STUDY OF PERSISTENT DIARRHEA

INCAP, GUATEMALA CITY

A Report Prepared By PRITECH Consultant:
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PRITECH TRIP REPORT
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Scope of Work

The provision of TA to INCAP's study of persistent diarrhea. Specifically: 1) incorporation of comments from INCAP peer review into a previous manuscript which is then sent for publication, and 2) analysis of the raw field data from a second study and preparation of a manuscript which is then sent to INCAP for peer review.

Purposes of the Assignment

To provide the epidemiological project on persistent diarrhea with an understanding of the cognitive and associated behavioral patterns related to childhood diarrhea in Santa Maria de Jesus which may complement the more biomedical, and quantitative data being collected. To assess the reliability and validity of the focal group methodology.

Methodology

Feb. 24-26, 1989, Guatemala:

Met with Carmen Dardano, Elena Hurtado and Hernan Delgado at INCAP and Elena Brineman and Melody Trott on the first day to clarify the scope of work. Ms. Dardano, my counterpart on this project, had unexpectedly left INCAP and the SOW had to be re-designed. On the second day, I accompanied the Project field team to the field site, Santa Maria de Jesus, where I met with the field interviewers and discussed the analysis and presentation of the data with Elena Hurtado. On the third day I again met with Carmen Dardano, Elena Brineman and Melody Trott to confirm the changes in the SOW. I also met with Alfred Bartlett to discuss the presentation of the data.

June 21-July 13, 1989, Santa Fe, New Mexico:

Over the first three days, I analyzed the raw cognitive and behavioral data from the validation trial and prepared the figures and tables that would accompany the second article. I then conducted a three-day review of the literature on cognition and validation trials in cognition. Over the remaining ten days (July 4th was a holday), I wrote the second article on validation in cognition and the use of focal groups, and revised the first article according to comments from the INCAP peer review.

The second article was sent to Melody Trott to be given to Elena Hurtado for INCAP peer review. The first article was submitted to the Journal of Medical Anthropology for consideration, and a copy was sent to Melody Trott for the INCAP project's files. As I am located in the U.S. and wrote the article, I will be the contact person for this journal submission. Copies of both articles were also sent to Carmen Dardano via Melody Trott for her comments and information.

Summary of Observations and Findings

The articles are attached to this report. The focal group data in the first article shows the importance of the humoral theory in the indigenous perception and treatment of childhood diarrheal disease. It also discusses the sensitivity of the group interview method to producing high levels of consensus and internal consistency. The second article shows the focal group method to be as reliable and valid as the individual interview method in its ability to elicit a broad range and depth of cognitive and associated behavioral data. The sequential multiple-method approach is shown to be valuable in the identification of consensus in cognition.

Main Conclusions

The information from both ethnographic field studies was interesting from both applied and theoretical perspectives. It provided applied information for programming in Child Survival in Guatemala, and furthered discussions in anthropological methods, particularly as they relate to the field of cognition.

Primary Recommendations

It is my understanding that the Project on chronic diarrhea is currently analyzing and reporting on the biomedical and quantitative data collected. What is the relationship between this data and the shared cognitive and behavioral patterns already identified by two distinct methodologies? Such relationships are only rarely explored; they have been called for recently in the anthropological literature (Browner, Ortiz de Montellano and Rubel (1988).

It is my recommendation that some of the analyses of the quantitative data from this Project be informed by hypotheses from the ethnographic data. This would enable a comparison of the the cognitive patterns associated with diarrhea in children and the actual occurrance of specific, symptoms and symptom clusters or progressions, treatments associated with these symptom clusters, and the dietary patterns employed.

References cited

Browner, C.H., B. R. Ortiz de Montellano and A.J. Rubel (1988) A Methodology for Corss-cultural Ethnomedical Research. Current Anthropology 29(5):681-702

COLORS, HUMORS AND EVIL EYE: INDIGENOUS CONSENSUS IN THE CLASSIFICATION AND TREATMENT OF CHILDHOOD DIARRHEA IN HIGHLAND GUATEMALA

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ABSTRACT

Focal group interviews on indigenous perceptions and reported management of childhood diarrhea were conducted in 1987-88 in Guatemala as a part of a prospective epidemiological field study of chronic diarrhea. Six cognitive schemata were identified consensually, each with specific causes, a linked progression of concepts, symptoms, signs, and diagnostic characteristics. Nearly all were found to be related to the humoral theory of disease, including the shamanistic concept of evil eye. Stool color reflecting humoral theory was found to be a key concept in diagnosis. Behavior associated with these cognitive schemata (traditional treatments, pharmaceutical and dietary) also adhered to the humoral concept of equilibrium and included the use of oral rehydration solutions (ORS) and liquids. It is argued that the high degree of internal

consistency and consensus found in both cognitive and behavioral data in this study reflects aspects of the group interview method itself. The applied importance of humoral theory to home-based use of ORS is discussed as is the indigenous definition of dehydration and the village-level use of prevention.

Key words: cognition, methodology, focal groups, humoral theory, evil eye, Guatemala, diarrhea, applied anthropology

INTRODUCTION

Diarrheal disease is the principal cause of death among Guatemalan children under five years of age. According to recent estimates, nearly eleven thousand children under five years of age die in Guatemala each year from diarrheal diseases alone (Burleigh, 1987). The seriousness of this problem has led international health organizations to join together in an effort to reduce childhood mortality from diarrhea and dehydration.

One aspect of this effort is research into the causes of diarrhea and the impact specific variables have on the duration of diarrheal episodes. Three research projects on these topics were recently conducted by the Nutrition Institute for Central America and Panama (INCAP), based in Guatemala.

The largest of these projects was a three-year epidemiological field study of chronic diarrhea in the rural central highland village of Santa Maria de Jesus, Sacatepequez. The study population consisted of index children under three years of age. At the beginning of the project a survey instrument was used to collect baseline data from each index child's family on household type, family composition, educational status, occupation and source of water. During the study, data was collected on each child's diarrhea morbidity pattern, treatment and associated pathogens, diet, and anthropometrics.

This article presents the results of qualitative focal group research on the indigenous classification and treatment of diarrheal disease in Santa Maria de Jesus, conducted in the preliminary stages of the larger research project in order to inform the survey instrument and provide a rich, detailed ethnographic framework for interpretation of the quantitative data collected.

STUDY DESIGN AND METHODS

Twenty-seven village women were selected using a non-probability quota sampling design which divided the women into five focal groups (of 5-6 women) based on number of children, age cohorts and use of traditional and/or western medicine. These variables were controlled in order to lower

barriers to communication and facilitate interaction during the interviews.

Group interviews were conducted by bilingual female (Cakchiquel/Spanish) interviewers using a semi-structured, open-ended interview guide designed to answer the following questions:

1. What is the definition of diarrhea in the village?

2. Is there an indigenous cognitive system for childhood diarrhea? Detail was collected on perceived causation, linked concepts in the progression of each schema, and the signs and symptoms used in household-level diagnosis or identification of a particular cause and schema.

3. What traditional and pharmaceutical treatments are used for diarrhea?

4. What dietary patterns are associated with diarrhea?

An open-ended instrument was used in order not to impose limits on response patterns (Romney, Weller and Batchelder, 1986:330). Information gathered during group interviews was recorded manually by a bilingual interviewer and recorded on audio cassette.

Because of the small number of women in each group, the information provided by all groups was aggregated during analysis. Due to the open-ended and group nature of the interviews, the data could not be considered quantitatively but was analyzed and is presented by content and association.

The data in this article represents only those concepts which were both mentioned repeatedly and fit the patterns identified by the majority of responses. Equal weight was given to the responses of all informants as the "competence" of any one individual (Romney, Weller and Batchelder, 1986:316) was unknown and not quantifiable in a group setting. Current work in cognition considers consensual data such as this a reflection of shared cultural knowledge (Romney, Weller and Batchelder, 1986)(Weller, 1984). The unusually strong internal consistence of the data gathered in these group interviews is discussed in the last part of this paper.

RESULTS AND DISCUSSION

The Village-level Definition of Diarrhea

At the onset of this research project there was some concern among anthropologists that there might be under-reporting of diarrhea among study children due to a cultural difference in the definition of diarrhea between study families and Western researchers. This concern, however, appears to have been overstated. According to the women interviewed, a healthy child excretes non-liquid waste 1 to 4 times in a 24 hour period. A child is considered to have diarrhea when waste is liquid or semi-liquid in consistency and occurs "a cada rato" or every little while, ranging from 5 to 20 times in a 24 hour period. This definition differs

only slightly from the World Health Organization definition of 4 or more semi-liquid or liquid stools in a 24 hour period.

Diarrhea was referred to as "asientos" in Spanish, and "niqo (or niquaxo) ru pan" (stomach ache) in Cakchiquel, the Mayan language spoken in Santa Maria de Jesus. Certain phrases were commonly used when describing the consistency of diarrhea: waste was described as "coming out in the same form as it was eaten", as "just like 'mixtamal' water" (the water the corn is soaked in to make tortillas), and "just like opening a water faucet". Symptoms associated with diarrhea included frequent crying and complaining, tiredness, stomach aches, loss of appetite, fever and vomiting, palor and dehydration or "seco" (dryness).

Cognitive Schemata for Childhood Diarrhea

The process of eliciting the women's perceptions of the types of childhood diarrhea in the village was fascinating as the first question was invariably answered with a list of colors, an answer not expected by the interviewer and initially rejected as not answering the question:

Tape 1, group 1:

Interviewer: "How many types or how many forms of diarrhea are known here in Santa Maria?'

First respondent: "Well, the first kind is white. The second is yellow. The third is ..."

Interviewer: "Um, this is the color of the diarrhea. No.

How many kinds ... because many people say 'Ah, this is diarrhea from evil eye'. I don't know if you have heard of this. This is what I want to know: how many types or what are the forms of diarrhea here?

Second respondent: "There are three forms. One is when the food eaten comes out the way it went in. The other is pure yellow."

Interviewer: "Yes, this is the color of the diarrhea. No. What I want to know is: what are the different kinds, or what are the different forms?"

Second respondent: "The color depends on the types of sickness they have."

This reference to colors was an essential semantic clue to the cognitive structures underlying perception of diarrheal disease in the village, though its diagnostic significance became clear only later in the interview process.

