A Comparative Study of Health Indices of Two Chayahuita Communities: One With a Health Promoter and the Other Without

Wilma Lee

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- Wilma Lee [1] -

I. INTRODUCTION

Since 1966 the medical team of the Summer Institute of Linguistics in Peru has been training health promoters in collaboration with the Peruvian Ministry of Health. To date 46 such personnel are working in dispersed areas of the Peruvian jungle.[2] The purpose of this paper is to show the efficacy of the health promoter program by comparing the health indices of two communities: one having had the continual, year-around services of a health promoter since 1973 and the other having been completely isolated from any health services, including national immunization programs or the Malarial Control Program.

1. Definition of Health Promoter

The health promoter is an indigenous person chosen by the community of which he is a member to be trained and to render basic health services to his people. He studies a standardized course of four months duration and upon satisfactory completion of the requirements receives official certification from the Peruvian Ministry of Health.

In the community his services fall into two major categories:

a. Recognition, treatment and care of acute health problems during daily clinic hours. This includes attention to common illnesses, first-aid, and dental extractions. The promoter is trained to use a specified, limited group of basic medicines.

b. Prevention of disease by:
Health education: periodic classes with members of the community; personal example of good hygiene and dietary practices.
Immunizations.

He makes regular reports of services rendered to the regional area of health under which he serves and from which he receives a small economic remuneration for his work.

The health promoter has the advantage of being bilingual; he speaks Spanish sufficiently well to be trained and relate to Peruvian health entities and his own native language. Thus, he is able to communicate with and teach his patients and understand their cultural viewpoint in matters which affect their health. Since he is already accustomed to the living conditions of the jungle, and particularly his own tribal area, he is content to live in his native community and give an on-going health service—something a medical professional from the outside would find very difficult.

2. How the Study was Carried Out

In order to obtain reliable data it was felt important to study communities with as many similarities as possible, the major difference being that the one has never had access to any health service. San Miguel (without a health promoter) and Palmiche were selected—both Chayahuita communities. The Chayahuita live in Northern Peru and number about 5,000, some being grouped in communities of 200 to 500 and some living dispersed. There is a total of seven bilingual schools among them where children learn to read and write in their own language and Spanish. Adults, to a large degree, are illiterate. Communication within the group is in Chayahuita and the women are almost totally monolingual.

Since the two villages represent the same ethnic group, the inhabitants share the same cultural views and beliefs. Both are completely isolated from any outside health services. Thus, differences in the health indices of the two communities can be largely attributable to the activities of the in-residence health promoter. An attempt was made to select communities with nearly the same environmental conditions, but in the comparisons which follow one can readily see that Palmiche has certain disease-precipitating characteristics which do not exist in San Miguel.

It was felt important that the health promoter have rendered two to three years of service at the time of data collection because experience has shown that this length of time is necessary to develop optimum acceptance and use of his services by the community. Also this length of time is necessary to observe changes of health habits resulting from health education programs. The period of time covered by the study was January 1975 to March 1976; but where information was complete, comparisons were made of data from January 1973 (coinciding with the beginning of the health promoter's services) until March 1976, the date of the investigator's visit.

The information collected was based on observations of the nurse-investigator, verbal reports of the people and health promoter, and records of the health promoter. On pre-prepared data sheets a number was given to each extended matrilocal family dwelling; lists were made of all the family members, living or dead; and basic medical histories were obtained on each person.

3. History of Contact with Modern Medicine

A number of people and entities have given intermittent health services to the Chayahuita: including mission groups and malaria control teams. However, Mr. and Mrs. George Hart, SIL linguists who work with this language group, have probably had the most prolonged contact. Over the past 20 years they have lived in various Chayahuita villages. They have spent two or three months in total in Palmiche and have had only passing contact with the people of San Miguel. Before the possibility of training health promoters, the Harts spent considerable time caring for the sick, immunizing, and arranging for other medical services.

Basic to the future success of the health promoter is a common "felt need" by community members for such services. The Harts were instrumental in helping develop this attitude in several Chayahuita villages by their personal example of good health and hygiene and by the introduction of quickly effective modern medicines. In 1968, prior to the training of the promoter in Palmiche, a massive measles epidemic killed an estimated 30 percent of the Chayahuita living in isolated areas where it had been impossible to carry vaccine. This, too, has helped develop the feeling of need for such services.

II. COMPARISONS OF THE TWO COMMUNITIES

1. General Information

	SAN MIGUEL	PALMICHE
Population:	172	222
Distance to closest commercial center (one way):	2-5 days with a motorized canoe, depending on river conditions.	2 days by motorized canoe, depending on river conditions.
School:	None	Bilingual school to third year primary (about 4th grade U.S.).

(The school in Palmiche is an indication that people already have the desire for education or at least that their children have the opportunity for education. It has provided a means for changing health practices among the young. Being literate, they can read some of the health education materials available to them. The school teacher is generally too busy to do much in the area of health; however, the presence of the school provides a positive environment for the health promoter's educational programs.)

2. Comparison of Environmental Conditions and Health Implications

	SAN MIGUEL (without health services)	PALMICHE
Altitude:	900-1,000' above sea level.	650' above sea level.
Topography:	Slightly rolling. Sandy soil, good drainage.	Low, swampy bottomland. Clay soil, no rocks or sand present.
Vegetation:	Semi-open under story	Swampy closed-in rain-forest.

	SAN MIGUEL	PALMICHE
	IMPLICATIONS: The climate and basic physical conditions of San Miguel seem more healthful than those of Palmiche, which is warmer and wetter. The terrain in San Miguel allows for construction of good, well-cleared paths for safer work and travel. Only one accident was reported in the year of 1975 whereas there were seven serious accidents (falls, deep wounds from machetes and axes) reported in the Palmiche area where vegetation is very heavy and the land around the village is very often covered with water. As a result, people often walk across fallen trees, frequently slipping and falling on mossy growth while carrying heavy loads.	
Water Supply:	Large rushing river, sandy bottom, many rapids, a few human inhabitants above the community. There are indications (mineral deposits in cooking pots and pans) that the water may have a high mineral content.	Two sources: 1. Clear, slow-moving creek, high mineral content. 2. Sillay River, very muddy, slow-moving. There are communities on the river on both sides of Palmiche.
	IMPLICATIONS: Rushing water offers better aeration which may contribute to a cleaner water supply. The concentration of population around Palmiche likely produces greater contamination of the water supply. The generally good dental health noted in both of these communities may be related to a high mineral content in the water.	
Concentration of Population:	Includes 19 houses, half being situated on either side of the Yanayacu River and spread out over a distance of approximately 3 to 4 kilometers.	Area which promoter serves includes 30 houses grouped in three separate areas, each group of houses being in close proximity to the other two groups. This concentration of population has the advantage of allowing habitants to enjoy services of school and health, but may also result in less control in spread of epidemics.

