organ is frequently translated by Tzeltal and Tzotzil speakers as 'uterus' although it occurs in both men and women. This translation presumably relates to the secondary stages of the folk condition that are associated with temporary female infertility. This organ has no known function, but can cause sickness and great discomfort. Some Maya, in fact, state that me' winik is not represented by a specific organ but rather is solely the name for a health problem and related symptoms.

Explanatory model

Me' winik is detected as a golf ball to tennis ball-sized mass that pulsates. Symptoms occur when the organ moves from its normal location (hence the Spanish gloss alteración or 'alteration'). Various kinds of activities can bring on symptoms such as vigorous exercise, carrying a heavy load, and suffering a fall. Although all age and sex groups are affected, some persons are at higher risk for me' winik symptoms. Women in general and individuals who are thin or under nourished are especially susceptible.

There seem to be different stages or phases of this condition. These phases do not carry separate linguistic labels but symptoms vary and are associated with the seriousness of the condition. The palpating mass may move around mid-abdomen and the sensation is described as similar to the Spanish folk syndrome aire or 'wind'. When the pulsing organ rises too high, into the sub-sternal region (the Maya term used for the
location of this type of pain is glossed as 'heart'), the outcome is likely to be fatal.

Women are at risk for another serious manifestation of me' winik. The organ may press on or twist on the uterus and result in (reversible) sterility. Secondary symptoms for this phase include weakness, lethargy and loss of appetite.

The most common form of treatment for me' winik is abdominal massage. This is administered to both males and females by a midwife. The massage consists of deep probing and vigorous rubbing to the abdomen to replace the organ in its normal position. (Figure 3.) Some plant medicinals are also used. Use of herbal treatments for me' winik is not restricted to the expertise of any specific type of healer.

Evidence from other Maya groups

The Yucatec Maya posit the existence of an organ, called the tip te' [2] which appears to have strong similarities to me' winik. The tip te' has more defined functions than we have been able to identify among the Tzeltal and Tzotzil Maya. It is described as resembling a small tomato that is located beneath the umbilicus. The organ is detectable by its pulsations and is said to have a regulatory function for abdominal organs. It also acts as a central distribution point for all of the blood vessels in the body. Symptoms occur when the tip te' or its associated organs are out of adjustment or out of place and include flatulence, dizziness, sweating, hiccups, pain, and shortness of breath. The symptoms associated with the tip te' have been characterized as "hysteric pulsations of the abdomen" [3, p. 58].

BIOMEDICAL CORRELATION

Before we began field testing by clinical examination of patients suffering from me' winik, we carried out further in-depth interviewing of Tzeltal and Tzotzil speakers. For convenience, and because they understood the goal of associating ethnomedical and biomedical syndromes, we discussed the problem at length with our Maya collaborators [4]. During these discussions, it became clear that anatomical confusion existed concerning the location of pain during acute phases of the condition. The ethnomedical description places the pain somewhere mid-abdomen and moving into the area of the heart. Further questioning, however, revealed that the area of reference for the 'heart' region was centered in the upper abdomen immediately below the sternum, or the bioscientific anatomical location of the stomach (see Fig. 2 for illustration of ethnoanatomical detail). This anatomical confusion has been a persistent problem in medical diagnosis for local physicians and medical anthropological studies conducted in this region. Fabrega and Silver give the following definition: "Me' winik. This condition is characterized by an accelerated pulse, 'pounding of the heart', pains in the chest, and fatigue" [5, p. 248]. Holland’s description is similar, "ME' VINIK symptoms: Lack of respiration, fatigue and stomach and chest pain. A few cases are accompanied with high fever in the night alternating with chills" [6, p. 271 our translation].

The symptoms presented by the Maya, based on these conceptions of anatomy and physiology, and the pathology of the folk syndrome do not correlate well with biomedical descriptions of biliary disease. Also, these subjective symptoms are presented in a context of high rates of gastric infection and intestinal parasitism. These complementary facts have tended to support a presumptive diagnosis of gastroenteritis.

Fig. 1. Location of the me'-winik organ according to a folk explanatory model.

