

Short communication

Tropical medicine within the Cambodia context: Cambodian health care systems, Khmer medicine, and HIV/AIDS therapy

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This paper examines the history of health care in Cambodia and focuses on the role of traditional healers and their response to the HIV/AIDS epidemic, the use of medicinal plants and their bioscientific importance in this tropical country. In conclusion, vital to the management of HIV/AIDS in tropical countries such as Cambodia is the cooperation and collaboration between traditional healers and Western trained medical doctors. Beliefs underlying the cause of HIV/AIDS, divination, cultural-emotional factors, standardization of training, and medicinal packaging and distribution are a few starting points for future discussion.

Keywords: Cambodia; HIV; traditional healing; Khmer medicine**INTRODUCTION**

During the first year of this research in 1997, little discussion took place about the role of Khmer traditional healers in AIDS therapy. The first HIV case was detected in 1991, during a serological screening of donated blood at the National Transfusion Center in Phnom Penh. At this time, few Cambodians were aware of the HIV/AIDS epidemic. By late 1993 and early 1994, the first 15 cases of AIDS had been diagnosed^[1]. By 1998, 3.6% of the adult population in Cambodia was estimated to be HIV positive. Initially, HIV was spread among commercial sex workers, drug users, and migrant laborers through heterosexual contact. It is now well spread to the general population. Cambodia has the highest HIV prevalence rate in the Asia-Pacific region, currently 2.

6%, and there are 160000 Cambodians living with HIV/AIDS. HIV/AIDS is a very complex social disease that has shattered the lives of thousands of Cambodians. It has destroyed the very social fabric of Cambodian society, which is the extended family unit that provides support in time of need. Khmer traditional healers played an important role in the fight against the HIV/AIDS epidemic early on. This paper examines the history of health care in Cambodia and focuses on the role of traditional healers and their response to the HIV/AIDS epidemic, the use of medicinal plants and their bioscientific importance in this tropical country.

DATA COLLECTION

Selection of traditional healers (THs) began in 1997, during the first trip to Cambodia. These were also based on referrals from experts in the field. Six of the healers were from Kompang Cham province, 3 from Battambang, and 2 each from Pursat and Phnom Penh^[6]. All the traditional healers interviewed were between 35 and 60 years old and all but two were fe-

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male. Interviews started in May 1998 and continued until September 2001. A semi-structured questionnaire was used. It was modified throughout the course of the interviews to reflect particular issues that arose. The average interview lasted about one and a half hours. Permission was granted to take notes during each interview. Two healers were interviewed a second time after they were recruited to work with a local Non-government organization (NGO), providing treatment to AIDS patients in Phnom Penh^[6]. In-depth semi-structured interviewing was an important technique to use in this study because it allowed both the interviewer and informants to speak freely. In addition, literature review is an important part in terms of providing historical analysis of the formal health care system in Cambodia.

THE CAMBODIAN FORMAL HEALTH CARE SYSTEM

It is important to provide an overview of the history of health care in Cambodia for a deeper understanding of the current health care system, particularly in the fight against the HIV/AIDS epidemic. The Khmer have been aware of the importance of health care since at least the 12th century^[2]. During the Angkor period, health care services were provided fairly systematically, but it was not until the colonial period that the biomedical model was introduced. It now dominates the formal health care system. The earliest evidence of some kind of systematic health care system in Cambodia can be found in inscriptions at Sambor Prei Kuk temple in Siem Reap Province. Carved following the death of a doctor in 639 A. D., the inscriptions exhort hermitages to "provide medicine and food for the sick"^[3]. A centralized health care system had almost certainly developed in Cambodia by the 12th century, when hospitals were constructed by King Jayavarman VII^[4]. Inscriptions at Ta Prohm describe 102 hospitals being maintained during his reign^[4,5]. Outside of the walls of Angkor Thom are the remains of four chapels that doubled as hospitals. Other hospital chapels are located outside the east and west gates, the Prasat Tonle Sngout and Ta Prohm Kel^[3,5]. These hospitals probably included medical personnel such as doctors, pharmacists, and their assistants. The account of Chou Ta-Kuan, a Chinese envoy who visited in 1296, and inscrip-

tions and sculptures at Angkor Wat provide further evidence of health care practices during the Angkor period (802 - 1432 A. D.)^[6].