Continued probing led to an initial list of 17 perceived types of diarrhea: green, yellow, white, red, cough, "infection", "peste", evil eye, dysentery, fever, food, "indigestion", "inflammation", dentition, "cold", "heat", and worms. When detail was elicited about each of these however, many were found to be a concepts linked in progression or otherwise associated with others rather than causal in themselves. For instance, colors were found to be indicative of diarrhea from a specific cause; cough and

"infection" (whose definition differs from that of Western medicine) were found to occur during the development of most types of diarrhea; "peste" was found to be another term for dysentery, a stage of diarrhea caused by "heat" or "cold" (referring to the humoral theory of disease causation); food was found to be not only a cause of diarrhea itself but also related to "heat" or "cold"; and worms were found to be a cause of diarrhea some of the time but primarily a stage in the progress of diarrhea due to other causes.

As analysis of the data proceeded, out of this seeming confusion of semantic concepts and associations a cognitive structure for childhood diarrheal disease in Santa Maria de Jesus slowly began to emerge, with six principal schemata (by cause) which included detailed information on the causes, dimensions or stages in progression, diagnostic characteristics and treatment for each. In each of these schemata, specific factors related to the weather, emotions, behavior and diet are believed to share some quality. When this quality is introduced into the child's body it sets in motion a particular sequence of linked events. For most diarrheas, this causal quality is related directly or indirectly to "heat" or "cold", lending further support to an equilibrium/humoral construct as the basis of ethnomedicine in Guatemala.

Before presenting each of these cognitive schema however, it is important to first understand village-level

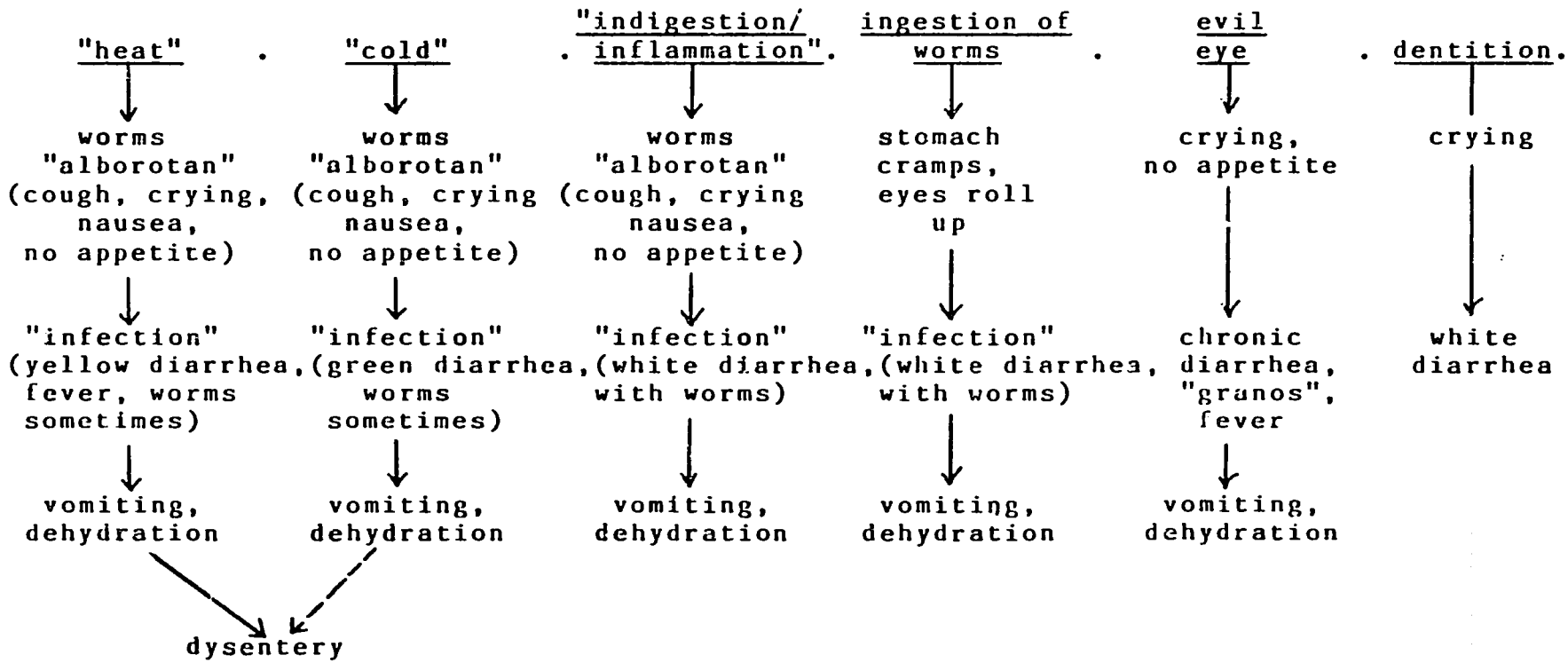
perceptions of the physiology of a well child. In the well individual "hot" and "cold" elements are in equilibrium, and digestion is performed by worms which live in a small ball or sack in the "stomach" (located in the lower abdomen). Having worms in the stomach is not a cause of diarrhea or illness in itself but rather a normal condition essential to good health.

The six cognitive schemata for diarrheal disease, their causes, progression and defining symptoms are described in Figure 1. The first three, diarrhea from "heat", diarrhea from "cold", and diarrhea from "indigestion/inflammation" have in common their disturbing effect on the worms normally in their sack:

1. <u>diarrhea caused by "heat"</u>

One kind of childhood diarrhea is caused when an excessive amount of "heat" has been introduced into the body. This "hot" diarrhea is commonly due to the following factors: infants are all considered to be "hot" at birth, however an infant may have diarrhea if his mother has eaten a prenatal diet which was too "hot" (too much chile, alcohol, sugar or sweets, fruit or coffee), felt "hot" emotions, or behaved in a "hot" way (especially if exposed too much to the sun); "heat" can also be transferred to an infant after birth from the same factors through her mother's breastmilk; a child may get too hot from playing in the sun, working too hard or being carried too much "a tuto"

Figure 1
The Six Indigenously-defined Conceptual Schemata of Childhood Diarrhea, their Causes, Progressive Stages and Principal Diagnosic Indicators
Santa Maria de Jesus, Guatemala
Focal Groups



in a shawl on his mother's back; "heat" is also introduced into the child's body if he has been given a "hot" medicine or injection, is not given enough water to drink, has eaten too much during the evening meal, or has eaten excessive amounts of foods considered to be "hot".

The introduction of excessive "heat" into the child's body causes the worms in the sack to "alborotar" or become agitated, which in turn results in a dry cough, crying, nausea and loss of appetite. This is followed by a stage in the progression of the illness called "infection", during which time characteristically yellow diarrhea appears. The child's stomach is said to be burning hot to the touch. Soon after, the heat in his stomach may "climb up" to his head causing night sweats and fever, making it difficult for him to sleep. His feet and knees are cold. If they are very agitated, some of the worms may fall from the sack and come out in the diarrhea. If not treated, mucus will appear in the yellow diarrhea, which will eventually turn red with blood, becoming dysentery or "peste". The child may begin vomiting and become palid and "seco" or dehydrated.

"Hot" diarrhea is considered to be the most common type of diarrhea in Santa Maria de Jesus and is also considered to be one of the two kinds (with evil eye) most potentially fatal to children.

2. diarrhea caused by "cold"

Another type of childhood diarrhea is caused when excessive "cold" is introduced into the body. This most commonly occurs in the following ways: the child may contract "cold" from contact with the ground (not wearing shoes or sandals, sleeping on the ground, living in houses with dirt floors), from drinking cold water or milk, bathing in cold water too often, or playing out in the rain. Ingestion of "cold" foods (some kinds of beans, fruit, or broths) is also a cause of "cold" diarrhea. "Cold" may also be transferred to an infant through lactation if his mother is absorbs "cold" in these ways.

As with "hot" diarrhea, introduction of excessive "cold" into the body will cause the worms in the stomach sack to become agitated or "alborotar", resulting initially in a dry cough, loss of appetite, nausea and crying. The next stage in this illness is "infection" with green diarrhea, the principal diagnostic characteristic of "cold" diarrhea. As with "hot" diarrhea, the worms may become so agitated that they fall out of the sack in the stomach and can be found in the diarrhea. If not treated, fever and vomiting may ensue and the child may become "dry".

Unlike "hot" diarrhea, "cold" diarrhea rarely results in dysentery (with blood and mucus), and is not considered to be as common or as potentially fatal to children.

3. diarrhea caused by "indigestion" or "inflammation"

The third type of childhood diarrhea causing agitation to the stomach worms is the result of a child having eaten food that is poorly prepared, not served on time or eaten in excess. This differs from the food-related "hot" and "cold" diarrheas above in that the focus here is on the irregular preparation of food, serving schedule or amount consumed (although women thought that "heat" was generated in the child's body if too much food was consumed).

These irregularities in dietary behavior also cause the worms to become agitated, which in turn causes a dry cough, nausea, loss of appetite and crying. The next stage of the illness is, as in "hot" and "cold" diarrhea, called "infection", in this instance characterized by diarrhea which is described as white and frothy. If the worms have become very agitated they may also be evident in this type of diarrhea. If not treated, the child may begin vomiting and become "dry" or dehydrated.

Diarrhea from "indigestion" or "inflammation" never becomes dysentery (with blood and mucus) however, and is considered to be less dangerous to children than either "hot" or "cold" diarrhea.

The remaining three childhood diarrheas in Santa Maria de Jesus are also described in Figure 1. None of these have an effect on the worms in the stomach sack.

4. diarrhea from ingestion of worms

Childhood diarrhea may also be caused by ingesting worms. This happens most commonly when food (especially fruit) is not washed before it is eaten, children eat food with dirty hands, inhale dust carrying worms, ingest "microbes", or drink from bottles which have not been protected from flies.

When worms have been ingested, the worms in the stomach sack are apparently not affected, but the resulting diarrhea is watery and white and the child's eyes roll up in her head. Her stomach makes rumbling noises (the worms "speak") and she cries out when her stomach aches. At night the child will toss and turn and be unable to sleep as the worms move inside her. She will vomit worms, worms will be present in her stool and may come out of her nose or mouth. If not treated this type of diarrhea may cause the child to become "dry", however diarrhea from the ingestion of worms is not considered to be as dangerous as other types of diarrhea.