Fig. 2. Ethnoanatomical location of heart, stomach and me'-winik.
Laboratory analysis is seldom available in this rural context so the presumptive diagnosis is not disconfirmed. Later stages of the condition are said by the Maya to result in temporary infertility and these cases tend to be treated as having a gynecological origin by local physicians who lack Maya language skills and therefore do not recognize the relationship between the two aspects of the same folk syndrome.

**Medical studies**

Patients were identified from three sources: (1) Clinical surveys in Maya communities, (2) clinical exams in the regional clinic in San Cristóbal and (3) less directed but supportive data from medical Pasantes carrying out field work in rural health posts located in Maya communities.

Clinical surveys were carried out in Maya communities by a PROCOMITH team [7] of medical and anthropological personnel and a Maya collaborator from the target community passed the word that a physician would come on a given day at a pre-arranged location to examine people with a complaint of me’ winik. By this method we identified eight cases with a self diagnosis of me’ winik, seven of which were confirmed as biliary disease by clinical exam and five of which were verified by follow-up X-ray exam, as shown in Table 1.

The survey team traveled to three communities where patients had been identified by our Maya team members. The largest sample was obtained in the community of Oxchuc, where a local midwife is employed in on-going data collection on folk syndromes.

Clinical exams were conducted by a physician representative of the regional Public Health Service (VJA) on all patients presenting with a complaint of me’ winik. Patients were questioned concerning the onset, location, and duration of pain, including precipitating events. Physical exam followed normal clinical procedures. When clinical findings supported a diagnosis of biliary disease, patients were offered follow-up X-ray exam and given the option of surgery for confirmed cases.

<table>
<thead>
<tr>
<th>Town</th>
<th>Sex</th>
<th>Age</th>
<th>Complaint</th>
<th>Diagnosis</th>
<th>X-ray exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Larrínzar</td>
<td>F</td>
<td>30</td>
<td>me’ cínik</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Larrínzar</td>
<td>F</td>
<td>32</td>
<td>me’ cínik</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Oxchuc</td>
<td>M</td>
<td>40</td>
<td>me’ winik</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Oxchuc</td>
<td>F</td>
<td>42</td>
<td>me’ winik</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Oxchuc</td>
<td>F</td>
<td>60</td>
<td>me’ winik</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Oxchuc</td>
<td>F</td>
<td>62</td>
<td>me’ winik</td>
<td>+</td>
<td>not done</td>
</tr>
<tr>
<td>Oxchuc</td>
<td>F</td>
<td>40</td>
<td>me’ winik</td>
<td>+</td>
<td>not done</td>
</tr>
<tr>
<td>Tenejapa</td>
<td>F</td>
<td>50</td>
<td>me’ winik</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

+ = Positive exam results; – = negative exam results.
Most patients demonstrated positive exams for intestinal pain. This was probably due to the virtual universality of parasitic and other infectious gastrointestinal diseases in the general population. The key factors in the clinical exam were positive pain response to palpation of the biliary region and report of pain radiating to the right toward the kidney area and upward toward the right clavicular region. Consumption of high fat foods is known to trigger an acute biliary crisis as the gallbladder contracts to secrete bile for the digestion of the fats. Some patients reported that eggs or avocados produced pain and nausea. Not all patients could make a dietary correlation with onset, however. All female patients examined showed positive signs for biliary disease on clinical exam. The one male in our sample had pain originating just above the umbilicus and radiating upward to the substernal region. He also reported onset of symptoms associated with drinking. His probable diagnosis is more likely to be pancreatitis. His X-ray exam was also negative. The predominance of women with this condition is not surprising. Although both males and females suffer biliary disease, the prevalence is higher in women than in men world wide.