The Angkor Khmer apparently took great care of those who were ill. Bas-reliefs at the Bayon inner south gallery (dated late 12th to early 13th century A. D.) show a man lying upon cushions surrounded by people, one of whom appears to be a doctor feeling his brow^[7]. Another bas-relief shows a man dictating a prescription to a scribe, while behind him another assistant conveys his instructions^[7]. Chou Ta-Kuan noted that the Khmer bathed at least twice daily^[6]. Maintenance of good health and overall well-being appear to have been important to the Khmer at the time, but such practices also suggest preventive strategies. Cleanliness is one type of prevention for dysentery and plunging oneself into water may have been a cure for skin diseases such as leprosy. Food was used as medicine by providing daily bodily nourishment, but this does not imply that food and medicine were viewed as one and the same^[2]. The Khmer probably had treatments for specific diseases^[8]. We know that they valued and used plants for food, medicine, and as tools^[9]. Their approach to health was probably influenced by Chinese and Ayurvedic medical systems that had been adopted throughout Southeast Asia; this would have included the dichotomy between hot and cold and the notion of equilibrium^[10]. Animistic traditions were also an important part of the Khmer health belief system. Historically, Cambodia has often integrated foreign cultural practices while retaining some indigenous values and practices.

The post-Angkorian and pre-European period from 1431 to 1864 might be considered a dark age in Cambodian history, with what some consider the darkest period being in the 18th century^[11]. At that time, Cambodia struggled to maintain political autonomy against aggressive neighbors who were intent upon usurping much of its territory and ensuring that those on the Khmer throne were under their control (Ebihara 1968: 35-36). Dynastic instability, foreign invasion, and civil war were frequent events^[11]. Little is known about the country's health care system during that time. One account written by San Antonio, a Spanish missionary at the end of the 16th century, describes Cambodian products made from rhinoceros^[12]. Rhinoceros horns, skin, blood, and teeth were used as antidotes for a number of illnesses.

ses, especially those associated with the heart^[12]. Meanwhile, Europeans were entering southeast Asia with trade and colonial interests. The French were drawn into Cambodia's defensive struggles and ended up colonizing the country^[13]. As a French protectorate, in 1864 Cambodia was given certain rights and powers over its domestic and foreign affairs in return for aid against its neighbors^[11]. At that time, Cambodia, Vietnam, and Laos came to be known as French Indo-China^[13].

Under the French administration, Cambodia's political, economic, and social institutions changed radically. Taxation, jurisprudence, communications, transportation, and education were restructured to follow the French model. At that time, Cambodia came under the influence of the Western biomedical system, although healing beliefs and practices from India remained intact^[11]. Improved health facilities aided the suppression of epidemic diseases and increased the longevity of the population as a whole^[13]. The French trained a high number of Cambodian health professionals over the next hundred years. Some Cambodians received technical and medical education in France and other Western countries. The health care system therefore greatly improved until the abolition of all social welfare systems during the Pol Pot regime in the late 1970s.

The three and a half years that the Khmer Rouge was in power resulted in the death or disablement of thousands of people as well as the destruction of the entire health care system. By 1979, only 45 medical doctors had survived, and 20 of them left the country^[14]. The entire population of health professionals in 1979 included the remaining 25 doctors, 3 staff members from the Ministry of Health, 26 pharmacists, 28 dentists, and about 728 medical students^[14-15]. In 1979, the People's Republic of Kampuchea (PRK) made improving health care one of its five top priorities^[14]. A large number of health workers were trained in a short period of time, but their skills were not up to international standards^[15]. Furthermore, doctors working for the government were vastly underpaid, less than \$30 a month in 2003. Most of them turned to private practice to supplement their incomes; they also preferred to remain in urban areas^[15]. This makes it difficult for those who live in remote areas of the country to access health care. Generally, it is easier to obtain health care in Cambodia through traditional healers than the

formal health care system. Traditional healers can reside anywhere in the country.