	SAN MIGUEL	PALMICHE
Mobility of Population:	Community very isolated, travel conditions difficult because of low water and rapids. Visitors practically non-existent. National disease control teams don't even visit. Community members make occasional trips to sell agricultural products.	By trail is only 2-3 hours from other Chayahuita villages and from an oil camp. There are many visitors who come seeking the services of the health promoter, wanting to buy agricultural products, or who just come to visit. Occasional trips are made to sell agricultural products.

IMPLICATIONS: The higher degree of movement between communities augments the possibility of epidemics or disease conditions spreading uncontrolled.

House Construction:	Traditional multi-family unit dwelling constructed on the ground.	Many are copying mestizo style homes—houses on stilts, with split palm floors.

IMPLICATIONS: Houses on stilts allow for better cleaning since dirt falls through floor on to ground but are dangerous to small children because of increased incidence of falls.

Food Supply:	Seems to be more availability of wild meat, more arable land. Population appears to be well-nourished except those with apparent high infestation of intestinal parasites.	Wild meat source is practically gone and there are few fish, probably due to practice of fishing with barbasco which kills fingerlings as well as adult fish.
Domestic Animals:	A few ducks, chickens and dogs for hunting. None are penned.	Several head of cattle and pigs. Practically every family has chickens, some have ducks. Nearly all have one or two dogs for hunting. None confined or penned.

IMPLICATIONS: Negative - It is always very difficult to corral large domestic animals such as cattle or pigs in tribal communities because of the scarcity of construction materials. These animals need to be free to forage, but as a result, there may be contamination of the water supply and of the community. Unless cattle are handled periodically they become wild and dangerous. Positive - Domestic animals provide a source of revenue

	SAN MIGUEL	PALMICHE
	to tribal communities. Possession of such animals gives prestige to the tribesman. Unfortunately, domestic animals have not contributed significantly to protein needs of the people despite diminishing wild game.	
Venomous Snakes:	Apparently minimal. No snakebites recalled for 1975. Possibly the better trails and less dense vegetation lends to better visibility as well.	Known by people to be area of high infestation. Several snakebites recorded, but there have been no deaths since the training of the health promoter.
Biting Insects:	Minimal, except a few at dusk. There were a number of persons reporting symptoms suspicious of malaria.	During the day there are clouds of tiny gnats resulting in extensive bites on all exposed skin of inhabitants.

IMPLICATIONS: The residents of Palmiche suffer a high incidence of skin infections, cellulitis, and conjunctivitis—particularly among infants.

CONCLUSION: Endemic to the area of Palmiche are many more disease-precipitating environmental factors. Yet, there was a higher percentage of persons in San Miguel with symptoms of illness. (See Figures 1 and 2.)

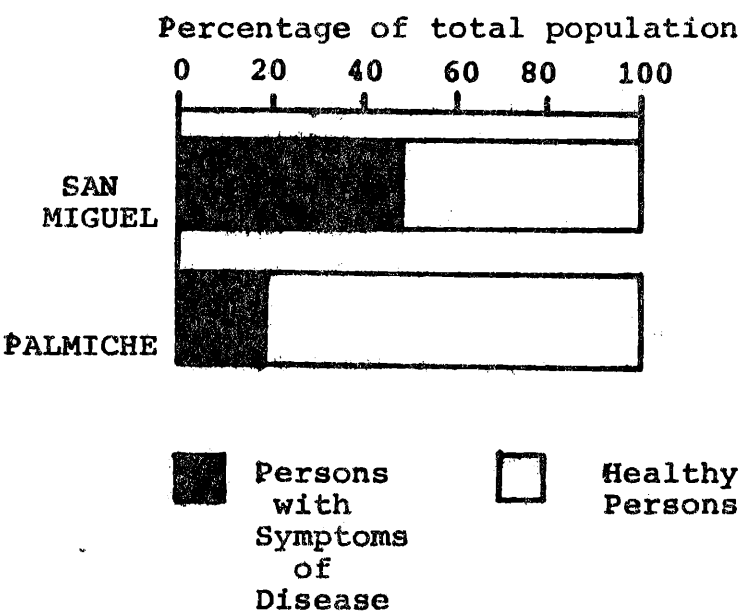

Figure 1. Proportion of individuals demonstrating symptoms suggestive of disease as observed by nurse investigator, as compared to apparently healthy persons in the communities of San Miguel (without health promoter) and Palmiche. March 1976.