The second method of case identification was by examination of patients who came into the clinic offices of the physician co-author at the Regional Public Health Hospital. Results are shown in Table 2. Examination of clinical patients was conducted following the same methods and criteria as for field surveys. Of the six patients in this sample, four had a diagnosis of chronic cholecystitis or inflammation of the gallbladder. In two cases, the inflammatory condition was found to result from gallstone formation. Two cases were apparently without stones although only one was confirmed by surgery. One case had advanced to carcinoma. (Gallstones are a known risk factor for extrahepatic biliary carcinoma.) In one case, the inflammatory process in the gallbladder was due to the migration of an ascaris worm from the intestine into the gallbladder. The most common migratory route for ascaris is from the gut into the exophagus, throat and nasal passages. Ascaris have infrequently been known to migrate into the lungs and even the brain. While migration to the gallbladder is undoubtedly rare, the symptoms produced would carry a diagnosis of cholecystitis or gallbladder disease and would also fall within the folk diagnosis of "me' winik." Other potential causes of biliary disease include bacterial infection and chemical irritants. The primary cause, however, is gallstones.

**Epidemiological patterns**

To date, no general epidemiological surveys have been carried out in the Indian communities of the highland region. Data from other sources can be suggestive of the epidemiological patterns and significance of gallbladder disease in this population. During 1985, the Regional Public Health Department undertook a study in which the Maya names for the presenting complaint were recorded in community clinics. Data collected during a one month period and made available to us from one community, demonstrated a prevalence of 20% of cases with a self diagnosis of "me' winik" [8]. These data were collected two years prior to the study reported here and therefore not subject to bias of frequency of specific presenting complaints due to the effects of the study itself.

An ethnoepidemiological survey is currently being conducted, in which morbidity and mortality data are collected from five geneologically unrelated households in each of twenty widely dispersed hamlets for each of the ten municipalities in our study. Data shown in Table 3, from three of the four municipalities for which data have been computerized [9], reveal that women 20 years of age or older are most likely to have a self diagnosis of "me' winik." There is a lower prevalence and later age at onset among males. These findings accord well with those of other Amerindian studies.

### Table 2. Results of clinical exam, X-ray exam, and surgical findings for cases seen in regional public health hospital

<table>
<thead>
<tr>
<th>Town</th>
<th>Sex</th>
<th>Age</th>
<th>Complaint</th>
<th>Clinical exam</th>
<th>X-ray exam</th>
<th>Surgical findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamula</td>
<td>F</td>
<td>40</td>
<td>me' winik</td>
<td>Chronic cholecystitis</td>
<td>Chronic cholecystitis w/o stones</td>
<td>Not done</td>
</tr>
<tr>
<td>Chenaló</td>
<td>F</td>
<td>60</td>
<td>me' winik</td>
<td>Chronic cholecystitis</td>
<td>Chronic cholecystitis</td>
<td>Biliary carcinoma</td>
</tr>
<tr>
<td>Chamula</td>
<td>F</td>
<td>45</td>
<td>me' winik</td>
<td>Acute cholecystitis</td>
<td>Gallbladder excluded</td>
<td>Bile duct occlusion, gallstones</td>
</tr>
<tr>
<td>Chamula</td>
<td>F</td>
<td>50</td>
<td>me' winik</td>
<td>Chronic cholecystitis</td>
<td>Chronic cholecystitis, cholecithiasis</td>
<td>Scleroic gallbladder, multiple cm gallstones</td>
</tr>
<tr>
<td>Chamula</td>
<td>F</td>
<td>30</td>
<td>me' winik</td>
<td>Chronic cholecystitis</td>
<td>Chronic cholecystitis</td>
<td>Chronic cholecystitis, 'gerro frigio'</td>
</tr>
<tr>
<td>Tenajapa</td>
<td>F</td>
<td>14</td>
<td>me' winik</td>
<td>Acute cholecystitis</td>
<td>Acute cholecystitis</td>
<td>Ascaris intruded in gallbladder</td>
</tr>
</tbody>
</table>

### Table 3. Reports of "me' winik" by sex, age and municipality household ethnoepidemiological survey

<table>
<thead>
<tr>
<th>Age</th>
<th>Municipality</th>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
<th>Unknown</th>
<th>N= 4</th>
<th>32</th>
<th>36 = Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>Oxchuc</td>
<td>Male</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>Cancuc</td>
<td>Female</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>Oxchuc</td>
<td>Male</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td>Tenajapa</td>
<td>Female</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-59</td>
<td>Cancuc</td>
<td>Male</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oxchuc</td>
<td>Female</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Indicates a self diagnosis of sme' ch'uj't, a synonym for me' winik.*
of several months had an ethnomedical diagnosis of me' winik. Just under 5% of all cases she attended over a period of several months had an ethnomedical diagnosis of me' winik, as seen in Table 4. The pasantes include one self diagnosis of ik' which, as mentioned earlier, translates as aire or wind but for which the exploratory clinical diagnosis was chronic cholecystitis or gallbladder disease and, therefore it is included here.

