Health and Illness Related Beliefs and Practices of Karen Highlanders in Northwest Thailand

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Abstract

This research examined differences in health and vaccination status as well as a mother's beliefs and practices during illnesses between the less modernized Pwo animist and the more modernized Sgaw Christian highland Karen of northwest Thailand. There are numerous and significant differences between Pwo and Sgaw mothers in their specific beliefs and behaviors related to children's health, including smoking rates, bathing children, clinic visitation, vaccination rates and specific illnesses. In particular, Sgaw mothers more frequently exhibit behaviors which should enhance the health of their children. These differences between the two groups concerning health beliefs and the behaviors are at least partially responsible for the lower morbidity and mortality rates found among Sgaw preschool children. A mother's acceptance of Christianity historically could be associated with an increased degree of modernization, and promotion of behavioral changes in individuals among the Sgaw Christian group, which appears to have positive influence on children's health status.

I INTRODUCTION

The acceptance of Christianity is generally associated with modernization in traditional societies. Von del Mehden (1987) found that Christianity had strongly influenced modernization in Southeast Asia. Some researchers have argued that Christianity promotes more new rational ideas and practices than traditional religions (Bellah 1965; Lieban 1967; Rubel 1966; Weber 1958), including a greater acceptance of western medicine (Chalfant et al. 1986) and an increased utilization of modern health care practices (Simonelli 1987). Studies up to this point, however, have not dealt specifically with how acceptance of Christianity affects belief systems related to causes and

treatment of illness. This study focused on the food and illness related beliefs of Christian and animist mothers in one traditional society.

The Karen are the largest tribal population (275, 615) in Thailand (National Statistical Office of Thailand 1990), as well as in Southeast Asia (Keyes 1977). Karen live in both lowland villages where they are fairly well integrated into Thai society and also in relatively isolated highland villages. This study focused on those Karen who live in the highland villages. There are two major ethnic groups of Karen living in Thailand, each with its own distinct dialect: the Pwo and the Sgaw.

The three primary religious affiliations found among the Karen are Buddhism

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(Keyes 1979; Kunstadter 1979). Although a great deal of variability is possible, village life calls for a certain amount of conformity; for instance, all individuals in a village must speak the same language. In addition, in order to participate together in important religious and social rituals, all individuals within a particular village tend to share the same religion as well.

III METHODS

The research design for the present study involved comparisons between Christian Sgaw Karen and more traditional animistic Pwo Karen. This research design was chosen partially because most Sgaw in the study area are Christians while most Pwo are traditional animists and partially because previous analyses (Omori and Greksa 1993) had demonstrated that there were significant differences in health and nutritional status between these groups. Although not all Sgaw are Christians and not all Pwo are animists, that was the case in the present study and therefore, for the sake of simplicity, the samples are simply described by the terms Sgaw and Pwo.

The study was conducted in four highland Sgaw and four highland Pwo villages in the Mae Sariang district of Mae Hong Son province from January through December 1992. The Pwo villages contained 20 to 49 households and the Sgaw villages consisted of 18 to 37 households. Observations were made during three different seasons: post-harvest (January-March), pre-harvest (June-September), and harvest (October-early December). All of these villages were isolated, with the closest road (which was not

always accessible to vehicles) being a five to twelve hour walk through the jungle and rugged mountain terrain. Access to the study villages was obtained through a mobile clinic associated with the Mae Sariang Christian Hospital. Since 1972 the mobile clinic has provided intermittent health care to highland Sgaw villages which are sufficiently isolated. The Thai government has yet to establish a health clinic in or around that village. The mobile clinic began providing services to isolated Pwo villages in 1981. Due to the difficulty of access, the team was able to visit each village only a few times a year. Villagers were under no obligation to accept treatment or health care.

Data were collected on individuals from 77 Pwo animist and 71 Sgaw Christian households in the study villages. All households with preschool children (55% of the total households among the Sgaw and 75% of the total households among the Pwo) participated in the study. The primary subjects within each family were the mother and her weaned preschool children.

Health status for the preschool children was assessed by determining whether or not specific disease symptoms were present on the day of examination. Mothers were asked about specific complaints, such as cough, fever, skin rash, diarrhea, headache and stomachache. Each mother also was asked about the drugs her child received at home and breastfeeding history. Past health status and vaccination history were determined by interview and through examination of the mobile clinic records. Whether or not parents decided to accept the free vaccinations provided by the mobile clinic was

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recorded.