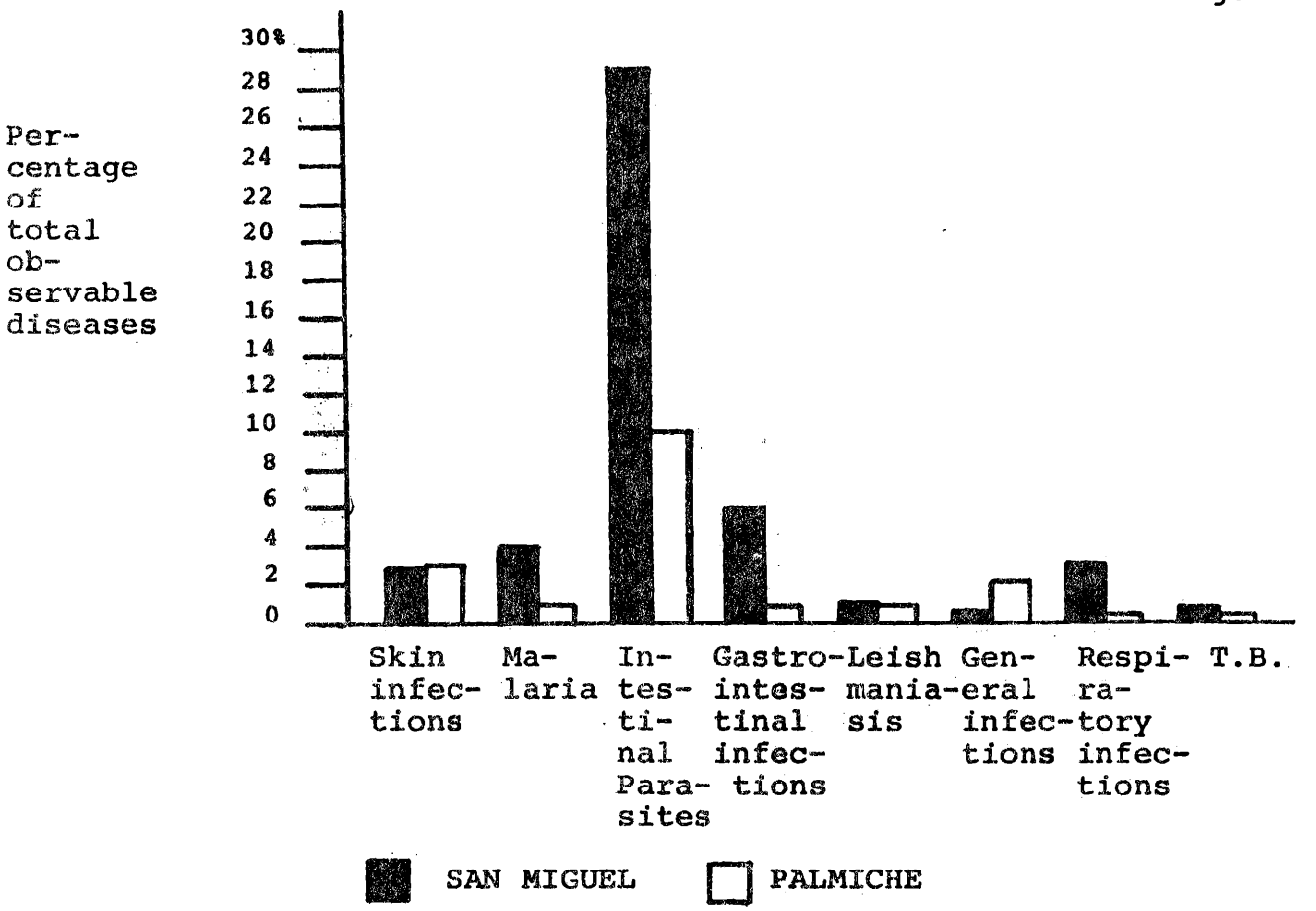

Figure 2. Incidence of disease by community as observed by the investigator in March 1976 in San Miguel and Palmiche. In general there were more individuals with observable symptoms of disease in San Miguel where there is no health service. However, Palmiche has a higher incidence of skin and general infections which is probably due to the continual presence of numerous biting insects.

II. CULTURAL FACTORS AFFECTING HEALTH OF CHAYAHUITA PEOPLES AND RAMIFICATIONS FOR HEALTH PROMOTER

Selected information on the Chayahuita customs and beliefs system as it affects health is presented here to help give a better understanding of what is entailed in providing health services for a tribal community.

1. Disease Precipitating Factors

Practice of defecating and urinating along the banks of rivers and streams. The major water supply for drinking, bathing and washing clothes comes from these same streams.

This is considered much more aesthetic than the latrine since the current carries the excrement away and there is no smell or evidence of it. Furthermore, to the Chayahuita, the normal body functions of excretion are highly personal so making and using a common latrine even for a family unit is distasteful.

IMPLICATIONS FOR HEALTH PROMOTER: Even discussion of this subject in a teaching situation is difficult. The recommendations for a properly constructed latrine include a small house enclosure for privacy, but people complain bitterly that this holds in the bad odors, despite use of ashes or lime to keep them down. Promoters often have to explore different possibilities, and sometimes community members will accept a compromise such as one Chayahuita community which was willing to construct deep holes in areas surrounded by high grass rather than use the thatched-roof, house enclosure.

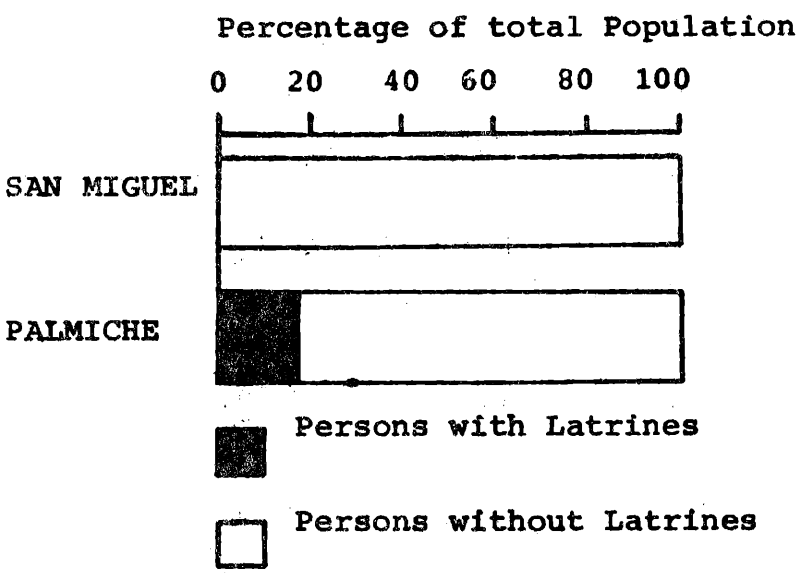

Figure 3. Percentage of people who used latrines and those who did not in the communities of San Miguel and Palmiche. March 1976.

2. Existence of many food taboos. Food taboos can prove harmful particularly in pregnancy and in certain disease conditions. Practically every unpleasant things which happens to a person outside of grave illness, is attributed to having broken some food taboo. However, the foods prohibited do not seem consistent with the conditions they cause. The following are examples of food taboos:

a. Large animals such as wild pigs and tapirs are not ingested by pregnant women for fear the baby will grow too large to be born. Rice stuck to the pot after cooking and turtle meat, if eaten by pregnant women, are believed to cause difficult or impossible deliveries.

b. Girls going through puberty rites must observe strict dietary restrictions, eating no meats or fish for as long as a month. The beginning menstruation,and the common hookworm infestations, compounded by a diet lacking in protein can lower the resistance to disease and may cause the serious anemias common for girls this age. The belief is that, if these restrictions are not observed carefully, great harm can be brought on the whole community in the form of dangerous climactic conditions (bad winds, rains, cold spells) or that someone could have a serious accident.

c. Meat is prohibited for persons having many types of illnesses including tuberculosis. Masato is also prohibited in many cases. Thus, in traditional treatment of illness many nearly starve to death from lack of good and may actually die of starvation or dehydration rather than the primary disease.

d. Consumption of fish is believed to exacerbate itching. Fish is sometimes the sole source of protein in Palmiche where almost the whole population suffers from periodic dermatitis-pruritis.

3. Dietary customs affecting health:

a. Water intake (as such) is very limited. Most of the liquid ingested is in the form of masato, prepared with boiled, mashed sweet manioc to which is added a small amount of grated raw sweet potato. Generally, in the mashing process, some of the manioc is masticated and mixed in to aid the fermentation process.

This mixture, fairly thick in consistency, is allowed to set for 12 to 24 hours. The alcohol content is minimal after such a short period. There may be some formation of B vitamins in the process, though not significant.

Masato is the hospitality drink served to every guest in liter-size bowls and is consumed in quantity by all members of the household. It is the basic ingredient of the Chayahuita diet and a conservative estimate of consumption would be five liters per day per adult.

There are at least three sources of contamination in making and consuming masato. They are: (1) the unboiled water which is added to produce the proper consistency; (2) the serving process in which women dip their generally unwashed hands into the bowls in order to strain out lumps and manioc fibers; and (3) the custom of chewing and spitting the manioc which can be a health hazard especially where TB is a problem.