### SIGNIFICANCE

#### Significance of the syndrome in the study population

In order to determine the epidemiology of me' winik and other folk illness syndromes, we are currently undertaking an ethnoepidemiological survey in each of the ten Maya townships included in the research program. Approximately 100 households from each township are included in the survey. For each household, a family genogram three generations deep is constructed, and retrospective data are collected concerning illness events for each family member during the past year, including treatments employed. Cause of death for any deceased family members is also recorded. The purpose is to determine the epidemiological significance of all ethnomedical syndromes. The public health clinics of the region are poorly utilized, and this is reflected in the regional and state epidemiological reports. The ethnoepidemiological survey will, therefore, also assist evaluation of the significance of all ethnomedical syndromes. Since these data are general collections of self-identified health problems, we do not expect them to be biased by emphasis on me' winik. They should, therefore, provide a rather complete picture of the prevalence, and thus the epidemiological significance of gall bladder disease, as well as other named ethnomedical conditions, among the highland Maya. Preliminary results from one town, show a population prevalence of approx. 5%. This figure represents only those persons who are currently symptomatic and therefore represents an under reporting, since a high proportion of persons with gallstones do not complain of symptoms. This figure accords well with the presenting complaints recorded by a traditional midwife practicing in the same town. Just under 5% of all cases she attended over a period of several months had an ethnomedical diagnosis of me' winik [10].

Table 4. Age distribution of self reports of me' winik from patient reports collected by medical pasantes

<table>
<thead>
<tr>
<th>Condition</th>
<th>Age</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>me' winik</td>
<td>25</td>
<td>female</td>
</tr>
<tr>
<td>me' winik</td>
<td>29</td>
<td>female</td>
</tr>
<tr>
<td>me' winik</td>
<td>32</td>
<td>female</td>
</tr>
<tr>
<td>me' winik</td>
<td>60</td>
<td>female</td>
</tr>
<tr>
<td>ik'</td>
<td>85</td>
<td>female</td>
</tr>
</tbody>
</table>

Until the data from the complete survey are analyzed, comparison of ethnoepidemiological information with epidemiological data previously collected by the Regional Division of Public Health Services gives some suggestion of the significance of me' winik. In a small sample of all of the cases that came into the public health clinic in one municipality over a one month period, 20% of all cases carried a self diagnosis of me' winik. These findings, if borne out by the larger study, assume even greater importance when it is noted that biliary disease does not appear on the public health department's epidemiological statistics reports for this region.

There are several culturally determined reasons for this failure of reporting. First, the me' winik organ is considered to be an abdominal organ when normally positioned. Subjective symptoms are, therefore, most frequently described to the physician as being located in the abdominal region. Since gastrointestinal problems are quite common in this area of Chiapas, physical exam can readily confirm gastric tenderness and a presumptive diagnosis of some form of gastritis or parasitic infection. The description of symptoms rising to the 'heart' most probably is interpreted as esophageal in origin, since physical exam would not tend to confirm a cardiac problem. However, this is a late manifestation and it is unknown how many cases come to clinics and hospitals at this stage.

Finally, sequelae resulting in female infertility constitute the other folk presentations and are usually interpreted as potentially gynecological in origin. Lacking Tzeltal and Tzotzil language skills, public health service physicians would not recognize that the three types of complaint represent manifestations of a single folk syndrome. Me' winik is, therefore, either simply treated as a gastrointestinal problem, such as parasitic infection or inflamed colon, or as a gynecological problem. Dissemination of the results of our study to public health personnel, thus correcting the diagnosis of a significant number of patients, would seem to have considerable public health significance, especially if, as we expect, the high prevalence of this condition is confirmed.