5. diarrhea from evil eye

Children, particularly those under one year of age, are also susceptible to diarrhea caused by evil eye. Evil eye is caused by the gaze of a pregnant or menstruating woman (especially if she has not been eating enough or has not eaten yet that day), a person who has a hangover, or one who has just come in sweating and hot from work in the fields or

elsewhere. Evil eye can also be caused if a child is very attractive and is admired by a woman who is not his mother. These behaviors and conditions were said by some to be "hot" (alcohol, envy, pregnancy and menstruation, lack of food are all "hot") and generate "heat" in the child's body. The "hot" quality of evil eye was also supported in data from Guatemala collected by Weller (1984:971) showing a strong association between "cold" treatments and evil eye.

Childhood diarrhea from evil eye begins with crying, frequent vomiting and loss of appetite (including rejection of breastmilk - not mentioned as a problem with other types of diarrhea). The diarrhea is of no particular color. Instead, the principal diagnostic sign is an itchy rash or bumps ("granos") over the entire body of the child, including the face and hands. These appear, dry, then reappear. There may be intermittent fever.

Although not as common as "hot" diarrhea, diarrhea from evil eye is considered to be as potentially fatal to young children in Santa Maria de Jesus. It is a diarrhea of long duration (six months to a year) and the rash rarely goes away.

6. diarrhea from dentition

Children may also have diarrhea when their teeth are erupting from their gums. In this case there is some crying and irritability, but no vomiting or loss of appetite. Diarrhea caused by dentition is also white. It is not

considered to be dangerous to the child and will go away without treatment.

Discussion:

1. the importance of the humoral theory and its extension to evil eye: The existence of "hot" and "cold" diarrhea in Guatemala is interesting from both theoretical and applied perspectives. Although the humoral theory of disease is considered to be the most widespread ethnomedical system in Latin America and imbalances in "heat" or "cold" have been well known as indigenous causes of illness in general (Foster, 1987), previous reports on diarrhea in Guatemala have mixed "heat" and "cold" with other causes and stages in the progression of diarrhea during analysis (INCAP, 1984)(INCAP, 1987)(Scrimshaw and Hurtado, 1985), or considered diarrhea to be only a "hot" condition, properly treated by "cold" (Foster, 1987).

In contast, this study indicates that the humoral system not only forms the basis for two of the six major cognitive schemata for childhood diarrhea, but may also be an underlying construct which extends to at least three of the other four indigenous categories of diarrhea causation: evil eye was said to be "hot"; there is some indication that diarrhea from dentition may be "cold" as the treatment and dietary patterns for the two kinds of diarrhea are the same; and "indigestion/inflammation", perhaps another term for "empacho" (Foster, 1987), was also related in this study to

"heat". Ingesion of worms was the only one of the six causes of childhood diarrhea not in some way related by village women to "heat" or "cold". It has been suggested that this apparent discrepancy is due to the recent introduction of the germ concept of disease into highland villages by Western medicine (Hurtado, 1988).

The relationship of evil eye to the humoral system is also of interest. In a recent article, Foster (1987) dismisses similar findings from lowland South America relating the humoral theory to shamanistic concepts (soul loss and "cold"; the "injection of forces by a malevolent agent - evil eye - and "heat") (Colson and Armellada, 1983) as unique, possibly aberrant, and "very different from beliefs and practices described in the rest of Latin America". The results of these interviews from Santa Maria de Jesus in Guatemala, however, provide another example in which the humoral theory is related to shamanistic concepts supporting the idea that the humoral theory underlies more indigenous concepts in Latin America than those previously recognized.

2. <u>the importance of color in diagnosis</u>

Another interesting result of this study was the importance of the color of the stool in the household-level identification of particular cognitive schemata and its subsequent impact on the course of treatment. Perhaps not surprisingly, the colors associated with the humoral

qualities of the diarrhea also reflected humoral theory: yellow was seen to be a sign of "heat" (yellow bile or choler is "hot") while green was seen to be a sign of "cold" (phlegm is "cold") and blood or dysentery is related primarily to "hot" diarrhea (blood is considered to be "hot") (Foster, 1987). To our knowledge the color white is not a part of the humoral system, and although it is diagnostic of diarrhea from indigestion/inflammation or worms it is not considered to be a direct indicator of "heat" or "cold" in Santa Maria de Jesus.

Treatment of Diarrhea

Once the cause of the diarrhea is identified in this way (according to the linked concepts, symptoms and signs with which it is associated), the child may be treated using traditional methods and pharmaceticals. Traditional remedies used in the treatment of indigenously classified diarrheal disease are presented in Table I, and pharmaceuticals are presented in Table II.

Although they are more properly conceptual stages in the progression of various types diarrheal disease (with the type of diarrhea left undefined) rather than causal in themselves, due to the broad nature of women's responses about treatment, "infection", dysentery, and worms are included in both tables along with five of the six major schemata for diarrhea in the village. The detailed responses on treatment related to the stages of an illness

rather than the schemata alone may reflect the use of different treatments during different phases of a diarrheal episode. Diarrhea caused by "ingestion of worms" was not specifically discussed in the interviews and so is not included here except as it may relate to the stage "worms".

Results and discussion:

1. traditional treatments

Traditional treatment patterns associated with diarrhea were found to adhere for the most part to the humoral system's use of opposites: diarrhea caused by "heat" is treated by two types of liquid thought to be cool or "fresco" (teas or "waters" made from rose hips or "cebada") and Coca-cola; while diarrhea caused by "cold" is treated by an infusion of cammomile, thought to be "hot", body massages with marjoram and rubbing alcohol or "aguardiente" and a drink of alcohol, also categorized as "hot". From an applied perspective it was interesting to find that liquids (infusions, "waters", and teas) made up the majority of treatments for diarrhea from "heat" or "cold", with different wild, cultivated and purchased substances used for each schema or stage of diarrhea.

The next seven substances are infusions of wild and cultivated herbs used in the treatment of the stage called "infection" with or without worms and dysentery. This is followed by a list of twelve traditional remedies used specifically in the treatment of worms. Again, the majority

Table I
Traditional Remedies for Indigenously-defined Schemata and Stages of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indig./ inflam"	evil eye	dentit.	"infec."	worms	dysent.
rose hips tea	x							x
"cebada" water	x						x	x
Coca cola	x							
majoram+alcohol rub		x						
alcohol rub and liquor		x					x	
cammomile tea		x				x	x	
"colocha" tea						x		
"macuy" tea						x	x	
"epazote" tea						x	x	
3 mint tea						x	x	
"altamisa" tea						x		x
"malva" tea						x	x	x
rice water							x	x
"jenjen" tea							x	x
yellow corn water							x	
anis liquor							x	
"punta de durazno"tea							x	
cigar							x	
liquor in a leaf							x	
"salvasanta" tea							x	
geranium tea							x	
chocolate							x	
garlic							x	

Table I (cont.)
Traditional Remedies for Indigenously-defined Schemata and Stages of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala

	Schemata				Stages of diarrhea			
Remedies	"heat"	"cold"	"indig./ inflam"	evil eye	dentit.	"infec."	worms	dysent.
stomach belt								x
coconut water/tea								x
"pericon" tea								x
chile				x				
rosemary				x				
limestone				x				
egg stuck w/pins				x				
pins in a cross				x				
"ruda"				x				
"tinta morada"				x				
"chilke"				x				
basil				x				
lemons in a cross under child's bed				x				
duck passed over child and thrown into water				x				
other substances passed over child and thrown in street, water, valley				x				
newborn's placenta passed over child's body				x				

of these remedies are liquid - either water or tea made from wild, cultivated or purchased substances. The only exceptions were garlic and cigar which are rubbed, with herbs and alcohol, on the body of the child to "keep the worms from climbing" or "bring the worms together". Dysentery was also specifically treated with water or tea made from wild or cultivated substances ("pericon", coconut). The only non-liquid treatment was the practice of tying the child's stomach with a cloth belt to keep it from "falling". This indigenous use of oral rehydration therapy in its broadest sense should be reinforced by projects aimed at reducing deaths from dehydration.

Traditional treatment of diarrhea from evil eye, on the other hand, involved very little preparation of liquid remedies and more magical practices, including bathing the child with herb water and throwing the water out, passing an egg (with pins, herbs in it) or a live duck over the child and throwing it away (to take away the "heat" of the evil eye), and placing pins or lemons in a cross.

2. <u>pharmaceutical treatments:</u>

As with "hot and "cold" traditional remedies, there was no sharing of treatment methods between "hot" and "cold" diarrhea. The first five pharmaceuticals in Table II (a sulfa drug, two aspirins, an antiparasitic, a mixture of pills called a "potente" from one of the village healers), and oral rehydration solution were mentioned specifically

Table II
Pharmaceuticals reportedly used in the Treatment of Indigenously-defined Schemata and Stages of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indig./ inflam"	evil eye	dentit.	"infec."	worms	dysent.
Yodoclorina (ad + ap)	x							
"potente" (unknown)	x					x	x	
Alkaseltzer (as)	x					x	x	x
Sulfadiacina (ab)	x					x	x	x
Bebetina (as)	x					x	x	x
Kaodekin (ab + ad)		x			x			
Milk of Magnesia (aa + p)							x	
Estomalito (ab + ap)						x		
Vitapirena (as)						x		
Bentogel (ad + ap + ab)						x		x
Sal Andrews (aa + p)						x		x
Enteroguanil (ap + ad)						x	x	x
Sal de Uvas (aa)						x	x	x
Santomicina (ab)						x	x	x
Agromicina (ab)						x	x	x
Cumalito (ad + ap)						x	x	x
Oral rehydration solution	x					x	x	x

Classifications: (according to a survey of village pharmaceutical conducted through the project)
ab = antibiotic
ad = antidiarrhetic
ap = antiparasitic
as = aspirin
aa = antiacid
p = purgative

for use with the most serious type of diarrhea - diarrhea due to "heat". Four of these were also mentioned in the treatment of "hot" diarrhea with dysentery and worms. Only one pharmaceutical (an antidiarrhetic and antibiotic) was mentioned specifically in conjunction with "cold" diarrhea. This same medicine was the only one mentioned for use with diarrhea from dentition, perhaps also considered to be a "cold" condition. Although this study did not request information from village women about the humoral nature of these pharmaceuticals, the "hot"/"cold" classification of Western medicine in our experience is widespread in the highlands of Guatemala. The treatment of each type of diarrhea in Santa Maria de Jesus with specific pharmaceuticals may be due, at least in part, to their humoral classification on the village level.