Because of the huge quantities of water needed each day, very few women take the time to boil it even though they know it may be better for the health of their families.

b. Some fruits and vegetables, though high in vitamins, are not eaten except as a last resort. Papaya, bread fruit and various green, leafy vegetables such as the tender leaves of manioc are among these.

c. Complete meals are irregular. When there is food they eat. If there is no food, a bowl of masato suffices. There is a great deal of snacking throughout the day on fruits that are in season as people go about their work.

d. Meat is necessary for a meal to be complete. The people will even say they've been fasting unless they've been able to secure some type of fish or wild game. Fresh water clams, snails, or other crustaceans may substitute but are not considered to be really 'meat'. Turtle eggs are considered a delicacy and are rich in protein. But they are only available about two months of the dry season when the river beaches are exposed so the turtles can bury their eggs.

e. Domestic animals are considered sources of revenue and are generally owned cooperatively. Cattle and pigs may never be considered a source of protein for certain segments of the population, including pregnant women and those who haven't cultivated a taste for domestic meat.

Chickens are highly valued for marketing and for egg production, but are rarely eaten except for special occasions (unexpected visitors, fiestas or funerals when the people might be caught without wild meat on hand).

The Chayahuita generally try to market chicken eggs; however, a few of the people are beginning to enjoy the eggs as food. This may be the most realistic solution to protein deficiencies at least in the near future.

The people are beginning to eat with some regularity beans and peanuts. Marginal cases of malnutrition can be helped markedly through inclusion of beans and peanuts in the diets. Rice is eaten, largely because of mestizo influence. Beans, peanuts and rice are also grown as cash crops.

In conclusion, the Chayahuita diet, though very lacking in variety, is fairly adequate at its optimum. It consists primarily of manioc, plantains, fruit (in season), legumes, rice, wild meat, fish, crustaceans and eggs. The revenue obtained from selling products allows them to buy favorite delicacies such as tuna and condensed milk. These amount to a very small portion of their total food consumption but do contribute to better nutrition.

The health promoter in Palmiche has led the way in helping his people nutritionally. His wife cooperates by preparing eggs and introducing other dishes, such as legumes.

Nevertheless, because of the high percentage of people infected by intestinal parasites—the roundworm and particularly the hookworm which drains the blood of its host and multiplies rapidly—many suffer malnutrition, particularly protein deficiencies, though they may eat a normally adequate diet.

4. Traditional Views of Disease: Cause, Diagnosis, and Treatment

In communities without prior exposure to concepts of modern medicine, nearly 100 percent of the diseases, when recognized as such by community members, are attributed to supernatural forces. Communities which have had the benefit of health instruction and the services of a health promoter are beginning to realize that disease may result from natural causes and, therefore, have begun to take preventative measures and are adopting more hygienic habits. Nevertheless, there still remains considerable fear of the shaman.

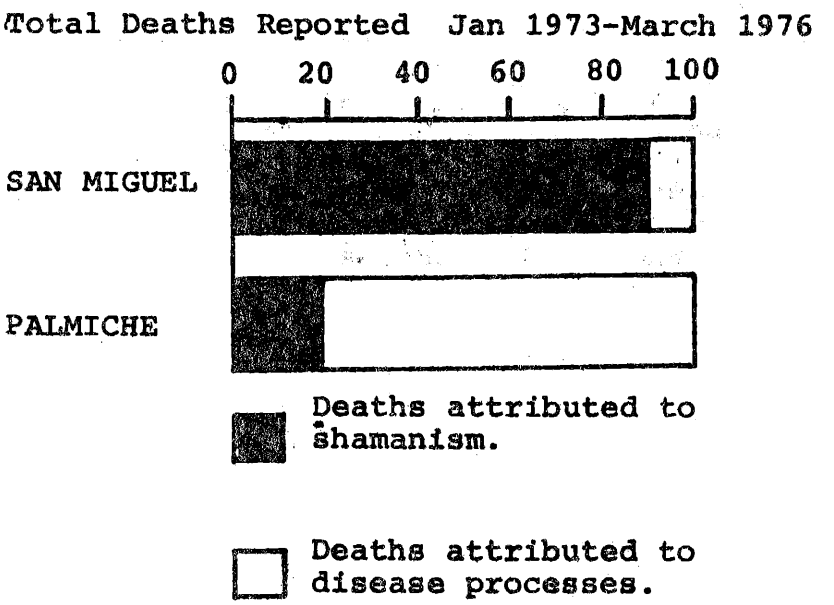

Figure 4. Comparison between the number of deaths attributed to shamanism and those attributed to diseases in the communities of San Miguel and Palmiche; Jan 1973 to March 1976. In San Miguel nearly all diseases and deaths are attributed to shamanism, whereas in Palmiche the majority of deaths are attributed to the disease process.

a. Causes of disease: The Chayahuita consider the major causes of disease to be the following:
Malevolent spirits which wander the jungle. (For the Chayahuita, there are no benevolent spirits.)
Certain animals and reptiles may be considered evil spirits and the cause of disease. Tigers and snakes (snakes are able to cause general symptoms of swelling) are much feared by the Chayahuita.
The most important cause of disease is the Chayahuita shaman. The people say there are two types of shaman: one causes sickness and death although he occasionally heals and the other—a curer-shaman or curandero, who performs curative, healing services through herbal medicine. The latter type are in the minority. Any shaman of repute deals with black magic since a great deal of power is accorded to him. Thus the ensuing discussion will deal only with the black-magic shaman literally known as the 'one who kills' as opposed to the curandero.

The apparent motive of the black-magic shaman is to request of the individual payment to cause the illness or death of an enemy or a member of his family. The fee is about $75.00 U.S.

The procedure used by the shaman is as follows: He drinks very potent tobacco juice, occasionally accompanied by ayahuasca (local plant containing lysergenic acid), in order to produce hallucinations. Considerable ceremony is involved which is carried on at night since it is felt that it is only possible to separate the spirit of the individual from his body while he is sleeping. The spirit of the victim is attacked by the shaman when he is "called-up" (as the people say) from his sleeping owner as the shaman blows disease-producing or even death-causing darts into the spirit which is then sent back to his sleeping owner, who later becomes sick or dies.

There are many accounts of persons dying of strange symptoms, usually abdominal swelling or vomiting blood. The onset of these symptoms is sudden and quickly ensues in death, generally involving apparently healthy individuals.

From the data collected, one deduces that some conditions are so common that they are not recognized as needing treatment until the patient becomes gravely ill. The symptoms are unusual or strike at basic fears, the most feared being hemorrhaging, intense pain, and swelling. Or there is considerable pain in the stomach area—very indicative of witchcraft, since the stomach is the seat of the emotions and soul according to the Chayahuita.

Many may demonstrate signs of illness but if they are not those symptoms particularly feared and if they can carry on fairly normal activities, they will regard themselves as healthy and treatment is usually not sought.

The patient and family stay at or near the shaman's house until the patient is cured or dies. The shaman may have to provide food and shelter for all who have come if they have no family with whom they can stay in the village.

It should be noted that, except for dietary restrictions, the patient has a completely passive role in his treatment by the shaman.

Once cured the individual may want to seek revenge or if he dies the family may seek the services of a more powerful shaman to make retribution.

The fee for the curative services is normally between $12 and $15 U.S.