KHMER TRADITIONAL HEALING

Traditional medicine remains the oldest and most accessible therapy system in many parts of the world. Being holistic, traditional medicine is often sensitive to the beliefs, practices, and socio-cultural and livelihood realities of its many users^[16]. The essential and major part of traditional healing is its emphasis on the spiritual and biological world, supernatural forces, and religious beliefs. Cambodia, after three decades of human destruction and the erosion of most social systems, has only very recently begun to restructure its health care system^[14, 15, 17]. Few indigenous healers remain after three decades of war and civil unrest, and much local knowledge of medicinal plants has been lost. All of the traditional healers that I interviewed were actively engaged in finding effective treatments for patients with AIDS by late 1999. One of the most important aspects of learning about traditional healers is how they acquire their knowledge. These practitioners often select different aspects of medical systems to incorporate into their practice. Some healers use botanical medicines while others combine supernatural healing with Western pharmaceuticals. Individuals become medical practitioners either through divine selection or by entering training. Divine selection means that a person has a dream that indicates he or she must become a healer^[18]. Another kind of divine selection happens when a person who has recovered from a serious illness feels that he or she has been chosen to become a healer in turn^[18]. Alternatively, some people feel compelled to become healers after one of their family members has died of a serious disease. People who choose to become medical practitioners often go through a period of apprenticeship. A master healer may teach didactically and allow the apprentice to observe healing practices. Some students assist the healer and his or her family by way of compensation for the training while others pay for the teaching^[18]. In some societies, individuals who wish to embark on a career as a healer can expect to have their abilities tested by different people, usually family members. Subsequently they are allowed to expand their practice to non-relatives.

Traditional Cambodian healers, called kru

Khmer, learn their skills in an oral tradition passed on by a parent or master healer. Kru consists of a diverse group of traditional medical practitioners^[19]. Generally, the term kru refers to any teacher including school teachers. However, by adding the word Khmer after the term kru, the phrase becomes specific for traditional healer. Traditionally, Kru Khmer made up a wide range of practitioners depending on one's beliefs, values, educational level, and other external influences such as witnessing a dramatic event. There are a variety of Cambodian medical practitioners; many of them integrate various practices, including plant medicines, religious and supernatural healing, and biomedicine^[2]. The traditional Cambodian medical system is based on humoral theory, or the belief that good health is a matter of balancing between opposites such as hot and cold or wet and dry. Traditional healers (kru Khmer) may read palms, draw up astrological charts, or enter trance to conduct diagnosis. Spirit mediums, who may or may not be considered kru, are another kind of healer in Cambodia. Spirit mediums are not allowed by their spirit helpers to ask for payment for their services, but can receive symbolic gifts of food, goods, or money. As in many parts of Asia^[20-22] and elsewhere^[23-25], religious beliefs play a part in medical practices. Spiritual leaders and monks consider spirits and sorcerers to be at the root of most serious physical or mental disturbances^[2]. They are sought out to consult on diagnoses and cures and may be involved in healing ceremonies. They usually turn to exorcism as a principle therapy for spiritual or supernatural illnesses. Their repertoire includes incantations and rubbing blessed oils or powders on the patient's body. After the exorcism ritual, food and water are blessed and consumed. They may also explain that an illness has origins in incorrect moral behavior and recommend a correct code of conduct as part of the path to recovery. Since monks play such a key role in healing, they are sometimes also considered a kind of kru. Traditionally, monks also are not allowed to ask for payment, but most patients provide symbolic gifts when their expectations regarding treatment have been met^[19].

Kru who treat illnesses that result from natural causes are also considered specialists. Medicines are made of plants or animal remains, including skin, hair, organs, and bones, and may be given in the

form of infusions, decoctions, pills, powders, ointments, or plasters^[19]. Preparing the remedies often follows a ritual process. For example, infusions are always prepared in three bowls and then boiled down together until about one cup remains^[19]. Since exceeding the right dosage can harm the patient, good kru try the remedy on themselves before giving it to others. Some traditional healers make all diagnoses during trance and then combine supernatural power, religious ritual, botanical medicines, and Western pharmaceuticals in treatments. Some healers prefer traditional Khmer medicine, turning to Western pharmaceuticals only as a last resort or when patients request them.

Cambodian healing methods fall within two main modalities: 1) the infliction of external pain as a substitute for internal pain, forcing regulation of the body or 2) the consumption of botanical medicines that restore the body to a state of equilibrium. Results from fieldwork in Sdaov village indicate that many Khmer still practice traditional healing. Almost all of those interviewed have used traditional Khmer medicine at least once at some point in their lives and approximately 70% have combined traditional Khmer medicine with Western pharmaceuticals. Dual treatment is usually employed for serious illness. Some people go to a fortuneteller (specialized kru) to seek advice or ask for information about the cause of an illness before seeking out a traditional healer who specializes in medicinal plants or supernatural/religious healing. Some of these specialized kru treat clients themselves. Some traditional healers sell only one herbal compound to treat all illnesses. Other healers use various recipes, with one package for common ailments and another for serious problems such as diabetes, TB, or dengue fever. Still another may be used to treat AIDS. Generally, the number of plants used in a given preparation depends on the severity of the disorder it is meant to treat. Packets of prepared herbal compounds are also sold by mobile vendors.