The rest of the pharmaceuticals mentioned by the women were not listed in reference to any specific schema for diarrhea but rather in relation to stages in the progress of some schemata. Milk of Magnesia and an antibiotic-antiparasitic were used in cases of "infection", while an aspirin, an antiacid-purgative, and an antidiarrhetic-antiparasitic-antibiotic were mentioned as treatment for "infection" associated with dysentery. The last five pharmaceuticals listed were given as treatment for "infection" with worms and dysentery.

No pharmaceutical was reportedly given for cases of childhood diarrhea diagnosed as due to evil eye or to "indigestion/inflammation".

3. oral rehydration solutions

Twenty-four of the twenty-seven women (89%) responding to questions about ORS said they had heard of oral rehydration salts, either in their liquid or powder form. Twenty-two of the women (82%) said they had tried salts in some form at least once in the treatment of childhood diarrhea. As noted in Table II, women mentioned using salts particularly in the treatment of diarrhea caused by "heat", and especially with "infection", worms or dysentery.

In spite of these high rates of knowledge and at least one-time use of salts, however, some controversy about ORS was evident during the interviews. Some felt salts were bad when there was an "infection" because they did not stop the diarrhea. These women had tried salts once, but had changed to Milk of Magnesia because it gave them better results (stopped the diarrhea). Those who had used and liked salts said they preferred the liquid solution to the powder as they felt the liquid was cooler or more "fresco" and so a better treatment for diarrhea caused by "heat". The liquid solution was said to restore a child's appetite and strength and reduce diarrheal episodes more effectively than the powder. Salts were reportedly mixed with Enteroguanil (an antidiarrheic-antiparasitic) by some, and were considered to

be most effective if an injection was given to the child at the same time.

As village women were also clearly able to identify dehydration (called "ponerse seco" or becoming "dry") as a physical condition related to certain schemata of diarrheal disease, this misunderstanding about the goal of oral rehydration may be corrected in Santa Maria de Jesus through the proper use of the term "seco" in mass media and other educational approaches concerning oral rehydration. The indigenous use of "seco" may also be useful information for projects teaching the use of oral rehydration in other parts of Guatemala. A review of the enthographic literature or a short, directed research project could further define the term "seco" and determine how widespread this usage is.

The essential role played by "heat" and "cold" in both the definition and treatment of childhood diarrhea also has important implications for Child Survival or maternal-child health projects promoting the use of oral rehydration therapy and may explain at least some of the high knowledge/low use rates reported for ORS in Latin America (Burleigh, 1987). Studies in cognition have shown that people construct mental structures based on the experience of their senses. Any new experience introduced into their lives is classified in terms of these structures (Freeman, Romney and Freeman, 1987:313). Thus, as pharmaceuticals have been classified into the humoral system which forms the

basis of the cognitive schemata for diarrheal disease in childhood, so will the rehydration salts become classified. The placement of ORS on the "hot-"cold" continuum will determine the way it is used. Women will consider ORS to be inappropriate or appropriate in the treatment of specific types of diarrhea according to this indigenous system.

This study shows that oral rehydration solution in liquid form (Pedialyte) is considered to be "fresco" or cool, and therefore good for the treatment of "hot" diarrhea. However, there was more confusion about the humoral quality of ORS in dry form with some believing them to be "hotter" than the liquid solution and therefore not good for "hot" diarrhea. The indefinite quality of the classification of salts may be related to their recent introduction into Guatemala.

Studies have shown that the opinion of a specialist about a particular treatment may influence the non-specialists use of that treatment (Garro, 1986:352). One curandera in Santa Maria de Jesus who was interviewed on this subject was strongly opposed to the use of oral rehdration salts in dry form as she considered them to be extremely "hot" and therefore dangerous to children if used to treat "hot" diarrhea.

This possibly temporary period of uncertainty about the classification of ORS has important implications for programming in Child Survival. Given the humoral basis of

the cognitive structure which underlies diarrheal disease in Santa Maria de Jesus, it is imperative that projects designed to increase home-based use of salts not only clarify their use in the treatment of children who are "seco" or dehydrated, but also stress their neutral humoral classification and their applicability to dehydration from all types of diarrhea, whether "hot" or "cold".

Dietary Patterns Associated with Childhood Diarrhea

One of the most interesting pieces of information provided by the village women during this portion of the interviews was the importance of the child's loss of appetite during the diarrheal episode. Most studies have stressed the caretaker's role in the child's dietary intake, analyzing food beliefs and restrictions without taking the child's demand into account. In contrast, village women in this study stressed the child's demand as a major factor influencing his diet. When questioned about the child's diet, women said they initially offer all family foods to the child though some foods are considered to be better for children with diarrhea than others. It is primarily the child, however, who decides what to eat or whether to eat at all. During many episodes of diarrhea, children are too sick to eat (the worms don't want to eat) and will reject any food offered to them. Often the only food the child (and the worms) will accept is breastmilk. The worms were

said to get worse if the breastmilk is taken away. In some extreme cases even the breast is rejected.

Those foods which may be given to children with diarrhea without harmful effects are shown in Table III. Thos considered harmful are presented in Table IV. As in the previous tables, although "infection", worms and dysentery are more properly stages in the progress of a particual schema rather than causes of diarrhea, they are included here due to the broad nature of the responses given by the women's groups and may reflect changes in diet related to stages in the progression of diarrheal episodes.

Children with diarrhea caused by "heat" were given special foods which included meat broths, and sources of calories especially toasted for the sick child (corn, tortillas). Fruit considered to be "hot" (oranges, pineapples) was restricted in the diet. Children with diarrhea caused by "cold" were given eggs, meat broths and some calorie sources, including toasted bread. No foods were reported as especially restricted.

During the "infection" stage (undefined cause), bean broth and beef were considered to be good for the child as were some wild, cultivated or purchased vegetables and fruits ("macuy", cooked tomato, potatoes, winter squash, cooked apples, green squash and bananas), and sources of calories, especially if toasted or browned. Whole beans were restricted, as was beef broth and Incaparina, wild

Table III
Foods reportedly prescribed for episodes of Indigenously-defined Schemata and Stages of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indig./ inflam"	evil eye	dentit.	"infec."	worms	dysent.
breastmilk	x	x	x	x	x	x	x	x
protein sources								
egg		x			x			
bean broth						x	x	
beef						x	x	
meat broths	x	x			x		x	
fruits/veg.								
"macuy"						x	x	
"bledo"							x	
"chipilin"							x	
"cilantro"							x	
tomato (cooked)						x	x	
potatoes						x	x	
winter squash						x	x	
apples (cooked)						x	x	
green squash						x		
bananas						x		
onions							x	
plums							x	x

Table III(cont.)
Foods reportedly prescribed for episodes of Indigenously-defined Schemata and Stages of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indig./ inflam"	evil eye	dentit.	"infec."	worms	dysent.
calorie sources								
corn (toasted)	x					x		
tortillas (toasted)	x		x			x	x	
noodles	x					x	x	x
bread (toasted)		x	x			x	x	x
rice							x	x
atole (maize)		x	x					
other								
cinnamon	x					x		
coffee (no sugar)								x

GHL

herbs including "chipilin" and "San Nicolas", uncooked apples, oranges, pineapples and peaches. Fresh corn was also restricted, as was rice, "atole" of maize, oil or lard, and "tamales" or "cnuchitos".

Children with worms (undefined cause) were reportedly given beef broth and beef, and many kinds of wild, purchased or cultivated vegetables and fruits, including some restricted during an "infection" ("macuy", "bledo", "chipilin", "cilantro", cooked tomatoes, potatoes, winter squash, and cooked apples, and onions). Toasted tortillas and bread were also reportedly given, as were noodles. As with "infection", whole beans were restricted along with oranges, pineapples, peaches, oil and lard. Eggs, fish, limes, avocados, and cherries were also listed as restricted. Only a few foods (bean broth, plums, and rice) were a source of confusion, given by some women and restricted by others when a child had worms.

Those foods listed as good for a child with dysentery (undefined cause) were also, for the most part, those considered to be good for a child with worms. These included plums, noodles, toasted bread and rice. Coffee without sugar was also given. Whole beans were restricted with dysentery, as with "infection" and worms. "Macuy", "bledo", uncooked apples, oranges, "jocotes", limes, peaches, avocados, "nisperos", chile and cherries were also

Table IV
Foods reportedly restricted during episodes of Indigenously-defined Schemata and Stages of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indig./ inflam"	evil eye	dentit.	"infec."	worms	dysent.
protein sources								
egg							x	
whole beans						x	x	x
bean broth							x	
beef broth						x		
Incaparina						x		
peanuts			x					
fish							x	
fruit/veg.								
"macuy"								x
"bledo"								x
"chipilin"						x		
"San Nicolas"						x		
apples (raw)						x		x
plums							x	
oranges	x			x		x	x	x
pineapples	x					x	x	
"jocotes"								x
limes							x	x
peaches						x	x	x
avocados							x	x
"nisperos"								x
chile								x
cherries								x
all fruit				x			x	

Table IV (cont.)
Foods reportedly restricted during Episodes of Indigenously-defined Types and Stages of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indig./ inflam"	evil eye	dentit.	"infec."	worms	dysent.
calorie sources								
corn (fresh)						x		x
rice						x	x	
"atole" (maize)						x		
oil/lard				x		x	x	x
"tamales/chuchitos"						x		
other								
sugar, sugarcane								x

restricted, along with rice, oil or lard, and sugar or sugarcane.

Foods good for other kinds and stages of diarrhea were also given for diarrhea from "indigestion/inflammation", including toasted tortillas or bread. "Atole" (maize) was also given. Peanuts were the only food restricted.

In contrast to the lengthy dietary information given for other types and stages of diarrhea, no foods were mentioned as particularly good for children with diarrhea from evil eye. As with most types of diarrhea, oil or lard and oranges were restricted ("all fruit" was also mentioned).