IMPLICATIONS FOR THE HEALTH PROMOTER:
One can see that to a high degree disease and death are attributed to malevolent supernatural powers, thus making treatment by anyone less than those who have influence with these powers illogical.

If disease is caused by the supernatural, people tend to be fatalistic and prevention appears to be a useless activity or waste of time. There is general belief that the treatment of the shaman and sanitario cannot be mixed and if the latter administers treatment once the shaman begins, it could be harmful or at the least ineffective. The greatest problem is not competition or enmity between the health promoter and the shaman, but that the people delay in coming until it is too late. They often go to the shaman with no results and later in desperation to the promoter.

The fact that a whole family accompanies a critically ill patient to the health promoter just as with the traditional system of treatment, means he, as did the shaman, is expected to give food and shelter to the visitors. Neither his consultation fee of five cents nor his salary could possibly cover such expenses, but to the Chayahuita, stinginess is the worst offense possible. Fortunately, the whole community of Palmiche has shared this aspect of responsibility with the promoter.

The passive role the patient takes in the traditional treatment process makes it necessary for the promoter to watch over his patients carefully so that instructions are followed and medications taken correctly. Supportive measures, such as hot packs to an abcess, which the patient could carry out at home will have to be the responsibility of the promoter until sufficient time for learning new ways has occurred.

5. Childbirth: Traditional Chayahuita practices in childbirth are as follows:

a. Men are not allowed to attend deliveries and are generally very ignorant of the process.

b. It is customary that older women who have a reputation of success with assisting in childbirth attend the women in labor.

c. If a baby is not born within 24 hours of the beginning of labor, special measures may be taken to force the expulsion of the baby. For example, several women may push on the abdomen of the mother or tie something tight around the abdomen. Internal injury of the mother and occasionally fetal death result, particularly in cases of abnormal presentation (breech presentation being the most common). Very often at the time of trying to force the birth of the baby the cervix is not completely dilated to accomodate the head so the body is delivered but the largest anatomical part of the newborn cannot be accomodated and the baby is strangled.

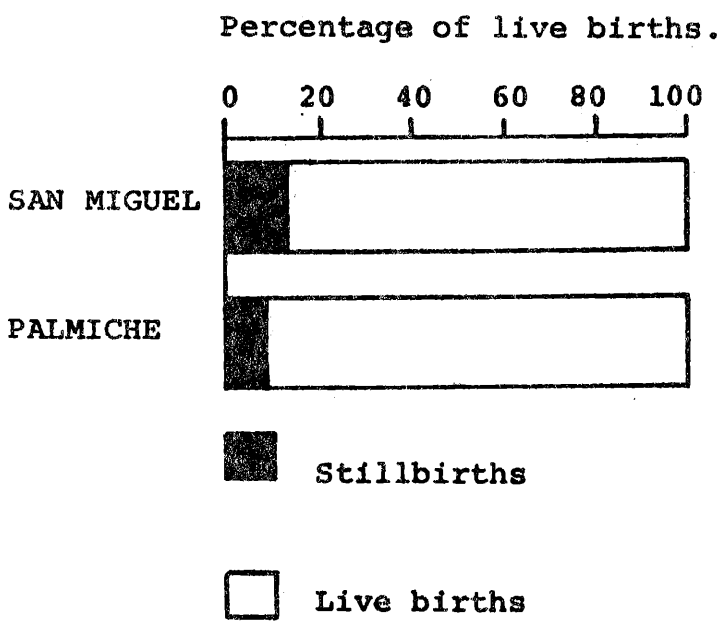

Figure 6. Comparison between live births and stillbirths in the communities of San Miguel (without health promoter) and Palmiche, Jan. 1973 to March 1976. Fifty percent of the stillbirths were babies born in breech position resulting in strangulation because of cultural practice of putting pressure on mother's abdomen. This results in partial birth of baby before cervix is sufficiently dilated to accommodate the head.

d. The umbilical cord is cut with anything sharp from a stick to a machete, sometime just previously used in the garden, and frequently resulting in infections, or worse, tetanus, common among jungle newborns and called the seven-day death.

e. After the birth of the baby:
(1) The newborn is often painted with Genipa americana, a commonly-used black body stain and dye not only among the Chayahuita but the majority of jungle tribes people. It is an astringent extracted from a jungle fruit which also has antibiotic properties. If applied topically it has anti-coagulant action, and taken internally is somewhat effective against diarrhea or dysentery.

(2) A string is tied around the head of the newborn so, as the people say, "the head won't fall open". The string is generally very tight. When questioned about this practice the people are reluctant to give a full explanation and it isn't even sure what they mean when they say "so the head won't fall open." Perhaps it has something to do with the open fontanels, the possible entrance of evil spirits, or the enhancing of good formation of the skull bones.

(3) The father does not leave the house for a week after the birth in order to protect the newborn from malevolent spirits. And, he may fast during that time, that is, not eat meat. The father being nearby affords the mother some extra help and rest after giving birth particularly if there are other small children in the family needing care.

IMPLICATIONS FOR THE HEALTH PROMOTER: Because of several marital problems as the result of training wives as health promoters (largely due to the inability of handling the demands placed on them by their culture-care of children, garden, meeting demands of husband plus giving several hours a day to care of the sick of the community), it has seemed wise to train only men as Health Promoters. However, in the area of childbirth his influence is very limited except as he is able to train those who attend the deliveries to avoid certain dangerous practices and use sterile equipment to cut the cord. Palmiches' health promoter, as have some others, has prepared small kits which these women have been trained to use including a sterile razor blade and something clean to tie and dress the cord. Some have had considerable success in teaching these women. Others have had less success depending on (1) strength of traditional ways, (2) how much they respect the sanitario, and (3) how much they understand of the benefits of adopting some new ways.