Structured interviews with each mother were conducted to obtain basic demographic and economic data on her family. Data on the beliefs of mothers about disease causation and cures, with special emphasis on the role of foods during child illness and vaccination, were collected using a combination of quantitative and qualitative techniques. Both structured and unstructured interviews were carried out, utilizing primarily open-ended, in-depth questions. Some close-ended questions which focused on key behaviors were also used since the responses to such questions were more amenable to statistical analyses. Mothers and preschoolers were also observed concerning illness and food-related beliefs and child care practices. All statistical analyses were performed with SPSS/PC+.

IV RESULTS

Characteristics of Pwo and Sgaw Households

Median tests indicated that the median number of preschool children and median family size did not differ significantly between Pwo and Sgaw households (Table 1, $p > 0.05$). The primary staple crop for the Karen is rice, which is grown using both swidden and irrigation techniques. All of the Pwo families but only about 68% of the Sgaw families in the study owned swidden land, a difference which is statistically significant ($p < 0.001$). However, the median size of swidden holdings of the Pwo tended to be significantly smaller than the Sgaw families (Table 1, $p < 0.01$). In addition, although there were no differences between groups in their reported maximum fallow lengths for swidden fields, the reported minimum fallow length was significantly longer in Sgaw than in Pwo households (Table 1, $p < 0.01$). Also, none of the Pwo

Table 1 Comparison of selected indices between Pwo and Sgaw Karen

	Pwo Median (Range)	Sgaw Median (Range)	Median test χ^2
a) Demographic indicators			
Family size	6 (3–13)	7 (3–13)	0.9
Preschool children (<6yr)	2 (1–3)	2 (1–3)	2.8
b) Economic indicators			
Size of swidden holdings (rai ^a)	5 (2–10)	6 (1–10)	11.0**
Size of irrigated holdings (rai)	0 (0–0)	3.5 (1–10)	36.6***
Minimum swidden fallow cycles (yr)	5 (4–8)	6 (4–9)	8.5**
Maximum swidden fallow cycles (yr)	7 (5–10)	7.5 (5–10)	2.9
Chickens (Post-harvest)	9 (2–50)	10 (2–50)	2.5
Pigs (Post-harvest)	3 (1–13)	2.5 (1–15)	1.4
Total income: post-harvest (bahts ^b)	350 (6–4,700)	590 (10–9,000)	4.7*
pre-harvest (bahts)	335 (15–2,300)	480 (20–9,500)	2.2
harvest (bahts)	220 (15–1,105)	360 (30–9,900)	2.3

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^a1 rai = 0.4 acres

^b22 bahts = 1 \$ U.S.

families but 38% of the Sgaw families owned irrigated fields ($p < 0.001$). Besides rice, 70% of the Sgaw but only 48% of the Pwo households also planted vegetables in their fields, with the primary vegetables being eggplant, coriander, and squash.

The animals raised by highland Karen are chickens and pigs. Pwo families tended to own more pigs and Sgaw families tended to own more chickens, but these differences were not statistically significant (Table 1, $p > 0.05$). Relatively small numbers of other animals (buffaloes, goats, cows, and elephants) were owned by some families, but these animals were not an important source of food and ownership did not tend to differ between Pwo and Sgaw families. Although animal ownership did not differ between groups, there were differences in the intended uses for these animals. In particular, many Pwo families (66.2%) reported raising animals primarily for use as sacri-

fices in a variety of ritual ceremonies, while all Sgaw families reported raising animals for the purpose of sale or consumption.

Finally, Karen highlanders earn income from selling agricultural products (crops and animals), selling handicrafts, and from occasional short periods of wage labor in nearby towns, but the selling of animals is the major source of income. It was found that Sgaw families were more likely than Pwo families to have earned some income during all three seasons, with the differences being statistically significant during the post-harvest season (Table 1, $p < 0.05$).