Cambodians choose kru Khmer healers by a process of elimination^[19]. There are many kru in most villages in the country, but their experience, knowledge, and credibility vary widely and it is not unusual to find kru prescribing more than one therapy at a time. Some kru deal only with mental health problems, reading horoscopes to discover the severity of an illness and to foretell its future course^[19].

Other kru treat illnesses inflicted by spirits and demons and tend to be more specialized, but their status is somewhat precarious because they can use both white and black magic to cure or harm a person^[19]. Monks who are suspected of practicing black magic are blamed for failing their moral obligations to Buddhism. However, monks who possess supernatural power combined with knowledge of medicinal plants are highly sought after.

MEDICINAL PLANTS FOR AIDS THERAPY

Although the Cambodian medical system is dominated by biomedicine, the use of traditional medicine persists. Cambodian highlanders still use medicinal herbs to induce abortion, for example. Outsiders sometimes misinterpret Cambodian ethnomedical practices in a negative light. For example, abdominal pain is treated by burning the skin, which can leave visible scars after the treatment^[26]. Dermabrasion therapy is perceived in Western countries as a form of abuse rather than a legitimate traditional medical practice^[27]. Local knowledge about healing and medical plants can be learned in a number of ways—either vertically through family members or horizontally by the exchange of information between healers, peers, and other divine/supernatural beings.

Before discussing the process in which Khmer traditional healers determines how AIDS patients can receive therapy, it is important to point out that by late 1999, the Cambodian government began initiating discussions regarding the role of traditional healers in AIDS therapy. At the same time, other issues also emerged such as AIDS drugs and provision of care and support, and legal rights for those living with HIV/AIDS. The main issue during this period remained with the role of traditional healers, however. They were considered to be overcharging patients huge sums of money to receive AIDS therapy. Some traditional healers posted signs in front of their office with a claim that "AIDS can be cured."

Despite this controversy, traditional therapy remains an important part of the Cambodian health care system. Currently, care and AIDS therapy are only available in urban areas. Those who live in remote parts of the country still depend on traditional healers. Traditional healers require AIDS patients to live with them and consume medicinal teas prepared

by the healer. Food and shelter are extra expenses, which makes traditional Khmer treatment very costly for the average AIDS patient. Some of the more sought-after healers charge as much as US \$ 500 per treatment, prompting accusations by government officials that they are cheating their patients. The Minister of Health, Hong Sung Hout, asked skeptically how one traditional medicine could be used to treat a hundred different kinds of diseases^[28]. In 2000, traditional healers in Kampong Cham province attempted to establish a formal organization to respond to such skepticism. They aim to maintain traditional healing methods and preserve the use of botanical medicines. By 2001, two traditional healers had decided to work with the local organization in hope that it would help provide them with a voice and credibility.

In Cambodia, treating AIDS is considered more complex than normal STDs. Most traditional healers admit that they cannot cure a patient with AIDS. Instead, they hope to alleviate some of the symptoms. The first step in treatment is to evaluate the patient's condition. The healer examines the body closely for signs of life, particularly perceived in the joints, eyes, fingers, and toes. The absence of color (whiteness] in the eyes suggests that the disease is too advanced for treatment. They also check movements of the eyes to determine whether the patient is alert. They generally reject a patient who shows the 'etic' symptoms of full-blown AIDS as defined in biomedicine. A patient with a skeletal appearance is disqualified. The first signs of AIDS, particularly diarrhea and skin problems, are considered more treatable. The patient should also have enough strength to drink medicinal tea, eat, and sleep. In almost all cases, patients are asked to live with traditional healers while receiving treatment. The cost of being cared for by a traditional healer is often too high for AIDS patients, however. Those who can afford it will drink between 3 to 10 liters a day of medicinal tea, depending on the healer. Effective treatment is measured by three outcomes: 1) resumption of appetite and water ingestion, 2) regular sleep cycles, and 3) weight gain. The first or second sign of recovery is not as important as the last. Weight gain is perceived as an absolute measure of improvement. Sufficient weight gain implies that the patient's body has returned to equilibrium.

Some patients can also gather plants themselves

and prepare their own compounds. For example, in field observation of a small Cambodian village, six people recognized medicinal plants growing in the fields and gathered them to boil and drink as tea, which is the usual way to ingest traditional medicine. Plants are combined in a big pot with about 3 cups of water and the herbs, then boiled down to 1 cup. Medicinal teas usually taste slightly bitter.