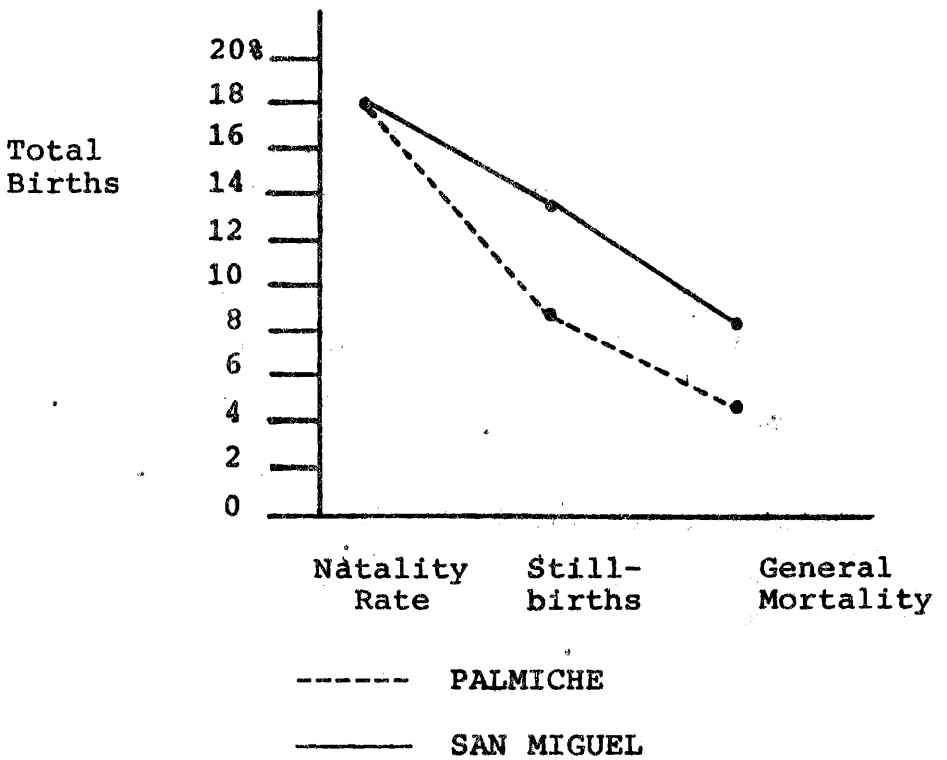

Figure 7. Comparison of natality, stillbirth and general mortality rates between San Miguel and Palmiche, Jan 1973-March 1976. The birth rate is the same in each community, but there is a lower incidence of stillbirths and deaths among newborns in Palmiche. These differences may be the result of better hygiene, nutrition, general health care and education by the health promoter.

6. Other Miscellaneous Health Practices of the Chayahuitas:
a. Home cures: There are herbs or plants which are used as poultices for minor injuries (small abscesses, cuts or scratches), but in general, people don't bother with minor things and don't take any preparations internally.

They know about the antihelminthic trees which grow naturally in their area. However, they haven't made much use of them since it is hard to control the potency and there are a number of unpleasant side-effects such as nausea, vomiting, and dizziness.

b. Beneficial health practices: Some of the beneficial health practices are:

(1) Customarily they rinse their mouth with water after eating. Also they have very little sugar cane and do not have access to sources of concentrated sweets except on trips to San Lorenzo or Yurimaguas. These may account partially for the low incidence of dental caries.

(2) They have the practice of fleeing when there are rumors of epidemics. This may prevent infection of massive numbers of people. Epidemics are not believed to be caused by the shaman; his work is aimed only at individuals, not whole communities or populations.

(3) Houses where death occurred customarily are abandoned for a period of time - a week or considerably longer depending on how strong the beliefs still are about the spirits of the dead who stay in the house to cause illness or death to other inhabitants. If the disease which caused the death was infectious, this might possibly have some control of the spread of the disease.

(4) The pattern of living in dispersed extended family groups has had some effect in preventing the spread of epidemics.

(5) Bathing is very frequent, sometimes two or three times a day. Securing soap, however, is sometimes difficult and expensive. Many erroneously believe that tribes people are dirty, but this is not necessarily true, especially in the case of the Chayahuita.

(6) Clothes are washed frequently but there is also the problem of soap supply.

(7) Shoes are generally not worn since in a normal day's work both men and women are in and out of water many times. In addition, the natural humidity of the jungle results in severe cases of micosis of the feet; closed shoes only augment the problem. However, wearing no shoes results in higher infestation of intestinal parasites unless or until complete programs of environmental sanitation are adopted by these communities.

IV. PROGRESSION OF ACCEPTANCE AND SUCCESS OF HEALTH PROMOTER GENERALLY AND SPECIFICALLY AS APPLIED TO PALMICHE

1. Demonstration of Initial Support by Community

Demonstration of support by the community is shown by their securing materials and constructing a clinic facility. An average time lapse of one year occurs from the time the promoter returns to the community after his course of study until completion of a minimal structure typical for the region. Palmiche was within this average.

2. Patients begin to "Try Out" Health Promotor's Treatment Skills
The promoter and community generally go through three phases before general acceptance of the promoter occurs.

a. First is a testing period in which community judges his skill in taking care of some of the diseases they do recognize.

b. Secondly, there is a learning period in which the patients learn how to use the services, develop better understanding of the use of medicine and what their role is in the treatment process.

c. Thirdly, there is a period of general confidence in which the people know when to seek the promoter's help, carry through on personal treatment, understand the gamut and limitations of the promoter's services.

As seen in Figure 6, Palmiche has come to the confidence stage. During 1975 the promoter sold medicines valuing $335 (U.S.). These were sold only in the process of prescribing treatment for patients who presented themselves. He had on-hand medicines valuing $103 at the time of the visit.

He saw an average of 45 patients a month and total for the year was 542. Each patient may represent several days of treatment.

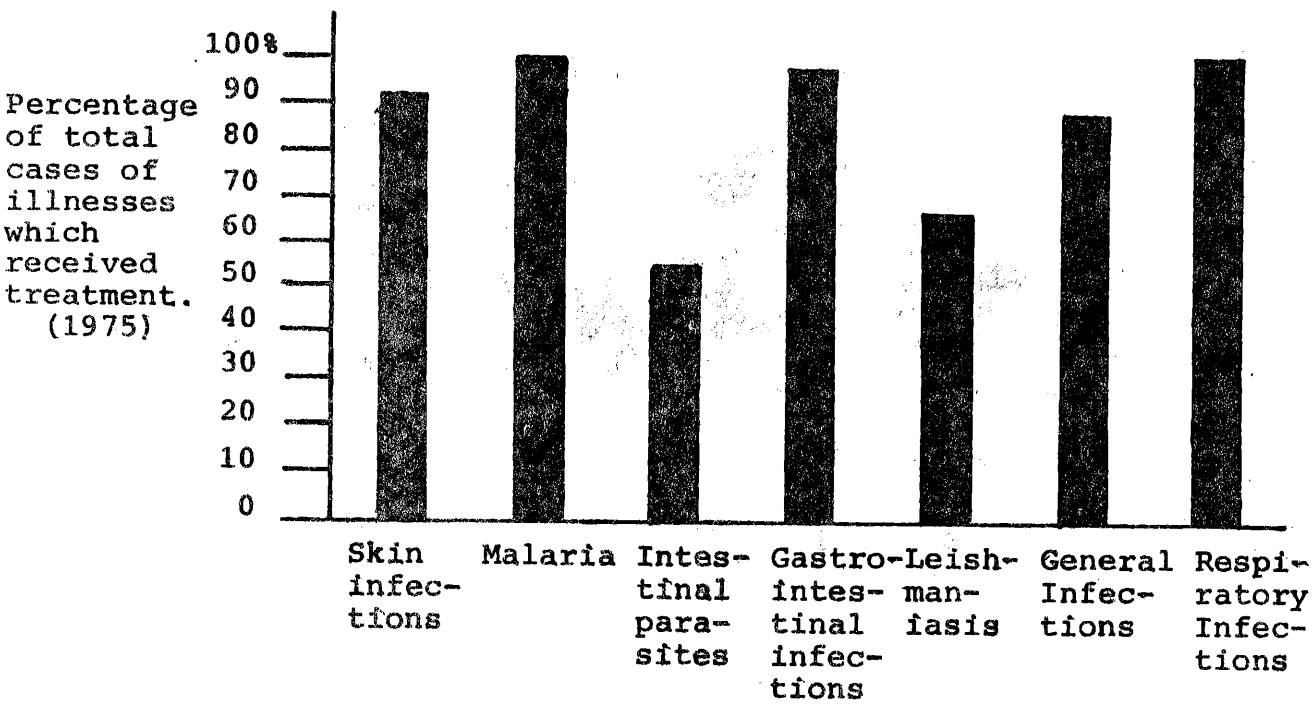

Figure 8. Percentage of total cases of disease reported in Palmiche during 1975 which received treatment. A total of 98.8% of the reported cases were treated. Intestinal parasites was the disease most frequently ignored, probably because the symptoms are so common, not of a life-threatening nature, and do not produce serious discomfort.