Health and Vaccination status and Risk Factors

Comparisons of the prevalence of selected disease and vaccination acceptance rates between Pwo and Sgaw preschool children in each season are presented in Tables 2 and 3. Chi-square analyses indicated that there

Table 2 Morbidity patterns of Pwo and Sgaw preschool children

	Post-harvest					Pre-harvest					Harvest				
	Pwo (N=135)		Sgaw (N=126)		χ^2	Pwo (N=149)		Sgaw (N=126)		χ^2	Pwo (N=146)		Sgaw (N=121)		χ^2
	N	%	N	%		N	%	N	%		N	%	N	%	
Overall morbidity rates															
1 disease/symptom	104	77.0	72	57.1	12.8***	108	72.5	51	40.5	28.6***	90	61.6	58	47.9	5.4*
2 diseases/symptoms	71	52.6	30	23.8	23.6***	64	43.0	17	13.5	28.5***	55	37.7	20	16.5	14.9***
Specific diseases/Symptoms															
Diarrhea	19	14.1	10	7.9	1.9	15	10.1	6	4.8	2.0	9	6.2	5	4.1	0.2
Respiratory infection	25	18.5	22	17.5	0.0	25	16.8	15	11.9	0.9	35	24.0	22	18.2	1.0
Skin diseases	42	31.1	13	10.3	6.8*	38	25.5	14	11.1	4.1*	45	30.8	20	16.5	3.7*
Ear diseases	6	4.4	3	2.4	0.1	11	7.4	1	0.8	4.3*	10	6.8	2	1.7	3.6*
Worms	86	63.7	51	40.5	13.2**	75	50.3	26	20.6	24.7**	54	37.0	27	22.3	6.1*
Pigeon chest	6	4.4	2	1.6	1.0	7	4.7	2	1.6	1.5	5	3.4	2	1.6	0.3
Eye diseases	12	8.9	3	2.4	4.1*	16	10.7	4	3.2	4.7*	9	6.2	1	0.8	3.9*
Vit. A deficiency	0	0.0	0	0.0	0.0	4	2.7	0	0.0	1.8	3	2.1	0	0.0	1.0
Malaria	0	0.0	0	0.0	0.0	0	0.0	1	0.8	0.0	0	0.0	0	0.0	0.0
Tooth abscess	0	0.0	0	0.0	0.0	0	0.0	2	1.6	0.7	1	0.7	1	0.8	0.0
Severe anemia	9	6.7	1	0.8	4.6*	15	10.1	1	0.8	9.1**	12	8.2	3	2.5	3.6*

Significant differences between groups: * $p < .05$ ** $p < .01$ *** $p < .001$

were no significant sex differences in disease or vaccination rates within each ethnic group ($p < 0.05$). Sexes were therefore combined for comparisons between ethnic groups. Chi-square analyses indicated that disease levels generally tended to be higher among Pwo than Sgaw preschool children in each season. In particular, skin disease, worms, eye disease, and severe anemia were significantly higher among Pwo than Sgaw preschoolers in all three seasons ($p < 0.05$). Ear disease was significantly higher among Pwo than Sgaw preschool children in pre-harvest and harvest seasons ($p < 0.05$).

A total of 78 Pwo children under the age of five and 5 Pwo children over the age of five died in the family histories of 77 Pwo households. A total of 44 Sgaw children under the age of five and 2 Sgaw children over the age of five died among 71 Sgaw households. The number of children who died under the age of five was significantly higher among the Pwo than among the Sgaw ($p < 0.05$), but not the number of children who died over the age of five ($p > 0.05$). The results of under-five mortality rate was 184 per 1000 among the Pwo and 110 per 1000 among the Sgaw, a difference which is statistically significant ($\chi^2 = 8.9$, $p < 0.05$). The causes of death for Pwo children under 5 years were premature birth (25.6%), malaria (18.0%), respiratory infections (15.4%), diarrhea (14.1%), measles (5.1%), and unknown (21.8%). Among the Sgaw, the reported causes of death for this age group were malaria (22.7%), premature birth (20.5%), respiratory infections (20.5%), diarrhea (13.6%), measles (13.6%), and unknown (9.1%). The causes of death for children over 5 years among the Pwo

were diarrhea for one child and unknown for the four other children. For the Sgaw, two deaths were reportedly caused by diarrhea and malaria.

It is widely agreed in the medical community that smoking increases the risk of contracting respiratory diseases. Approximately 17% of Pwo preschool children (ages ranged from 4 to 6 years), but no Sgaw preschool children, smoked tobacco every day. Smoking frequency for Pwo preschool children ranged from 1 to 5 times per day, with a median number of twice per day. All members of Pwo households, including mothers, preschool and older children and adults, had significantly higher smoking rates than the corresponding members of Sgaw households ($p < 0.01$).

