武庫川女子大学看護学ジャーナル Vol.02 pp.93-104.2017

Material

Traditional Healers' Practices on Traditional Medicine in Rural Senegal Villagers

セネガル地方住民が受けた伝統治療者による治療の実態

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key words : traditional medicine, Senegal, traditional healer, practice
キーワード：伝統医療、セネガル、伝統医療者、実践

Abstract

This study was conducted to reveal the actual treatment practices provided by traditional healers in Senegal. In addition, a traditional medicine strategy was developed based on the actual situation in rural Senegal. A survey was administered to villagers in rural Senegal to identify the types of traditional healers they visited by examining their healthcare utilization behaviors over the past 3 months. A participatory observation survey was also conducted at the workplaces of five traditional healers who consented to participate in the study and the healers were interviewed about their values. The traditional healers who participated included 1 diviner, 1 marabout, and 3 herbalists. Some were self-employed and others worked at traditional medicine centers. The patients treated by them had chronic diseases. Some traditional healers made a diagnosis and determined a treatment strategy based on a medical interview, whereas others did so by referring to the results of clinical tests using medical devices. In some cases, the healers charged for the treatment, but in other cases, the patients decided how much they would pay for the treatment. They used plants and animals in their treatments. The results of this survey shed some light on how traditional medicine is involved in the lives of Senegalese villagers.

要　旨

セネガル住民の実際の受療行動から、伝統医療者の治療実態を明らかにすることを目的とした。また、実態を基にした伝統医療対策について検討を試みた。調査はセネガルの地方住民を対象とし、彼らの過去３ヶ月間の受療行動から、利用した伝統医療者を把握した。同意の得られた５名の伝統医療者の診療場面への参加観察調査と彼らの価値観等の聞き取り調査を行った。伝統医療者は占い師１名、イスラーム伝道師１名、薬草師３名で、個人経営の者と伝統医療センターに勤務している者がいた。調査に協力した治療者の患者は全員慢性疾患だった。伝統医療者による問診だけで診断を下し治療方針を決める者と医療機器による検査結果を参考に治療を行う伝統医療者がいた。治療費は伝統医療者が提示する場合と患者が治療費を決めて払う場合があった。治療には植物や動物を使用していた。調査により、一部ではあるが住民の生活の中にある伝統医療の実態が明らかになった。

I Introduction

Medicine in Africa can be broadly classified into modern medicine that was introduced through colonial policy and traditional medicine that has long been practiced by the local peoples. Traditional medicine is knowledge tied to characteristics of the region, such as its natural environment, crops, and religion

受付日：2016 年９月２日　　受理日：2016 年 11 月 14 日
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that is mostly developed through experience and is accumulated by local people over the course of their social history. It is a highly necessary and important means of medical treatment in developing countries because it is a familiar health care service (World Health Organization [WHO], 1978).

The WHO and other organizations have held many discussions regarding how traditional medicine should be utilized to promote well-being, and the outcomes of these discussions were compiled and published in “Traditional Medicine Strategy 2002-2005” issued by WHO in 2002 (WHO, 2002a). This document was the first to report that 80% of people living in rural Africa utilize traditional medicine as their initial form of health care. It also defined the term “traditional medicine” and set specific strategic goals for traditional medicine (WHO, 2002b). However, each country needed to establish its own specific standards for traditional medicine. The document also pointed out the treatments provided and misdiagnoses made by unqualified individuals as well as the use of fake pharmaceutical products containing low-quality drugs or foreign substances (Calixto, 2000; Okpako,1999), highlighting challenges such as fostering the skills of healers and safeguarding the quality of drugs. To address these challenges, each country develops various measures that meet their situational needs, such as the understanding of traditional healers and the scientific analysis of the components of herbal medicines used by traditional healers. At present, the “Traditional Medicine Strategy 2014-2023” (WHO, 2013) is in progress in countries.

Now, we shift our attention to the Republic of Senegal, a West African country that constantly seeks better ways to integrate Western and traditional medicines to improve their healthcare system (Ministère de la Santé Publique et de la Prévention, 2009a). Because of its political stability and a rise in the gross national income, Senegal is the focus of many African countries in recent years. Therefore, it is likely that the measures that Senegal takes on traditional medicine could affect the measures taken by other African countries. First, we introduce Senegal’s measures on traditional medicine.