Eggs and meat broths were considered to be good for diarrhea from dentition, as for "cold" diarrhea, however no foods were restricted in the diet.

This list of foods is interesting because of the coherence and lack of contradiction in the dietary prescriptions and restrictions considered appropriate for each indigenously-defined schema for diarrhea. With only three exceptions (bean broth, rice and plums given and also restricted when a child has worms), foods restricted for a particular schema were not also listed as given, nor were foods given for a particular schema listed as restricted. Furthermore, foods given for "hot" diarrhea were not considered to be good as well for "cold" (with the exception of "broths", not defined as beef, chicken or some other. In

another Cakchiquel village in the Central Highlands of Guatemala, varieties of meat range from very "hot" (beef) to very "cold" (pork), differences which may explain this apparent contradiction)(Burleigh, 1986). Nor were foods restricted with "hot" diarrhea considered to be restricted as well for "cold".

Fortunately, women reported no dietary restrictions involving breastmilk with any type or stage of diarrhea. The worms were said to become more upset and the diarrhea to worsen if the breast is taken away. Occasionally children with diarrhea, especially diarrhea from evil eye, were said to reject even the breast.

A final finding associated with diet during diarrhea was the special preparation of foods for the sick child. Foods (bread, tortilla, and corn) were reportedly browned for the sick child, while fruit was cooked rather than eated raw, and special broths were prepared from herbs or meat.

Discussion of the Internal Consistency of the Data

The data presented here shows remarkable consistency in the application of the principals of humoral theory to both behavioral and cognitive domains. In contrast, the results of a subsequent set of individual interviews using the same interview guide with the same women showed much less internal consistency (Burleigh, Dardano, Stuart and Cruz, 1989).

This apparent sensitivity of the group interview method to consensual and consistent data may be due to the interaction of respondents within the groups themselves. In spite of attempts to facilitate communication through the control of specific variables such as age, sex or parity, members with less knowledge or less "competence" in a particular domain may be subtly deferring to other members which the group perceives as more knowledgable. Research in cognition has shown the set of responses from specialists to be much more consensual and internally consistent than those of non-specialists (Garro,1986).

In contrast, in the individual interview each individual responds with her own concepts in all domains, known and unknown. Therefore, even when the same individuals are interviewed again, the responses from this methodology are necessarily less consensual and less consistent internally than those of the group interview method.

Prevention of Diarrhea

Although this study did not request information about prevention, we thought it worth noting here that interviews with village women yielded specific examples of measures taken and recommended to prevent childhood diarrhea. This is in contrast to literature which has repeatedly noted the apparent lack of preventive measures taken by indigenous caretakers during episodes of childhood illness, including

those of Santa Maria de Jesus (INCAP, 1987). One women prevented "hot" diarrhea by giving her child a combination of two antibiotics and two aspirins every three days. Others said children must be kept covered when out in public until they are 3-4, and even 5-6 months old in order to prevent diarrhea from evil eye. Prevention of diarrhea also clearly involved the caretaker's awareness, and to some extent control of "hot" and "cold" factors affecting the child's humoral equilibrium.

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IDENTIFYING CONFLUENCE IN COGNITION: A COMPARISON OF FOCAL GROUP AND INDIVIDUAL INTERVIEW METHODS ON THE SUBJECT OF CHILDHOOD DIARRHEAL DISEASE

In a validation trial of the focal group method, both cognitive and behavioral data were elicited from indigenous Guatemalan women using two methodologies sequentially: focal groups and individual interviews. Both methods were shown to be equally valid and reliable in their ability to capture both cognitive and behavioral data. This cross-methodological testing was also shown to be a useful in refining the consensual shared-culture area, generally defined in studies of cognition through the use of only one method. The responses elicited by the two methodologies were found to be related concentrically with the confluent portion consisting of shared, essential elements, and less distinct peripheral elements within the other areas of each circle. The area of confluence or consensus was much greater and

more defined in the cognitive domain than in that of behavior, supporting the contention that indistinctness is not a property of cognitive structures themselves but rather of their application in the world.

As the medical social sciences have become increasingly involved in applied research, a need has arisen for methodologies which provide valid and reliable information quickly and inexpensively. Surveys are often too expensive and time consuming for projects to implement, and the information sought may not be readily accessible through techniques involving short periods of interviewer-subject interaction and structured questionnaries. By the same token, in-depth anthropological field work may also be too expensive and time consuming in an applied setting where emphasis lies on project implementation.

For this reason, several methods of rapid assessment have been proposed for the social sciences in recent years. Principal among these is the focal group. This technique is characterized by interviews with a series of small groups. The groups are filled by quota sampling for specific variables in order to facilitate communication within each group. Because of its relatively simple application, this group interview method has

become increasingly popular in applied settings. However, little work has been done to validate its results.

This paper presents the results of a focal group validation trial conducted as part of a larger epidemiological research project on chronic diarrhea in childhood in the highlands of Guatemala. Information was obtained from women first through focal groups and then through individual interviews on the following:

1. definitions of childhood diarrhea
2. indigenous semantic structures which reflect the cognitive domain concerning childhood diarrhea (Noricks, 1987:425)(Wallace, 1965:230)(Scheffler and Lounsbury 1971:68).
3. the relationship of the cognitive domain to reported behavioral patterns concerning:
    a. traditional remedies
    b. pharmaceutical treatments
    c. dietary prescriptions
    d. dietary restrictions

The following broadly conceived questions were to be addressed in the analysis of the data:

1. Will the individual interviews will provide a more complete (wider range) and detailed understanding (more depth) of

cognitive structures and related behavioral patterns than will the interviews conducted in groups?

2. What will be the degree of agreement between focal group and individual interview data in both cognitive and behavioral areas?

Methodology

Focal Groups

In 1987, twenty-seven village women from Santa Maria de Jesus were selected using a non-probability quota sampling design. These women were divided into five focal groups of 5-6 women each based on age cohorts, number of children and use of traditional and/or western medicine. The variables of age, parity and medical preference were controlled in order to facilitate communication among women within each group. Group interviews were conducted by a bilingual female interviewer (Cakchiquel Mayan and Spanish) with each group using a semi-structured, open-ended interview guide on the six areas listed above. The open-ended interview guide was used instead of a more structured instrument in an effort to not bind responses with our own preconceptions and thereby risk identifying associations which were actually an artifact of the instrument itself (Keesing, 1987:165). Responses were manually recorded by a bilingual female interviewer and taped on audio cassette.

As the number of women in each group was small, focal group responses were aggregated during analysis. Because the interviews were with groups, response frequencies were not recorded and could not be considered quantitatively. Rather, focal group data was analyzed according to the association or clusterings of symbols and meanings.

Individual Interviews

Three months after the focal groups were completed, each of these same women was interviewed individually at home by bilingual female interviewers using the same set of open-ended questions used during the focal group interviews. Although the numbers are small, the individual nature of the interviews allows us to present response frequencies and therefore quantify associations between concepts.

Presentation of Results

The strength of agreement between focal group and individual interviews in cognitive and behavioral areas varied widely. However, individual interviews did not provide a more complete understanding than did the focal groups. Rather, both methodologies yielded two inter-related types of data: a) data agreed upon by both methods, and b) that identified by one method alone.

The relationship between the information obtained by these two methodologies may be visualized as two concentric circles with shared concepts in the central area of overlap and those mentioned by one method alone in the other areas. The information from each method tends for the most part to complement rather than contradict that of the other. For this reason, all of the information within both methodological circles is taken here to represent the total cognitive schemata and prescribed behavioral patterns associated with childhood diarrhea in Santa Maria de Jesus.

The concepts within the central, confluent area of the circles were mentioned repeatedly. According to contemporary cognitive psychology, elements in an event (diarrhea, in this instance) that occur regularly are embedded into mental structures as expectations, are remembered more frequently and trend in the direction of consistency with a long-term pattern (Freeman, Romney and Freeman, 1987:314,311). Recent research in cognition has also shown that "informants statements should be seen a probabilistic. The more who agree, the more likely it is to be the correct cultural response". Thus, knowledge may be inferred from consensus (Romney, Weller and Batchelder, 1986:314)(Weller, 1984:966) . The repetition of these elements also makes them the most explicit and distinct. These shared concepts and behaviors may be considered therefore to constitute

the essential or fundamental elements of cognition and behavior surrounding childhood diarrheal disease.

This core is surrounded by variability. Those concepts which fall outside of the conjunction were mentioned less often and their relationship to the essential elements or eachother is therefore less clear. These may be referred to as peripheral elements. Although they do not constitute the core, their validity or lack thereof is unknown. Therefore, as they were also given as a part of the semantic structure they may not be rejected and must be included with the essential elements of the core as defining the universe of the semantic domain which gives expression to the cognitive system.

Given the concentricity of the data collected during the course of focal group and individual interviews, determining the relationship of methodologies to eachother and to the data meant asking the following questions:

1. What fraction of the data collected was agreed upon by both methods and therefore constituted the essential elements of cognition or behavior? This is our first measure of both the reliability and validity of the data.

2. What fraction of the total information collected was provided by each method alone? The answer to this gives us some indication of the range or breadth of information provided by each methodology as well as further information involving the

ability of each method to capture cognitive and behavioral information.

3. What fraction of the information collected by each method lay within the confluent area of essential elements of cognition and behavior and what corresponded to elements on the periphery? The answer to this question tells us about the depth of the information provided by each method. It also provides us with a measure of the reliability and validity of each method.

The comparative methodology presented in this paper differs from previous research in cognitive validity in several important respects. Although the data from this research also supports the use of a shared-culture model, concurrence is a result of agreement across time with the same informants using different methodologies. Previous papers have discussed concurrence among individuals at a given time based on data collected by one methodology only (Weller, 1984)(Romney, Weller and Batchelder,1986).

We will argue here that the cross-method analysis offered here further refines the identification of cognitive confluence. The focal group data represents the consensus of the focal group informants at one point in time. This shared cognitive and behavioral data is discussed in detail elsewhere (Burleigh, Dardano, Stuart and Cruz, 1988). We will show how subsequent interviews with the same individuals both refine the area of

consensus identified by the focal groups and expand the semantic and cognitive domains.