Sanitary facilities and water sources greatly influence exposure to water- or fly-borne pathogens and cause diarrhea diseases. Nearly half (47%) of Sgaw households, but no Pwo households, used pit latrines with covers. Other households used the fields (under a bush) for elimination.

There were no significant differences in water sources between the Pwo and Sgaw ($p > 0.05$). All households usually get water directly from the mountain streams. However, over half (54.9%) of the Sgaw, but no Pwo, often used boiled water for drink and covered drinking water reservoirs.

Bathing children and cleaning clothes are very important for preventing skin disease, especially fungus infection. However, Pwo mothers bathed their children much less frequently than Sgaw mothers. Approximately 32% of Pwo mothers questioned gave their children baths once a week or less, while others gave baths a few times

(40.3%), 4 to 6 times (27.3%) and very few gave baths every day (1.3%). On the other hand, nearly half (43.7%) of all Sgaw mothers gave their children baths every day. In addition, other Sgaw mothers bathed their children 4 to 6 times a week (36.6%) or at least 2 to 3 times a week (19.7%). Many Pwo (68.8%) mothers seldom washed their children's clothes; only 31.2% of Pwo mothers washed their children's clothes at least once a week. On the other hand, most Sgaw (93.1%) mothers washed their children's clothes a few times a week.

The frequency with which Pwo and Sgaw mothers sought western medical care also differed between groups. In particular, clinic visitation was significantly higher among Sgaw than Pwo preschool children in all seasons ($p < 0.05$). There were also significant differences in the vaccination rates between the children in the two groups, with significantly more Sgaw children having received complete vaccinations in all three seasons ($p < 0.05$). Even if Pwo mothers did have their children vaccinated, they were more likely to have children vaccinated only once. Furthermore, if the child cried or contracted a fever after the vaccination, most Pwo mothers would not bring them back for further vaccinations.

Additionally, Sgaw mothers were more likely to have some idea of the purpose of a vaccination. All Sgaw mothers, but only 32 (41.6%) Pwo mothers, said that vaccinations were good for children because they prevented childhood diseases. However, none of these mothers knew the exact names of the childhood diseases the vaccinations prevented. Six (8.5%) Sgaw mothers

were able to mention the names of one or two of the six childhood diseases for which their children were being collectively vaccinated: diphtheria, pertussis, tetanus, polio, BCG, and measles. When asked why they had their children vaccinated, seven (9.1%) Pwo mothers responded that vaccinations would purify impure blood and strengthen weak children. Eight (10.4%) Pwo mothers made statements such as "I don't know, but other villagers said it is good for children and I should do it, so I just follow the other mothers." Another said, "My child got it once; I do not know what kind of benefits it has, but people tell us that it is something good, so I just follow them; but once is enough for my child because after the injection my child had trouble such as fever or pain, or he cried a lot and I could not sleep that night...I do not like that." For this reason, many Pwo mothers only had their children vaccinated once, rather than completing the vaccination cycle.

Thirty (39%) Pwo mothers had never had their children vaccinated. These mothers said their reason was "because fear *Kala ha* and child getting worse." They believe that under certain circumstances a *Kala* (soul) can leave the human body (*Kala ha*) and when this occurs, the person becomes sick or dies. *Kala ha* can occur either by a *Kala* being "stolen" by an angered nature spirit or it may leave on its own accord as a result of exposure to very strong stimulation (such as a vaccination).

Illness and Food Beliefs

Selected diseases and disease symptoms (diarrhea, malnutrition, vomiting and malaria) are described here in relation to

beliefs and practices about disease causation and cures, including the role of foods during illness and disease symptoms. These certain diseases were selected because they are common in the area and also because the Karen hold some unique views on their causes, cures, and food related beliefs and practices.

Diarrhea

Diarrhea is a common disease among the Karen. For example, as described in Table 2, the diarrhea rate had a low of 6.2% during the harvest season and a high of 14.1% during the post-harvest season for Pwo preschool children. A low of 4.1% during the harvest season and a high of 7.9% during the post-harvest season were recorded for Sgaw preschool children. These were only point observations so the prevalence of diarrhea for a whole year might be considerably higher. There were no major differences between the Pwo and Sgaw regarding their beliefs or practices relating to diarrhea. Both Pwo and Sgaw mothers believe that it is eating certain kind of foods or having certain kinds of experiences that cause diarrhea.