3. Interest and Carry-Through Regarding Health Classes Increases
Not only is instruction given as part of the school program but the total population attends health classes.

In Palmiche, classes are given on a monthly basis to general community gatherings. One woman, after a class on mouth-to-mouth resuscitation, discovered a child floating face down in the river and saved its life, by putting into practice what she had just heard.

The better health index of Palmiche as compared to San Miguel can be attributed in part to some of this teaching.

4. Increased Awareness of What Health Problems Need Attention by Promoter
Many people from San Miguel, as is shown by the data in Figure 3, didn't identify themselves as being ill, though they had observable symptoms of disease.

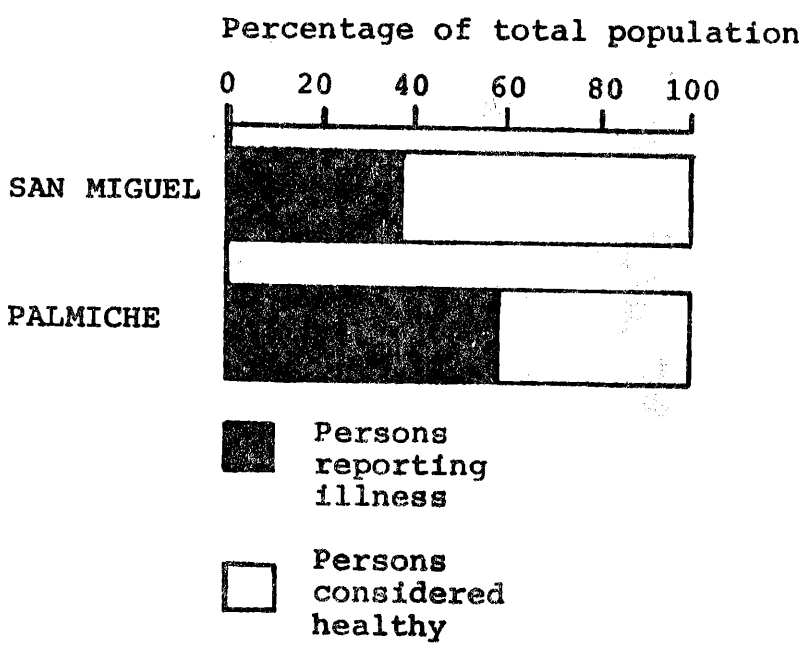

Figure 9. Incidence of illness in year of 1975 according to verbal reports of inhabitants of San Miguel and Palmiche, March 1976. This information indicates there was a higher incidence of disease in Palmiche than in San Miguel which has no health promoter. It is likely that the people of San Miguel did not recognize that they were ill unless the illness was serious, (see figure 4).

5. Seeking Out of Health Promoter Early in the Disease Process
In Palmiche today, persons seek out the health promoter early in the disease process. See Figure 4.