The Definition of Diarrhea

Table I shows strong concurrance (83%) between the focal groups and individual interviews on the definition of diarrhea as liquid or semi-liquid stools occurring "cada rato" (every little while) or 5-14 times in a 24 hour period. Both methodologies provided nearly the same breadth of information on this subject (83% - 100%), and most of the data from each method was agreed upon by the other (83% - 100%).

Although there was some concern among anthropologists that the village-level definition of diarrhea would differ from that of the project staff and therefore cause either over- or under-reporting of diarrheal episodes, the village-level definition from both method sources varies only slightly from the World Health Organization's of 4 or more liquid or semi-liquid stools in a 24 hour period. Any reporting bias would be slight and in the direction of under-reporting.

Cognitive Schemata for Childhood Diarrheal Disease

There was also strong agreement between focal groups and individual interviews on the existence of cognitive schemata for diarrheal disease in Santa Maria de Jesus. The individual interviews agreed with five schemata out of the six identified by the the focal groups (83%).

Table I

Definition of Childhood Diarrhea in Santa Maria de Jesus, Comparison of Focal Group and Individual Interview Responses

Characteristics of Stool	Focal groups (N=27)	Indiv. interv. (N=23)
liquid	x	8
semi-liquid	x	5
Frequency/day:		
5-9 times	x	3
10-14 times	x	1
15-20 times	x	-
every little while	x	7
Percent shared, essential elements by both methods	83%	
Perc. of whole identif. by each method	100%	83%
Perc. of each method which is within the core	83%	100%

Both methodologies also identified specific causes, diagnostic characteristics and concepts or stages linked in progression for these schemata. Table II shows that the overall concurrence on all elements of the schemata was 40%. Agreement between methods was strongest in the area of concepts linked in progression (56%), and for diarrhea caused by "heat", "cold" and dentition (41-67%). Evil eye was mentioned as a complex schema only in the focal group interviews.

The range of the total schematic data which was captured by each method is presented in Table III. Although each method was found to have provided more information about one or another schema than did the other, both provided about the same breadth of the total cognitive data (68%-65%).

Table IV presents the depth of information identified by each method, or the percentage of each method's responses which lay within the concentric portion of the circle. Again, the majority of responses from both methods lay within this shared area. The focal groups had a slightly higher percentage of responses within this category (70%) than did the individual interviews (56%). Thus, a minority of both focal group (30%) and individual responses (40%) fell within the more indistinct peripheral elements of the cognitive data.

Table II

Percent of Cognitive Schemata which were Shared, Essential Elements
Diarrheal Disease among Children
Santa Maria de Jesus, Sacquetepequez
Guatemala

	Schemata											
	"heat"		"cold"		worms		inflamm.		dentition		evil eye	
	F	I	F	I	F	I	F	I	F	I	F	I
Causes	63%		33%		14%		0%		100%		0%	
N	(19)		(12)		(14)		(4)		(1)		(5)	
Concepts	63%		50%		50%		66%		100%		0%	
N	(8)		(8)		(4)		(3)		(2)		(2)	
Symptoms/signs	45%		43%		39%		33%		50%		0%	
N	(20)		(14)		(13)		(9)		(3)		(5)	
Total	55%		41%		29%		31%		67%		0%	
N	(47)		(34)		(31)		(16)		(6)		(12)	

Table III

Percent of Cognitive Schemata Identified by each Methodology
Diarrheal Disease among Children
Santa Maria de Jesus, Sacquetepequez
Guatemala

	Schemata											
	"heat"		"cold"		worms		inflamm.		dentition		evil eye	
	F	I	F	I	F	I	F	I	F	I	F	I
Causes	63%	89%	83%	17%	57%	57%	25%	75%	-100%-		100%	0%
N	(19)		(12)		(14)		(4)		(1)		(5)	
Linked concepts	75%	88%	75%	25%	50%	100%	100%	67%	-100%-		100%	0%
N	(8)		(8)		(4)		(3)		(2)		(2)	
Symptoms/signs	55%	90%	64%	79%	54%	85%	78%	56%	100%	66%	100%	0%
N	(20)		(14)		(13)		(9)		(3)		(5)	
Total	62%	89%	74%	44%	55%	74%	69%	63%	100%	83%	100%	0%
N	(47)		(34)		(31)		(16)		(6)		(12)	

Table IV

Percent of each Method's Results which were Essential Elements of Cognitive Schemata
Diarrheal Disease among Children
Santa Maria de Jesus, Sacquetepequez
Guatemala

	Schemata													
	"heat"		"cold"		worms		inflamm.		dentition				evil eye	
	F	I	F	I	F	I	F	I	F	I			F	I
Causes	83%	59%	40%	67%	25%	25%	0%	0%	-100%-				0%	0%
N	(12)	(17)	(10)	(6)	(8)	(8)	(0)	(0)	(1)	(1)			(0)	(0)
Linked concepts	83%	71%	83%	71%	100%	50%	67%	100%	-100%-				0%	0%
N	(6)	(7)	(6)	(7)	(2)	(4)	(3)	(2)	(2)	(2)			(0)	(0)
Symptoms/signs	82%	50%	67%	55%	71%	46%	71%	46%	67%	100%			0%	0%
N	(11)	(18)	(9)	(11)	(7)	(11)	(7)	(11)	(3)	(2)			(0)	(0)
Total	83%	57%	60%	63%	53%	39%	70%	54%	83%	100%			0%	0%
N	(29)	(42)	(25)	(24)	(17)	(23)	(10)	(13)	(6)	(5)			(0)	(0)

Essential Elements of Cognitive Schemata

The following are the essential elements of the cognitive schemata identified by both methods. The percentages in parentheses represent the strength with which concepts were linked in progression during the individual interviews:

1. diarrhea caused by "heat"

This type of diarrhea is caused by behaviors, the environment or emotions which introduce "heat" into the body. The principal "heat" inducing behaviors during childhood include eating too much "hot" food (chile, coffee, alcoholic beverages, fruit - some kinds, sweets), not eating or drinking water for a long period of time, working too hard in the fields or washing clothes, or carrying too heavy a load. Anger may also cause "hot" diarrhea, as may prolongued exposure to the sun. "Heat" generated in the mother's body may be passed to the child through her breastmilk.

The imbalance of "heat" in the body causes "infection" (44%). The stage of "infection due to heat" is characterized by the presence of yellow diarrhea (43%), its principal diagnostic sign. "Infection due to heat" is also accompanied by lack of appetite, fever, vomiting, crying, thinness, and a stomach hot to the touch.

If no cure is given or found or too much "hot" medicine is given during the "infection" stage, th "hot infection" and

yellow diarrhea will become "peste" or dysentery (38%), characterized by the presence of mucus and/or blood in the stool. As this is the type of diarrhea which most often results in "peste", it is considered to be the most dangerous to young children.

2. diarrhea caused by inflammation

Although both methodologies agreed on a category of diarrhea caused by "inflammation", there is no agreement on the cause. Because both list causes which are "hot", proscribe "hot" foods and prescribe foods which are "fresco", it is possible that "inflammation" is another term for "infection due to heat" and should be collapsed into that category for analysis. However, there are also some important differences between the two types of diarrhea which prevent combining them: the diagnostic characteristic of "inflammation" is white diarrhea rather than the yellow diarrhea diagnostic of "heat", and "inflammation" never becomes "peste" or dysentery.

3. diarrhea caused by "cold"

According to both focal groups and individual interviews, this type of diarrhea is caused by behaviors and environmental factors which introduce "cold" into the body. The most important "cold" inducing behaviors during childhood include getting wet in the rain, taking cold water baths, crawling on the ground, having cold, wet bare feet, and getting too cold when out of doors.

"Cold" in the mothers body may also be passed to her child through her breastmilk.

Once "cold" has been introduced into the child's body, this will cause green diarrhea (27%) which is its principal diagnostic characteristic. The child will also suffer loss of appetite, vomiting, and crying.

"Cold" and green diarrhea will sometimes result in "peste" or dysentery (12%) though the association is much weaker than that of "hot" diarrhea discussed above. As dysentery occurs much less frequently, diarrhea due to "cold" is considered to be much more benign during childhood.

4. <u>diarrhea caused by worms</u>

Although diarrhea from worms was identified by both methodologies, each listed causes which were different from the other. The only cause upon which both agreed was that eating too many sweets ("hot") or too much fruit ("hot" or "cold") could cause worms. It is interesting to note that nearly all of the other causes listed by each methodology were also listed as causes of either "hot" or "cold" diarrhea. For that reason, it is possible that diarrhea from worms is a stage in the progression of "hot" or "cold" diarrhea rather than a cause in itself. However, there are also several important distinguising characteristics of this diarrhea which differ from those of "hot" or "cold": diarrhea from worms causes stomach cramps and

vomiting and aside from the presence of worms in the stool, white diarrhea (57%), rather than yellow or green, is the principal diagnostic characteristic.

5. diarrhea caused by dentition

Both methodologies agreed that diarrhea in children could be caused by the eruption of teeth. This causes diarrhea which is also white (33%), however unlike diarrhea from worms there is no cramping or vomiting.

Concepts on the Periphery

The following are major concepts which also form a part of the total perception of diarrheal disease in Santa Maria, but were identified by only one methodology:

1. The sixth cause of diarrhea: evil eye

One of the most potentially fatal types of diarrhea identified in Santa Maria de Jesus was only discussed during the focal groups. The focal groups described a detailed schema for this type of diarrhea which began with the introduction of "heat" into the child's body through the gaze of the pregnant or lactating woman (especially if she has not eaten that day), a person with a hangover, or one who has just come in sweating from the fields. The admiring gaze of a woman not his mother can also cause evil eye in an attractive child.

Diarrhea from evil eye then progresses to cause crying, vomiting and loss of appetite (including rejection of breast milk

-not mentioned for other types of diarrhea). The diarrhea is of no particular color. Instead, the diagnostic characteristic is an itchy rash or bumps ("granos") over the entire body of the child including the hands and face. These appear, dry, and re-appear. There may be fever. It is considered to be a diarrhea of long duration and the rash rarely goes away.

The detail provided by the focal groups on the causation, diagnosis, progression and treatment of diarrhea from evil eye make it highly unlikely that this conceptual schema is relatively unknown in the village. And yet it was not mentioned during the individual interviews, which deliberately did not probe in an attempt to get as unbiased an interview as possible. The most probable explainations for this discrepancy are either that evil eye is not very common in Santa Maria de Jesus and so was not mentioned among the most important causes of diarrhea, or that evil eye is caused by (mainly inadvertent) witchcraft and is healed by magical means and is therefore not discussed as openly, particularly with strangers.