Many Sgaw (81.7%) and Pwo (72.7%) mothers believed that cold foods (i.e., papaya, orange, pomelo, mango, pineapple, tamarind, lime, green vegetables), cold water, and chili are causes of diarrhea. Mothers from both groups also felt that unclean food or water were also possible causes of diarrhea, although no mother could explain the reasons. The germ theory of disease was not known. Some Sgaw (10.9%) and Pwo mothers (10.4%) responded that if a mother ate a lot of chili or cold foods, this could possibly cause diarrhea in

an infant through the mother's breast milk. Some Karen believed in another cause of infant diarrhea: 6.9% of the Pwo and 4.4% of the Sgaw believed the main cause is a mother's *hot* breast milk (when the mother works under the sun or returns from the field and breastfeeds the child while her own body is still hot, her breast milk is also hot); 5.4% of Pwo and 4.4% of Sgaw believed infant diarrhea is the result of cold air or changes in weather or temperature; and 6.9% of Pwo and 2.9% of Sgaw believed it is the result of active worms, since they stimulate a child's intestines. A few Pwo mothers (3.8%) mentioned that the spirit of the land could be displeased and attack a child, causing diarrhea.

Concerning the treatment of diarrhea, both Pwo and Sgaw mothers generally gave only boiled soft rice with salt and boiled water for drink since these are considered to be neutral, safe foods—the only foods which the child's stomach can accept. Both Pwo and Sgaw mothers usually stopped giving cold foods such as chili, cold water, hard foods (i.e., gourd or meat), and lard since these are considered to be harmful to the stomach, and also thought to cause stomachaches and diarrhea.

In regard to treatment of the sick, most Pwo mothers chose ritual (49.4%) or herbs (45.5%) first as the treatment for sick children, while most Sgaw mothers preferred herbs (60.6%) or medicine (33.8%). The actual treatment of illness corresponded to stated beliefs on treatment. There was no difference in the treatment of sick boys and girls among either ethnic groups.

Malnutrition (Wasting)

Over 90% of Karen mothers of both groups believed that the youngest child is the most susceptible to malnutrition. However, for the most part, beliefs about nutritious foods and the causes and treatments for malnutrition differed between Pwo and Sgaw mothers. Most Sgaw mothers (91.5%) believed malnutrition was a result of not eating enough food. Contrastingly, most Pwo mothers (88.3%) felt children were underweight because they had green stool (*khla*). All Pwo mothers fear *khla* because the affected child often loses his appetite, becomes thin, with a bloated abdomen and enlarged head, and, finally, stops growing. If a child has *khla*, mothers believe they should boil specific foods for the child to eat and should then use the boiled water to wash the child's body in order to purify them. If the child still does not improve, mothers felt that the parents should call the village spirit doctor to chant spells, give charmed water to the child, and to apply stone pressure to the child's abdomen.

A few Pwo (6.5%) and Sgaw (5.6%) mothers said malnutrition was caused by worms in a child's abdomen. Worms, they believe, like to eat up good nutritious food which a child eats, leaving only food which is not beneficial for the child's body. Consequently that child becomes thin. However, poor growth or small body size without symptoms (i.e., diarrhea, fever) was not considered to be a sign of illness among either the Pwo or the Sgaw. In fact, most Pwo (92.2%) and nearly half (45.1%) of Sgaw mothers reported that they do not give any specific treatment when children have only poor growth or small body size

without symptoms.

Most Sgaw mothers (91.5%) believed that children should be given more foods such as meat, eggs, fish and fewer chili type foods to prevent malnutrition. On the other hand, most Pwo mothers (88.3%) believed that they should not give certain kinds of foods, such as green vegetables, meat (eel, tortoise, boar, bear), eggs, or fish, until the child is over one year of age. In fact, most Pwo mothers never give these foods to children under two years of age. Some mothers fear, for example, if a small child eats eggs, he might get a stomachache or contract *khla* or worms and die as a result.

Vomiting

There were very similar beliefs about the causes and treatment of vomiting among both Karen groups. Most mothers believed that specific foods and/or worms were the main causes of vomiting. Restrictions on certain kinds of foods appear to be based on a mother's knowledge of her child's past reaction to those foods.