#### Significance for other populations

High rates of biliary disease have been reported among indigenous peoples of North America [11-25]. In some cases, 75% of the population 65 years and older demonstrated gallstones on cholecystogram examination [26]. Studies on Mexican Americans have also revealed a high prevalence of gall bladder disease and this has generally been attributed to genetic admixture with Native Americans [27-29].

Good studies are lacking for Central and South American Indians, but Chilean nationals currently demonstrate the highest rates of gallstones reported worldwide [30]. That this is a disease of antiquity in the populations of the region is supported by findings of gallstones in Chilean mummies [31]. Gallstone
formation is considered to be the primary risk factor for biliary carcinoma and gallbladder cancer rates are significantly elevated in North American Indians and several populations of Latin America [32-39].

Recent work in Chile presents interesting implications. In case control studies, Nervi and colleagues [30], documented an increase in biliary cholesterol secretion among young Chilean males fed a high legume diet compared with a control diet matched in calories, protein, carbohydrates, fiber, and fats (polyunsaturated, saturated and cholesterol). The Maya, and indeed all indigenous groups of Central America, are swidden agriculturalists whose diet is based on the corn, beans, squash agricultural complex. Some North and South American Indians also have diets high in legume content. Others do not. Comparative studies among legume and non-legume consuming Amerindians are needed to document the prevalence and distribution of biliary disease and to test the significance of legumes as a contributing factor. These medical and epidemiological findings and the results reported here are suggestive of the urgent need for additional studies of gall bladder disease among native populations of the New World.

Significance for clinical medicine and public health programs

Biomolecular medicine of the late 20th century has come to be viewed by its practitioners as the uniquely scientific approach to medicine and therefore its findings are understood to be universal principles of morbidity and mortality. The logical consequence would thus be that all peoples everywhere should be afforded access to this system of medical care and that, given the opportunity, all will welcome it. The reality, of course, has been somewhat different. The failure of national health programs, modeled on a cosmopolitan approach to medicine, to be accepted by cultural minorities and indigenous populations and the inability to sustain high-tech projects in rural areas has led to a recognition of the need for major changes in health policy and planning.

On the other hand, medical systems as they relate directly to health have historically been relatively neglected by anthropologists. There are several reasons for this neglect. With a few notable exceptions, anthropologists have historically lacked the expertise and the will to deal with health and healing except in social terms. Despite its theoretical relativism, ethnomedical systems were not accorded credibility and anthropological treatments of traditional medicine were frequently rather ethnocentric. Also, until the cultural survival and human rights movements of the '60s and '70s, anthropological purists viewed applied work with some measure of disdain.

Those anthropologists who first became involved in public health programs acted as evaluators offering explanations from the subject culture’s own perspective as to why programs had failed to gain broad acceptance. It eventually became clear that a more cost effective solution was to move the anthropological field worker into an earlier stage of the process where they might be able to prevent failure by anticipating cultural barriers to health care programs and to promote acceptance of intervention programs by making them more culturally appropriate and socially acceptable. A new breed of anthropologist, frequently with simultaneous training in a field of public health, medicine, nutrition, or epidemiology, emerged (see [40, 41, 42, pp. 223–262] for a complete historical discussion and detailed references on the above).

The successful correlation of the folk syndrome me’ wintik with the biomedical diagnosis of biliary disease, the first result of our collaborative interdisciplinary endeavors, points out the need for furtherance of the trend toward earlier entry of anthropologists into health programs and to incorporation of concomitant health topic specific anthropological research. No longer is it sufficient for an anthropologist who has knowledge of some social and cultural characteristics of a group to be expected to provide adequate, knowledgeable consultation concerning program development and implementation without prior investigation.

Significance for medical anthropology

There is current debate concerning the relative contribution of symbolic interpretive, and empiricist comparative approaches and the feasibility or desirability of some combination of these in medical anthropology (see [43] and related commentary for a relatively complete review). While the publication of any given work cannot resolve such a debate, the results reported here should point out the importance of making some attempt to connect the biological reality of health problems with their cultural construction.