2. <u>the association of yellow, green, and white diarrheas</u>

Although specific stool colors were used to identify certain causes of diarrhea, there was some indication that the various colors were at times related sequentially to eachother. In other words, what appear to be distinct conceptual schemata may in fact be inter-related as one type becomes another. Thus, several

women in the focal groups stressed that yellow, green, and white diarrheas are associated with eachother. In the individual interviews, several respondents said that yellow or "hot" diarrhea could become green or white, green or "cold" diarrhea could become white or yellow-green (never yellow), and white diarrhea with worms could at times be yellow or green.

3. worms

According to the focal groups, the well individual has worms in a sack in his stomach which digest his food. When excess "heat", "cold" or "inflammation" are introduced into the body, these stomach worms become agitated ("alborotar"), causing the first symptoms of imbalance, characterized by a cough, crying and loss of apetite. If no cure is obtained, worms may appear in the stool of a child with these types of diarrhea. Another cause of worms in the stool is the ingestion of worms from dirty food or eating dirt.

The individual interviews did not mention the worms in the stomach sack, nor did they mention the first symptoms of certain types of diarrhea as related to an agitation of worms. Nor were worms associated directly in connection with "hot", "cold" or diarrhea from "inflammation". There was some indication, however, that these associations did exist as the individual interviews linked worms with yellow and especially green

diarrhea, symptoms of "hot" and "cold", and one traditional remedy for "hot" diarrhea was also designed to calm the worms.

4. other causes of "heat" or "cold", other symptoms

Each methodology identified behaviors or environmental factors associated with a particular type of diarrhea which was not identified by the other. Focal groups listed five "cold" foods and one additional "cold" behavior, while individual interviews yielded two more "cold" foods, for example. Various symptoms were also given by one methodology or the other including stomach ache, lack of apetite, fever, crying, thinness, cough, weakness, red mouth, irritability, cramps, eyes rolling back in the head, white mouth, swollen stomach, and unconciousness.

Traditional and Pharmaceutial Treatments and Dietary Patterns associated with Childhood Diarrhea

The behavioral information presented below is based on reported uses of remedies and foods during diarrhea rather than on the 24 hour recall of an actual diarrhea episode or on observations of actual use. As little agreement has been demonstrated between what people say they do and their actual behavior (Freeman, Romney and Freeman, 1987:310), the data reported here may be taken to more closely reflect the ideal association between behavior and the cognitive domain rather than actual patterns of use. The following tables analyze these

associations according to the indigenously-defined cognitive schemata described above, as well as stages (dysentery and "infection") of these schemata. Diarrhea from evil eye was not included as it was only reported by the focal groups.

traditional remedies

Table V compares the reported use of thirty-five traditional remedies in the treatment diarrhea by methodology. Both methods show that most of the remedies use in the treatment of "hot" diarrhea are different from those used to treat cold". Agreement on essential elements is 22-33% for "hot" and "cold" schemata. For all other schemata and stages of diarrhea, however, responses from both methods agreed very little or not at all (0%-16%). Peripheral elements, therefore, constituted most (84%) of this behavioral data. This was in contrast to the cognitive data presented above which had much higher rates of agreement between methods.

As with the cognitive data, both methodologies were found to have contributed breadly to the overall body of information about traditional remedies. However, the range of responses from the focal groups was wider (71%) than that of the individual interviews (44%). On the other hand, the individual interview responses provided more depth as a higher proportion fell within the shared area of essential elements (31%) than did focal group responses (19%).

Table V

Traditional Remedies for Indigenously-defined Conceptal Schemata of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala
Comparison of Focal Groups and Individual Interviews

	Schemata								Stages of diarrhea					
	"heat" (yellow)		"cold" (green)		"indig/ inflam"		worms		dentit.		"infec."		dysent.	
Remedies	F	I	F	I	F	I	F	I	F	I	F	I	F	I
N		(16)		(15)		(1)		(7)		(1)		(4)		(9)
rose hips tea	x	1						1					x	
olive oil		1								1				
alcohol,lemon, poultice		2												
Coca cola	x													
"epazote" tea		1		1			x	1			x			
"cebada" water	x	2		2			x	2				1	x	1
"pericon" tea				1									x	
majoram			x											
alcohol rub			x	2			x							
lemon				1		1								
liquor			x	1										
cammomile tea			x	1			x				x			
stomach belt				1									x	
alcohol poultice														1
poultice with epazote, cigar,liquor														1
rub with epazote, lemon, oil										1				1
poultice with epazote, altamisa, burned bread, alcamphor														1

Table V (cont.)
Traditional Remedies for Indigenously-defined Conceptual Schemata of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala
Comparison of Focal Groups and Individual Interviews

	Schemata					Stages of diarrhea					
	"heat" (yellow)		"cold" (green)		"indig/ inflam"		worms		dentit.		"infec."		dysent.	
Remedies	F	I	F	I	F	I	F	I	F	I	F	I	F	I
N	(16)		(15)		(1)		(7)		(1)		(4)		(9)	
"colocha" tea											x			
"macuy" tea							x				x			
3 mint tea							x				x			
"altamisa" tea											x		x	
"malva" tea							x				x		x	
rice water							x						x	
"jenjen" tea							x						x	
yellow corn water							x						x	
anis liquor							x							
"punta de durazno"tea							x							
cigar							x							
liquor in a leaf							x							
"salvasanta" tea							x							
geranium tea							x							
chocolate							x							
garlic							x							
coconut water/tea													x	2
lemon + achiote tea														1
Percent shared, Core	33%		33%		0%		11%		0%		0%		13%	
	F	I	F	I	F	I	F	I	F	I	F	I	F	I
Perc. of whole list ident. by each methodology	50%	83%	44%	89%	0%	100%	95%	16%	0%	100%	88%	13%	67%	40%
Perc. of each method which is within the Core	67%	40%	50%	25%	0%	0%	11%	57%	0%	0%	0%	0%	20%	34%

pharmaceutical treatments

Table VI presents the reported use of twenty-four pharmaceuticals or Western remedies by methodology. The proportion of this data which constitutes essential elements shared by both methods is also low (29%) when compared to the cognitive data. Again, most of the information on the use of pharmaceuticals is made up of peripheral elements not shared by both methods (71%).

This data also shows both methods to have identified large portions of the overall body of data on pharmaceutical use, however each method's contribution was the opposite of that described above in the use of traditional remedies. In this instance, the individual interview responses provided a wider range of data (73%) than did the focal groups (56%), while the focal groups provided more depth as a larger proportion of responses from that method were among the shared, essential elements (52%) than were those from individual interviews (40%).

Although some treatments appear to be specifically for either "hot" or "cold" diarrhea, the division is less apparent in the case of pharmaceuticals than it is in traditional remedies. Rather, a core group of ten pharmaceuticals (in this list beginning with the "potente" from the curandera or pharmacy) are relied upon for most schemata and stages of diarrhea including "heat", "cold", worms, "infection" or dysentery. It is

Table VI

Pharmaceuticals reportedly used in the Treatment of Indigenously-defined Conceptual Schemata of Childhood Diarrhea

Santa Maria de Jesus, Sacatepequez, Guatemala

Comparison of Focal Groups and Individual Interviews

	Schemata								Stages of diarrhea					
	"heat" (yellow)		"cold" (green)		"indig/ inflam"		worms		dentit.		"infec."		dysent.	
Remedies	F	I	F	I	F	I	F	I	F	I	F	I	F	I
N	(16)		(15)		(1)		(7)		(1)		(4)		(9)	
Sulfaquanidina (ab)				1								1		
Mejoralito (as)				1										
Kaodekin (ab + ad)			x					1	x					
Pectocin (ad + ab)														1
Enterolan (ad + ab + ap)				1										
Furaltemicina (ad + ab)				1										
"potente" (unknown)	x			1			x				x			
Yodoclorina (ad + ap)	x	2		1				2				1		
Alkaseltzer (as)	x	4		3		1	x	2		1	x	3	x	2
Sulfadiacina (ab)	x	5		4		1	x	2			x	2	x	1
Bebetina (as)	x	3		1		1	x	1			x	1	x	
Oral rehydration solution	x	6		4			x	1			x		x	
Enteroguanil (ap + ad)		4		3			x				x	1	x	2
Santomicina (ab)		2		3			x	4			x		x	1
Agromicina (ab)		2		3			x	3			x	1	x	
Sal de Uvas (aa)		2					x				x		x	
Peptobismol (ad)		1												1
Milk of Magnesia(aa + p)		1					x			1				
Bentogel (ad + ap + ab)		1									x		x	1
Sal Andrews (aa + p)		1									x	1	x	

Table VI (cont.)
Pharmaceuticals reportedly used in the Treatment of Indigenously-defined Conceptual Schemata of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala
Comparison of Focal Groups and Individual Interviews

	Schemata					Stages of diarrhea										
	"heat" (yellow)		"cold" (green)		"indig/ inflam"		worms		dentit.		"infec."		dysent.			
Remedies	F	I	F	I	F	I	F	I	F	I	F	I	F	I		
N	(16)		(15)		(1)		(7)		(1)		(4)		(9)			
Estomalito (ab + ap)											x		1			
Vitapirena (as)											x					
Cumalito (ad + ap)							x				x		x	1		
Home-made OR solution								1				1				
Percent shared, Core	36%		0%		0%		43%		0%		35%		43%			
	F	I	F	I	F	I	F	I	F	I	F	I	F	I		
Perc. of whole list ident. by each methodology	46%	93%	7%	87%	0%	100%	86%	67%	33%	64%	8?%	53%	79%	64%		
Perc. of each method which is within the Core	75%	31%	0%	0%	0%	0%	50%	67%	0%	0%	43%	67%	55%	67%		

Classifications (according to the project's inventory of pharmaceuticals available in SMJ):
as = aspirin
ad = antidiarrhetic
ap = antiparasitic
ab = antibiotic
aa = antiacid
p = purgative

interesting to note that oral rehydration solutions fall within this core group of pharmaceuticals which may be given for most diarrheas.