Twenty four (33.8%) of the Sgaw mothers and 33 (42.9%) of the Pwo mothers believed that vomiting was caused by worms moving in the intestines and thereby stimulating a child's abdomen, causing them to vomit. This belief was supported by the fact that they sometimes saw worms in the vomit itself when their children vomited. About half of the mothers in both ethnic groups mentioned that when their children ate something wrong, such as stale (e.g., stale curry, stale rice) or rotten foods, the child's stomach later became upset and they vomited. Six Sgaw mothers (9.2%) also mentioned that when a child is not healthy

or not happy, they may vomit. Three Pwo mothers (4.1%) felt that angry spirits may attack a child and cause vomiting.

Mothers in both Karen ethnic groups usually stopped feeding most foods (except the mother's milk), especially cold foods, strong smelling meats (i.e., rat, pork, buffalo), fishy smelling foods (i.e., fish paste, shrimp paste, salty dry fish), sweets, yam, chili and lard when a child has vomited because these foods are believed to induce nausea and vomiting. Most mothers discussed their experiences with each other and exchanged information about which foods should be avoided when a child is vomiting. After some time, mothers usually gave small amounts of boiled soft mashed rice with salt and water. Additionally, approximately 70% of Sgaw mothers, but only 20% of Pwo mothers, mentioned that boiled clean water with salt should be given because they feared the child would lose body water and dry up (dehydrate).

Malaria

Malaria is one of the most common and most serious disease among the Karen. Many villagers have suffered from malaria and most people expressed fear that they would contract it again. (The prevalences of malaria in Table 2 is low because only active cases were assessed.) Pwo and Sgaw mothers held quite different beliefs about the cause of malaria but they had similar views regarding food restrictions and allowances when their children contracted malaria.

Most Sgaw mothers (90.1%) and some Pwo mothers (10.4%) felt that malaria is caused by mosquitoes but they did not

understand the body mechanisms, such as how malaria symptoms develop or the life cycles of the mosquito. Mothers said "when we sleep in the hill farm or jungle without a mosquito net, we get malaria later" Many Pwo mothers (77.9%) still strongly believe that angry jungle spirits attack a person and given them malaria since the people who develop malaria have usually just returned from the jungle. In fact, most (89.6%) Pwo mothers reported that they always chose ritual as their first choice of treatment for a child with malaria, while most (80.3%) Sgaw mothers usually took the child to the nearest clinic. In addition, some Pwo (9.0%) and Sgaw (7.0%) mothers responded that an unbalanced body temperature may be a cause of malaria, stating, for example, that sudden cooling under the rain after the heat of the sun may cause body temperature to become unsteady. As another example, some believed that if a person works outside in a field under the heat, then drinks very cold water or bathes with very cold water at that moment, he may get malaria. They believe that sudden changes between inside and outside temperature cause malaria to develop.

All Pwo and most Sgaw (88.7%) mothers usually did not give cold food, strong smelling meat, lard, or cold water when a child had malaria. They believe that if the child eats those foods their symptoms will get worse, since the child's body cannot adjust to those foods. Children with fever were clothed and their whole bodies were covered with blankets, even if the outside temperature was hot. The child was only allowed to eat neutral or intermediate foods, usually boiled, soft rice with salt, along with boiled

water. Children sometimes became semi-dehydrated under these circumstances due to an inadequate intake of liquids. Even though Sgaw mothers were careful to give children who had been vomiting plenty of water, they failed to do the same for children with malaria. Fever was a cause of great concern for mothers of both groups. Mothers feared that giving cold water to a feverish child could kill them.

V DISCUSSION

This article examined differences in health and vaccination status as well as a mother's beliefs and practices during her preschool children's illnesses between the less modernized Pwo animist and the more modernized Sgaw Christian highland Karen of northwest Thailand. Although both groups lived in relatively isolated areas within the same ecozone, had similar social organizations and were visited by mobile health clinics at roughly equal rates, there were some clear differences in how receptive Pwo and Sgaw mothers were to outside ideas regarding health and treatment of illness.