Our findings are particularly significant when it is considered that the highland Maya have been in long-term close contact with Spanish and then Mexican medicine for more than 450 years. There have been government sponsored health care programs in the region for decades. Despite this history, health care providers have not recognized the disease and biliary disease does not appear as a category on regional epidemiological reports. Furthermore, and perhaps of greater significance to the medical anthropology debate, prior ethnomedical research [13, 14, 44–46] as well as various studies relating to health and healing [47, Fabrega from 11, 48, 49] have been conducted in some of the communities included in our study. Numerous others have touched on the religious and symbolic aspects of healing (see [50] for description and bibliography for Zinacantan and [51] for other relevant studies). Even those studies claiming to be ethnomedical or medical anthropological in scope, however, have not specifically attempted to correlate physiological manifestations of folk illnesses...
with biomedically equivalent signs, symptoms, and syndromes [52].

Health care providers have lacked the expertise, interest, and time to attempt an understanding of folk syndromes. The philosophical and methodological foundation of the anthropological research has limited the quantity and quality of this type of ethnomedical data and prohibited the correlation of folk illnesses with biomedical disease. The PROCOMITH research program has thus far yielded one previously overlooked correlation. In addition to the practical advantage of a more complete understanding of the physiological reality of ethnomedical illness referents, we should perhaps also contemplate the ethics of limiting our interests and interpretation to symbolic and cultural characterization of illness and disease. Health problems are certainly culturally constructed and have symbolic meaning. Ultimately, however, they are the markers of human suffering and need to be analyzed and attended to from that perspective as well.

REFERENCES

1. Programa de Colaboración sobre Medicina Indigena Tradicional y Herbolario is a non-profit civic association incorporated under Mexican law with rights for international offices. The research reported here was conducted under the auspices of a collaborative agreement between the Chiapas State Department of Public Health and the University of California at Berkeley. It was supported by National Science Foundation Grant BNS 87-03838, Brent Berin, Principal Investigator.


4. Alonso Mendez Giron and Alfonso Luna Gomez both Tzeltal speakers from Tenejapa, and Lorenzo Gonzalez Gonzalez and Carmelino Sántiz Ruiz, from the Tzotzil towns of Tzarrínzah and Chamula respectively, served as Interviewers on the Explanatory Models study. Messrs Mendez and Gonzalez played active roles in development of the hypotheses under discussion here.

5. Fabrega H. Jr and Silver D. B. Illness and Shamanistic Curing in Zinacantan. Stanford University Press, Stanford, California, 1973. Variation in spelling of the name for the condition is due to linguistic variation between the two Mayan languages Tzeltal (me' wínik) and Tzotzil (me' wínik) represented in the study.


7. The site visit team consisted of a physician (VJA), a laboratory technician (Isabel Ramos Domínguez), at least one Maya assistant (Alonso Luna or Lorenzo Gonzáles Gonzáles), and the project administrative assistant (Teresa Velasco Castelanos) who kept records. The medical anthropologist (EAB) was present for the first seven cases. X-Ray exams were carried out by Juan Antonio Martínez, M.D. Surgeries were performed by Dr José Manuel Zuíga Gurría and VJA.


9. No cases were reported in the sample from Chamula. This is a reasonable statistical result given the sample size and population prevalence of the condition and it can be assumed that the Chamula rates are equivalent to all other municipalities. That four of the six patients reporting to clinic for X-ray and/or surgery (Table 2) are from Chamula further supports this assumption.

10. Ana María Méndez Sántiz is a traditional midwife who has practiced for 15 years and collaborates with the PROCOMITH program.


51. Pitt-Rivers J. and McQuown N. Social, Cultural and Linguistic Change in the Highlands of Chiapas. Department of Anthropology, University of Chicago, IL, 1970.

52. "It must be emphasized that we did not directly question subjects about the actual physical or bodily correlates (i.e. symptoms and signs) of specific folk illnesses. To investigate this question, one must, for each illness limit the sample to persons who have actually been diagnosed as having that illness" [13, p. 102] (emphasis in the original).

"The data that I compiled on specific illnesses and treatments have not been tabulated in relation to their symptoms" [52, p. 112, our translation].