Dietary Prescriptions during Diarrheal Episodes

Foods which were reported to be good for children during diarrhea episodes are presented by methodology, schema and stage of diarrhea in Table VII. The degree of agreement between methodologies was again low when compared to the cognitive data (21%). Both methods contributed equally to the range of data on dietary prescriptions (66%-55%), and both had a similar proportion of responses (30-40%) which were shared, essential elements of reported behavior.

As in treatments described above, some foods were reportedly prescribed only for "hot" or "cold" diarrhea while a little more than a third of the foods listed for these types of diarrhea were used for both. Those foods most frequently mentioned were: toasted tortillas, noodles, toasted bread, eggs and cooked tomatoes. The first two were prescribed only for "hot" diarrhea, while the last three were apparently more neutral and therefore prescribed for both types of diarrhea.

It was interesting and encouraging to note that breast milk was the food most often mentioned as good for children during a diarrheal episode, and was prescribed for all schemata and stages.

Table VII
Foods reportedly good during episodes of Indigenously-defined Conceptual Schemata of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala
Comparison of Focal Groups and Individual Interviews

	Schemata								Stages of diarrhea					
	"heat" (yellow)		"cold" (green)		"indig/ inflam"		worms		dentit.		"infec."		dysent.	
Remedies	F	I	F	I	F	I	F	I	F	I	F	I	F	I
N		(17)		(15)		(1)		(9)		(1)		(3)		(9)
breastmilk	x	5	x	1	x	1	x	4	x		x	1	x	
protein sources														
meat broths	x		x				x		x					
egg		2	x	1				1	x					
beans				1										
bean broth							x				x			
beef				1			x	2			x	1		2
Incaparina								1						
fruits/veg.														
"cilantro"				1			x							1
tomato (cooked)		1		2			x	1			x			3
green squash				1				1			x			
onions				1			x							1
plums							x						x	
cantelope						1								
watermelon						1								
bananas											x			
potatoes							x				x			
winter squash							x				x			
apples (cooked)							x				x			
"macuy"							x				x			
"bledo"							x							
"chipilin"							x							

Table VII (cont.)
Foods reportedly good during episodes of Indigenously-defined Conceptual Schemata of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala
Comparison of Focal Groups and Individual Interviews

	Schemata												Stages of diarrhea			
	"heat" (yellow)		"cold" (green)		"indig/ inflam"		worms		dentit.		"infec."		dysent.	
Remedies	F	I	F	I	F	I	F	I	F	I	F	I	F	I
N	(17)		(15)		(1)		(9)		(1)		(3)		(9)	
calorie sources														
corn (toasted)	x										x			
tortillas (toasted)	x	1			x		x	2			x			1
noodles	x	1				1	x				x		x	1
bread (toasted)	x	1	x	1	x		x	3			x		x	1
atole (maize)		1	x		x									
rice		2					x						x	1
oatmeal		1						1						
potatoes								1						
other														
cinnamon	x										x			
coffee				1				1					x	
coffee (no sugar)		1												
lemonade		1				1		1						
Percent shared, Core	29%		25%		13%		20%		0%		13%		27%	
	F	I	F	I	F	I	F	I	F	I	F	I	F	I
Perc. of whole list ident. by each methodology	50%	79%	42%	83%	50%	63%	72%	48%	100%	0%	100%	13%	55%	73%
Perc. of each method which is within the Core	57%	40%	60%	30%	25%	20%	28%	42%	0%	0%	13%	100%	50%	38%

Dietary Restrictions during Diarrheal Episodes

Those foods which are considered to be harmful to children during diarrhea episodes are listed by schema and stage of diarrhea and by methodology in Table VIII. The proportion of responses which were essential elements agreed upon by both methodologies was even lower here (12%). However, both methods again contributed broadly to the range of data (50-60%), and both had approximately 20-24% of their responses which were essential, shared elements of behavior.

There was also a similar overlap in those foods which were prescribed for "hot" and "cold" diarrhea. A little over 21% of the foods restricted for these types of diarrhea were restricted for both types. Foods most frequently mentioned were: oil or lard, rice, oranges, whole beans and beef broth. The first three were restricted for either "hot" or "cold" diarrhea, while the last two were restricted for both.

Discussion

A summary of the degree of agreement between focal group and individual interviews, and the range and depth of responses provided by each methodology is presented in Table IX. Both methodologies were shown to have provided a similar range of data (60-64%); neither group interviews nor individual interviews proved better equipped than the other to identify cognitive or

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Table VIII

Foods reportedly restricted during episodes of Indigenously-defined Conceptual Schemata of Childhood Diarrhea

Santa Maria de Jesus, Sacatepequez, Guatemala

Comparison of Focal Groups and Individual Interviews

	Schemata								Stages of diarrhea					
	"heat" (yellow)		"cold" (green)		"indig/ inflam"		worms		dentit.		"infec."		dysent.	
Remedies	F	I	F	I	F	I	F	I	F	I	F	I	F	I
N	(17)		(15)		(1)		(9)		(1)		(3)		(9)	
protein sources														
egg							x							
whole beans		5		3		1	x	4			x	2	x	4
beef broth		1		1							x	1		1
milk from the health post				1										1
Incaparina											x			
peanuts					x									
bean broth							x					1		
fish							x							
fruit/veg.														
"macuy"		2		2									x	
oranges	x					1	x				x		x	
pineapples	x						x				x			
green squash				1				1				1		
guisquil				1								1		
all fruit				1			x					1		
avocados				1			x	1					x	
"bledo"													x	
"chipilin"											x			
"San Nicolas"											x			
apples (raw)											x		x	
plums							x							
"jocotes"													x	
limes							x						x	

Table VIII (cont.)
Foods reportedly restricted during episodes of Indigenously-defined Conceptual Schemata of Childhood Diarrhea
Santa Maria de Jesus, Sacatepequez, Guatemala
Comparison of Focal Groups and Individual Interviews

	Schemata						Stages of diarrhea									
	"heat" (yellow)		"cold" (green)		"indig/ inflam"		worms		dentit.		"infec."		dysent.			
Remedies	F	I	F	I	F	I	F	I	F	I	F	I	F	I		
N	(17)		(15)		(1)		(9)		(1)		(3)		(9)			
peaches							x				x		x			
"nisperos"													x			
chile																
cherries													x			
calorie sources																
"atole" (maicena)	1															
oatmeal	1															
rice			1				x	2			x	1				
oil/lard			3				x	1			x		x	x	2	
"atole" (maize)											x					
corn (fresh)											x		x	x		
"tamales/chuchitos"											x					
other																
sugar, sugarcane													x			
coffee	3		1		1		1							3		
Percent shared, Core	0%		0%		0%		27%		100%		17%		11%			
	F	I	F	I	F	I	F	I	F	I	F	I	F	I		
Perc. of whole list ident. by each methodology	25%	75%	0%	100%	25%	75%	87%	40%	0%	0%	78%	39%	78%	28%		
Perc. of each method which is within the Core	0%	0%	0%	0%	0%	0%	31%	67%	0%	0%	21%	43%	14%	40%		

Table IX
Comparison of the Range and Agreement of Focal Group and Individual Interview Methods
Cognitive and Behavioral Data
Childhood Diarrheal Disease
Santa Maria de Jesus, Sacquetepequez
Guatemala

	cognitive				behavioral									
					treatments				diet					
	definit.		schemata		tradit.		pharm.		prescr.		proscr.		TOTAL	
	F	I	F	I	F	I	F	I	F	I	F	I	F	I
Perc. shared, essent. elements	83%		40%		16%		29%		21%		12%		27%	
N	(6)		(146)		(59)		(79)		(88)		(73)		(299)	
Perc. of total data collected	100%	83%	68%	65%	71%	44%	56%	73%	66%	55%	60%	52%	64%	60%
N	(6)		(146)		(59)		(79)		(88)		(73)		(299)	
Perc. of each methods results which fell within essent. elements	83%	100%	69%	56%	19%	31%	52%	40%	31%	38%	21%	24%	44%	43%
N	(6)	(5)	(93)	(95)	(42)	(26)	(44)	(58)	(58)	(48)	(44)	(38)	(287)	(271)
Perc. of each methods results on the periphery	17%	0%	31%	34%	81%	69%	48%	60%	69%	62%	79%	76%	56%	57%

associated behavioral data overall. The reliability and validity of the data provided by each method (measured by the ability of each method to identify shared, essential elements) were also similar at 43% and 44%. Thus, the rapid assessment technique of the focal group interview was found to be as valid and reliable as the more time-consuming individual interview method in obtaining a broad range and depth of cognitive and behavioral information.

We would like to suggest here, however, that the use of one method alone is not enough to identify the essential elements of a cognitive system. In this study, the responses from the two methodologies were related concentrically with shared, essential elements in the area of confluence; neither method alone was able to identify the semantic universe. Indeed one must wonder if yet another methodological approach using the same set of questions with the same individuals would not yield yet another circle related concentrically to the others. The concentricity of the data obtained by these methods poses problems for reconstructing "correct" answers to cognitive questions in predictive tests as well as for the identification of a shared-culture itself when based upon data from only one methodology at one point in time. As under half of the concepts identified as consensual by the focal groups were also validated by the individual interviews,

the re-test using another methodology could be said to have further refined the elements which constituted sharedness.

There were interesting and unexplained differences in patterns of agreement between cognitive and behavioral data which we would also like to mention in closing. Although the reliability and validity of the data overall were low (only a quarter part of the total information provided by both methods was shared), both methods showed much higher agreement on shared, essential elements in the area of cognition than in the area of behavior related to cognition. The percentage of total cognitive data which fell within the shared area was 41% while the percentage for behavioral data was 19%. In the cognitive area, most of the data provided by each methodology also fell within the shared area of essential elements (60-70%), while in behavior only 31-34% of each method's data included essential elements. Conversely, the percentage of data identified as peripheral was much higher for behavioral than cognitive data. Reasons which come to mind include a loss of symbolic elaboration in Santa Maria de Jesus, that knowledge of the prescribed behaviors associated with the cognitive domain are primarily the property of specialists, or that the behaviors associated with the cognitive structures are more freely open to individual interpretation. Whatever the reason, the data presented here supports the idea presented by Dougherty (1985) that

"indeterminate category membership or 'fuzziness' is not a property of knowledge structures themselves but rather of their application to objects in the world".

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