Assuming that those differences between the Sgaw and Pwo are at least partially due to differential levels of modernization, there are still other important factors which beg consideration. One historical reason for the different attitudes toward health care and illness between the two groups is their different religious affiliations. For example, the providing of medical care was, from the very beginning, an important component of missionary activity (Keyes 1979; Kunstadter 1967). Since they are more likely to be

Christians, Sgaw Karen are more likely than Pwo Karen to have received such medical care for a longer period of time. Kunstadter (1986) found that the crude death rate was almost three times higher in highland Pwo (13.5 per 1000) than in highland Sgaw (4.3 per 1000) Karen. This difference in death rate could possibly be attributed to the exposure of western health care to the Sgaw Karen. How the acceptance of Christianity relates to religious faith or belief (Keyes 1979; Kunstadter 1979) is a separate question, but Christianity has played a positive and important role in the process of modernization among highland Karen. The Pwo villages in the present study consistently followed the traditional animistic religion while the Sgaw villages had accepted Christianity. In studying these two groups with different historical religious backgrounds, the results showed that acceptance of Christianity did positively influence a mother's child care and illness related beliefs and practices among the highland Karen.

Mothers who lived in Christian households in Christian villages were more likely (than their animistic counterparts) to accept new knowledge and rational ideas brought in by outsiders (health care workers). Furthermore, the Christians' were more likely to promote those ideas by sharing their new experiences with others—ideas that would bring changes in illness related beliefs and practices for the whole village. In fact, there were numerous significant differences between Pwo and Sgaw mothers regarding their specific beliefs and behaviors related to children's health; these include smoking rates, sanitary facilities,

the bathing of children, clinic visitation, vaccination rates and the mothers' beliefs about vaccinations and illnesses. In particular, Sgaw mothers tended to more frequently exhibit behaviors which would enhance the health of their children. As a result, it is reasonable to conclude that these differences between groups regarding health beliefs and behaviors were at least partially responsible for the lower morbidity and mortality rate found among Sgaw preschool children.

However, even now, some of the beliefs and practices of the Sgaw Christian mothers have still not changed or have only partially changed; some still occasionally follow traditional ways despite modernization. For example, a few Sgaw families were still practicing animal sacrifice even after becoming Christians. Similarly, nearly half of the Sgaw families hung the placenta of a newborn in a village tree, in the traditional animistic way. These villagers stated they were simply following the traditions of the older generation. However, when their infants were ill, they no longer performed a customary animistic ritual.

Many Pwo mothers were less likely than the Sgaw mothers to accept complete vaccinations and the services of the health clinic, including the health education programs. In fact, the Pwo preferred ritual treatments for illness much more than western treatments.

Clinic visitation and vaccination rates were significantly higher among Sgaw than Pwo preschool children for all three seasons ($p < 0.05$), in part because Pwo mothers strongly believed that vaccination had a negative impact on small children, since

infants cry as a result of vaccinations, and because many had some kind of side effects, such as fever. Fever was a most fearful occurrence among the Karen, and the Pwo immediately sought the cause when a child had a fever. If a child developed a fever after a vaccination, the Pwo believed that the vaccination itself had made the child ill. They believed that some kind of spiritual force, an angry ancestor spirit for example, did not want the child to have vaccination, and thus, this spiritual force would steal the child's *kala*, causing the ill effect. This was the main reason why Pwo mothers allowed their children to be vaccinated only once, or refused to allow them to complete the vaccination cycle. However, the Pwo hesitantly accepted some western medicines if they saw an immediately positive effect for a cure without side effects. For example, simple treatments such as ointment for skin fungus infection or medicine for worms were accepted relatively easily. Consequently, clinic visitation increased from 56% to 71% during a one-year period among the Pwo (Table 3).

Over the last several decades, the highland Karen are becoming increasingly less isolated as a result of rapid population growth, migration into the lowland from the highland, and government and/or non-government programs such as dam constructions, transportation networks, western medical care, and primary schools (Kunstadter 1986; Lewis and Lewis 1984). Thus, traditional health and illness related beliefs and practices should continue to break down or at least change under the impact of modernization in future years, with consequent changes in morbidity and mortality

Table 3 Clinic attendance and vaccination acceptance rates among Karen preschoolers