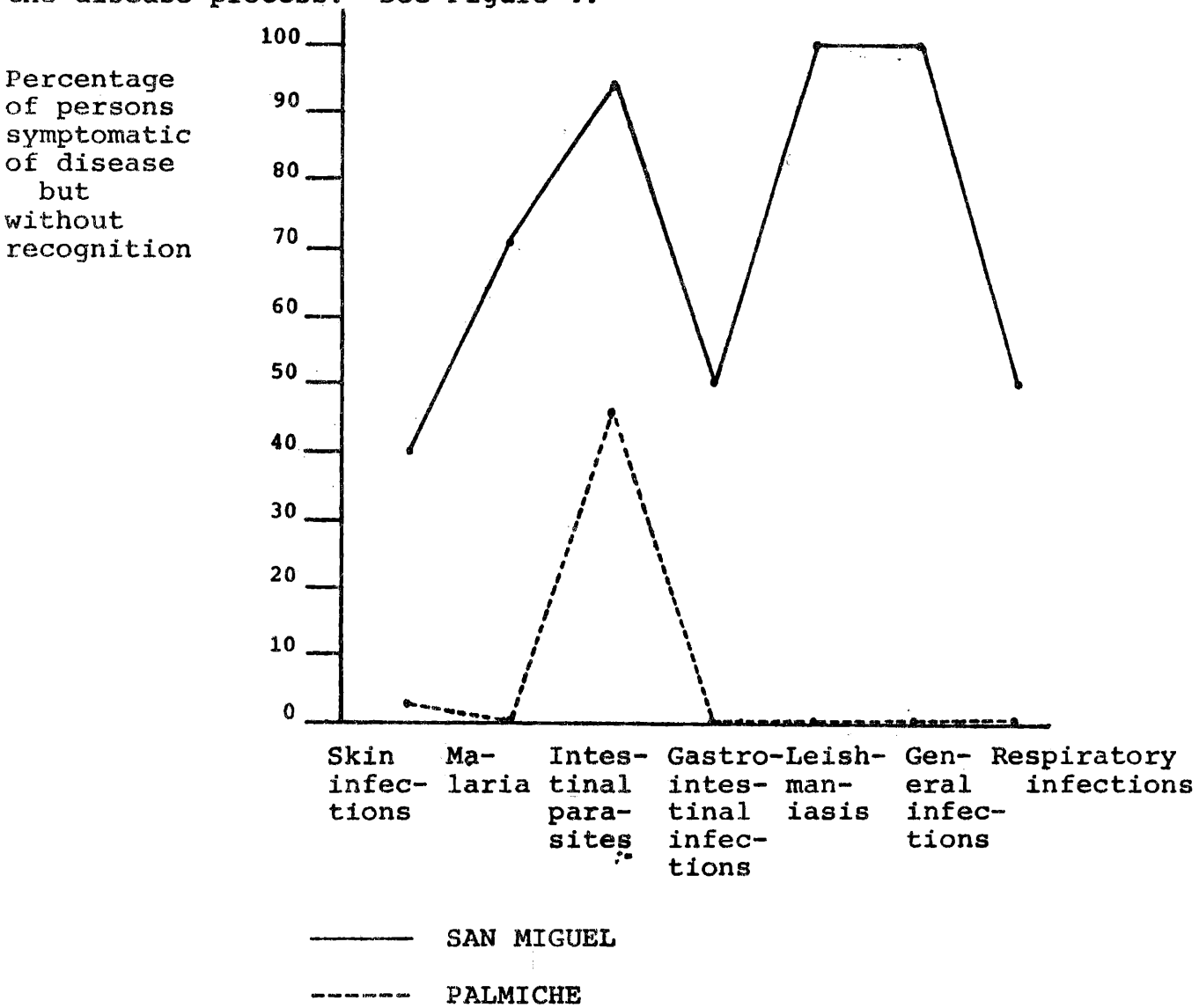

Figure 10. Percentage of persons, by communities, who had observable disease symptoms but considered themselves healthy, March 1976. In Palmiche (with health promoter), the people usually recognize when they are ill. However, it seems that even in Palmiche people are so accustomed to having intestinal parasites that unless the individual becomes seriously ill, minor symptoms are ignored. All those of Palmiche who recognized the presence of disease were under the health promoter's treatment. The fact treatment was sought early in the disease process indicates that traditional attitudes about disease are changing. Also, there has been increased knowledge about better disease management which indicates the work of the health promoter has been at least partially successful.

6. Increased Cooperation in Immunization Campaigns
There is increased cooperation in immunization campaigns to make sure everyone is protected. The immunization campaign became a community project. Palmiche received DPT series in 1973 and later in the same year smallpox. In 1974 the Promoter gave BCG, in 1975 measles, and again in 1976 DPT and polio vaccines.

7. Less Fatalistic Attitude Toward Disease
Palmiche is beginning to practise some preventive measures, including better hygiene, use of latrines, boiling of water to be consumed, and cleanliness in food preparation.

Attitude change is difficult and takes perseverance and patience with the people because of habits that have built up over decades.

The promoter in Palmiche has insisted that all children take a full course of Antihelmenthics when they are a year old. The community members readily comply and pay for the medicine for their children. Consequently, a great many have avoided the serious complications of worm infestation and have generally better disease resistance and health.

Probably for reasons such as the latter there has been a consistently lower mortality rate in Palmiche.

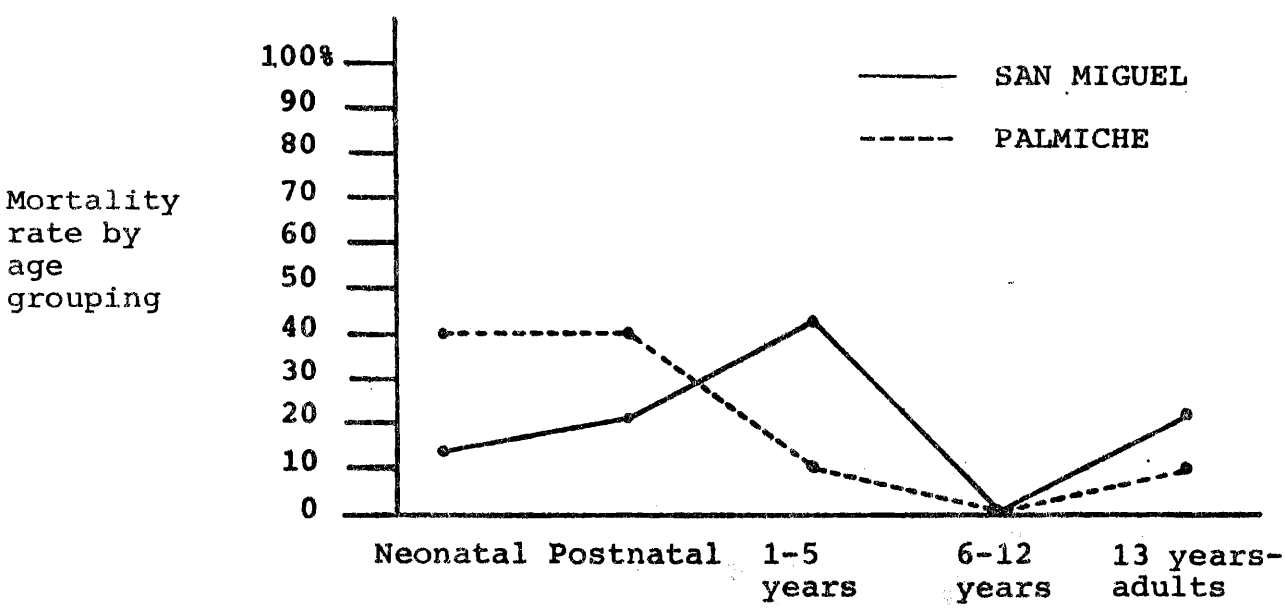

Figure 11. Comparison of mortality rate by age grouping in the communities of San Miguel and Palmiche from Jan. 1973 to March 1976. The high postnatal mortality seen in Palmiche was due to a whooping cough epidemic in 1974 in which four children 18 months and younger died of respiratory complications. These children were too young to be vaccinated during the health promoter's vaccination campaign in early 1973. The isolation of Palmiche and the lack of refrigeration facilities are obstacles to a completely up-to-date vaccination program.

V. CONCLUSION OF STUDY

The comparisons between San Miguel and Palmiche provide ample evidence that the health promoter has made a significant contribution in raising the health index of his community. The inhabitants of Palmiche enjoy better health than those of San Miguel despite a much less healthful environment.

Two external factors which help keep promoters at peak performance are refresher courses and routine supervision. The latter not only provide encouragement but also backing for their teaching programs: microscopes and other equipment carried by the supervisors give visual reinforcement and credence to the promoters' discussions on hygiene.

The greatest positive force internal or external for the success of the indigenous health promoter has been the official recognition and financial backing of the Peruvian Ministry of Health. This has given him the needed prestige within the community and the economic resources necessary for carrying out his work which involves many financial burdens.

NOTES

1. The author, R.N., B.S., is a member of the Summer Institute of Linguistics and has worked in Peru several years as Coordinator of the Health Promoter Program. Dr. Aurelio Vela Vela and Sr. Braulio Aguirre of the 6th Hospital Region of Pucallpa have served as assessors for the program. Joy Congdon, R.N.; George Hart, M.A.; Helen Hart, M.A.; as well as Gillian College, R.N., provided additional information and suggestions in the preparation of this study.

2. For more detailed information on the program see:
   Programa de Promotores de Salud: Informe.

   Ministerio de Educación: 0063; Ministerio de Salud, Zona de Salud Centro Oriental, 1973, 60 págs.

   La salud en las comunidades nativas de la selva; Programa de Promotores de Salud: Informe. Ministerio de Salud, Región de Salud Oriente, Area Hospitalaria de Pucallpa, 1975, 15 págs.

   A more detailed version of the present study is also available in: "Estudio Comparativo Del Indice de Salud de Dos Comunidades Chayahuitas, una de las Cuales Cuenta Con Los Servicios de un Promotor de Salud" Ministerio de Salud Area Hospitalaria N°6 Pucallpa en Colaboración con el Instituto Lingüístico de Verano. 1976, 51 págs.