A variety of plants, animals, and minerals are used in traditional Khmer medicine^[8]. Coconut juice is important for the treatment of diarrhea or fever. Black sugar cane, rusted nails, and corncobs are some of the ingredients for the treatment of STDs. Pulverized squirrel skin is rolled into balls and taken for headache. Pills made of tree bark and animal remains are used to treat a number of ailments including chronic body ache, insomnia, and stomach ache. During the Pol Pot regime in the late 1970s, earthworms were used as one of the main ingredients for the treatment of measles and chicken pox. More often than not, healers combine a variety of therapies, including the use of objects such as coins or cups and religious ceremonies. Remedies such as moxibustion may be used when the disorder is more severe. Healers and patients alike maintain these traditional practices.

There are a number of medical plants used in AIDS therapy. Some of these plants are shown to have bioscientific importance. These plants are bitter melon (*Momordica charantia* Linn.), betel nut (*Areca catechu* Linn), coconut husk (*Cocos nucifera* Linn), and sdoav in Khmer (*or Azadirachta indica*). Medicinal plants have a long history of use, and their use is widespread in both developed and developing countries. Traditional or medicinal medicine provide a rational means for treating many diseases, particularly those diseases that are obstinate and incurable in other systems of medicine^[29]. Many yellow and green vegetables have been shown to decrease the risk of various types of cancers^[30]. Similarly some fruits and vegetables consumed by Cambodians seem to possess anti-mutagenic properties^[30]. These plants include sdoav in Cambodian language and bitter melons. Culturally, these plants are considered to have cooling property.

Betel nut (*Areca catechu* Linn) is widely used as medicine. Chewing betel nut is an important part of socializing in some cultures in Southeast Asia. Betel chewing is an ancient custom, which is still

widely practice in Asia. Some suggest that there are at least 200 million users worldwide. Betel nut contains some aromatic substances such as eugenol, iso-eugenol and safrole and the active constituent/extract shows procyanidins, a potential HIV protease inhibitor^[29,31]. Coconut (*Cocos nucifera* Linn) is another interesting fruit. Cambodians with AIDS occasionally consume coconut juice to ease indigestible problems. Coconut juice has also been used to treat other diseases, particularly stomach problems (e.g., diarrhea, cholera, measles). Water extract from coconut husk fiber reveals antimicrobial activity against *Staphylococcus aureus*.

Sdoav (*or Azadirachta indica*) has been extensively studied, especially the species specific to India, where it is called Neem. It has been used as a medicine, pest control, and food^[32,33]. Neem leaves and flowers contain compounds determined by WHO to be effective against *Anopheles Stephensi* Liston^[34]. The flowers contain monofunctional phase II enzyme inducers and compounds capable of repressing some monooxygenase, especially those involving the metabolic activation of chemical carcinogens^[30]. Extracts of the plant also have antifungal activities^[33].

Bitter melon (*or Momordica charantia*) is a food that also serves as medicine. Cambodians prepare this fruit in soup for fever patients. In some cases, this fruit has also been known to be used for AIDS therapy as part of increasing weight. AIDS is a disease considered to be a hot state. Cooling the body is a way of alleviating the symptom. Bitter melon has been shown to have bioscientific importance. A number of studies show active chemicals^[30,35]. This fruit's active constituents and extracts have been shown to have antiretroviral protein^[29]. The mechanism of action is inhibition of transcription and transactivation, and inhibition of viral integrase^[29].

There is rational basis for using traditional medicine. Local knowledge is usually not distributed evenly among members of a particular culture, however. One must look into specialists in that culture for how local knowledge is acquired. Hence, there is a distinction made between traditional healers/specialists who possess in-depth knowledge about medicinal plants and common people. As this paper showed, traditional healing has its place within the ethnomedical world. Being holistic, traditional healing, particularly the use of medicinal plants, has

been viewed positively in both developed and developing countries.

CONCLUSION

We started this paper by providing an overview of the Cambodian health care system in order to shed light into the current support and care for people living with HIV/AIDS in a tropical country. Traditional healers and their various roles, and their response to AIDS care and support, were discussed. We concluded by identifying some plants used for AIDS therapy, as well as examining their bioscientific importance.

Vital to the management of HIV/AIDS in tropical countries such as Cambodia is the cooperation and collaboration between traditional healers and Western trained medical doctors. The mutual recognition of the benefits and limitations of each medical care system, especially in the context of past abuses, accessibility, social customs, and financial barriers, need to be exploded through consultative meetings and open dialogue of respective leaders from the two health systems. Beliefs underlying the cause of HIV/AIDS, divination, cultural-emotional factors, standardization of training, and medicinal packaging and distribution are a few starting points for future discussion.

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