	Post-harvest					Pre-harvest					Harvest				
	Pwo		Sgaw		χ^2	Pwo		Sgaw		χ^2	Pwo		Sgaw		χ^2
	N	%	N	%		N	%	N	%		N	%	N	%	
Used mobile clinic ?	75	55.6	125	99.2	66.9**	95	63.8	126	100.5	54.5***	103	70.5	121	100.0	40.3***
Vaccinations															
DPT : None	61	45.2	3	2.4		59	39.6	1	0.8		51	34.9	1	0.8	
Incomplete	63	46.7	49	38.9		78	52.3	51	40.5		83	56.8	43	35.5	
Complete	11	8.1	74	58.7	102.0***	12	8.1	74	58.7	104.2***	12	8.2	77	63.6	104.7***
Polio : None	61	45.2	3	2.4		59	39.6	1	0.8		51	34.9	1	0.8	
Incomplete	63	46.7	48	38.1		78	52.3	50	39.7		83	56.8	43	35.5	
Complete	11	8.1	75	59.5	102.2***	12	8.1	75	59.5	104.3***	12	8.2	77	63.6	104.7***
BCG	55	40.7	123	97.6	94.6***	81	54.4	123	97.6	64.5***	84	57.5	121	100.0	64.6***
Measles	41	30.4	94	74.6	49.3***	47	31.5	105	83.3	72.1***	50	34.2	104	86.0	70.3***

Significant differences between groups: * $p < .05$ ** $p < .01$ *** $p < .001$

patterns among the highland Karen. If differences in the health and illness related beliefs and practices of Pwo and Sgaw mothers in regard to their preschool children result from their differing degrees of modernization, it would seem that increased exposure to Thai society should bring significant changes in the lives of the Karen. For example, there should be a gradual increase in the number of Pwo who choose western health care and medicine and a gradual decrease in the number of ritual treatments for illness, though this change would occur over a long period of time.

The results of this study have shown that acceptance of Christianity among the Sgaw Karen has promoted behavioral changes at both the individual and community level in relation to health and illness related beliefs and practices, and appears to have had a positive influence on their health. Historically, Christianity has been a conduit for modernization among the highland Karen. In being more open to missionary influences, the Sgaw Karen had greater exposure to western ideas and practices, particularly in

regard to health care. This change of thinking that occurred in the Sgaw, from animist to a more Christianized way of thinking obviously did not happen overnight. There have been few studies of the highland Karen and no studies tracing the changing beliefs in any one group over time, but it seems reasonable to conclude from the evidence that nearly a century of exposure to modern ideas and practices from outsiders has brought about these gradual changes in the Sgaw mothers' ways of thinking about treating illness in their preschool age children. The differences in health studies among the Pwo and Sgaw documented in this study are surely reflective of the results of this long process. As this study shows, the Pwo are beginning to take the first steps in accepting some western health care ideas, but only when the results are quick and the treatment painless. As the highland Pwo face increasing exposure to modernization and outside influences, the result should be a gradual break down in old beliefs and traditional ways, just as the Sgaw experienced, along with subsequent changes in

their health and illness related beliefs and practices.

The Pwo in this study would be a perfect target for researchers who have interest in researching the effects of modernization on belief systems. This study has shown that the Pwo were influenced very little by outside ideas and practices, but, as discussed above, future exposure to modernization will be inescapable, even for insular animistic groups like the Pwo. This study thus provides a good starting point for continued research combining epidemiological and ethnographic methods to trace the influence of changing beliefs on health status.

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〔原 著〕

タイ北西部の高地山岳民族カレンの健康と病気に関連した信念と慣習

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タイ北西部に居住する高地山岳民族カレンのなかで近代化の遅れたポー（アニミスト）と近代化が進んだスゴー（クリスチャン）を対象に、乳幼児の健康状態と予防接種状況および疾病時における母親の信念と慣習を比較調査した。ポーとスゴーの両グループの間で、子どもの健康に関連した信念と慣習、すなわち喫煙率、子どもの清拭、巡回診療利用率、予防接種率、罹患率等に、統計的な有意差がみられた。特に、近代化の進んだスゴーの母親はポーの母親に比べて、子どもの健康を維持向上させるための信念や行動をより多く示

した。そして、両グループの母親の健康に関する信念と行動の違いは、乳幼児の罹患率と死亡率に影響を与えていた。スゴーの乳幼児の方がポーの乳幼児に比べて、罹患率と死亡率は共に低かった。

歴史的にポーよりも圧倒的な数を占めたスゴーの母親のキリスト教改宗は、それと同時に、近代化の程度が徐々に深まっていくことにつながっていった。そして、それはクリスチャングループの中で、個々の行動変容をもたらしていく結果を生み出し、ひいては子どもの健康状態に好影響をあたえることとなった。

Key words: health and illness, beliefs and practices, Karen, Thailand

健康と病気, 信念と慣習, カレン族, タイ王国