In 1968, shortly after gaining independence from France, Senegal hosted the first Symposium on Traditional Pharmacopoeia and African Medicinal Plants, run by the Organization of African Unity. The country subsequently established a traditional pharmacopoeia center in 1975 and a traditional medicine center in 1996 and has been studying the involvement of traditional medicine in the lives of its citizens. The current traditional medicine strategy is being implemented in accordance with the National Health Development Plan 2009-2018 (Plan National de Développement Sanitaire, PNDS) set forth in 2009. The specific efforts are more intensive versions of efforts presented in the Strategic Plan for Promotion of Traditional Medicine 2007-2010 (Plan Stratégique pour la Promotion de la Médecine Traditionnelle, PPMT) formulated in 2006 (Ministère de la Santé Publique et de la Prévention, 2009b; Ministre de la Santé et de la Prévention Médicale, 2006a). The most noteworthy aspects of the PNDS are two goals: the first is to define the responsibilities, obligations, and rights of traditional healers as health management professionals and to specify their roles; the second is to protect citizens while regulating the practice of traditional medicine in efforts to minimize fraud (Ministère de la Santé Publique et de la Prévention, 2009c).

Before PNDS 2009-2018 went into effect, Senegal was building a database of traditional healers as part of the PPMT 2007-2010 activities. Although the specifics about a survey method to elucidate traditional healers are unclear, such as the characteristics of the sample traditional healers examined, previous surveys had examined the specialty fields of traditional healers in addition to documenting demographic data such as address and age (Ministre de la Santé et de la Prévention Médicale, 2006b). However, these surveys did not examine other aspects of traditional medicine such as specific treatment methods or procedures, the values of healers, whether medicines are prescribed, or costs. Although previous studies of traditional medicine in Senegal and other African countries have documented aspects such as healthcare utilization behaviors for different diseases or healthcare costs for different diseases (Iwasa, Shimizu, & Ohno, 2014; Iwasa, Morimoto, & Ohno, 2014; Towns, Eyi, & Andel, 2014; Niklaus, Sabine, Engelber, Jozien, & Wolf, 2010; Nyamongo, 2002), and with regards to beneficial effects, aspects such as pharmacovigilance or active ingredients in plants (Bernard, Gayo, & Clovis, 2013; Street & Cele, 2013; Müller, Skinner, & Kanfer, 2013), there do not appear to be any descriptive studies that have documented the activities of traditional healers.

Before implementing the traditional medicine strategy outlined in the PNDS, it is important to document the activities of traditional healers in detail to clarify what needs to be investigated and develop more practical strategies. Therefore, this study was conducted to reveal the actual treatment practices provided by traditional healers in Senegal. In addition, a traditional medicine strategy was developed based on the actual situation in rural Senegal.

II Methods

1. Definition of terms

Traditional medicine is defined by WHO as “including diverse health practices, approaches, knowledge and beliefs incorporating plant, animal, and/or mineral based medicines, spiritual therapies, manual techniques and exercises applied singularly or in combination to maintain well-being, as well as to treat, diagnose or prevent illness” (WHO, 2002c, p.7). In addition, in this paper, utilization of traditional over-the-counter drugs and treatment by traditional healers are included in traditional medicine.

2. Study locations

We decided to conduct the study in rural Senegal because the PPMT notes that rural villagers are more involved with traditional medicine (Ministre de la Santé et de la Prévention Médicale, 2006c). Furthermore, as farming and fishing are key industries in Senegal, it would follow that the typical rural resident should be a person working in these industries. Therefore, it was decided to conduct the study in villages with people from the Sérère ethnic group who worked in these industries. Two villages that agreed to participate were chosen as the study locations: Village C (VC) and Village D (VD) in Fatic Region, Department B. VC is a mainland farming village and VD is an island fishing village. Household size is about 100 in VC and 90 in VD (as of March 2009).

In VC, peanuts and millet are cultivated during the rainy season, and the production of mangoes and cashew nuts becomes active during the dry season. The village has several manual draw wells, but not the pump well and there is no waterworks or sewerage system. Although plenty of water is available, the water appears milky because of its high calcium content. The wells have no covers so foreign objects are often found floating in the water. Because of the lack of electricity, the villagers use lamps, flashlights, candles, and firewood.

In VD, many villagers make a living from business associated with the fishing industry throughout the year. The village has no wells but has one water tower that all the villagers use for drinking and other domestic water use. However, the water tower frequently goes out of order, and whenever that happens, water needs to be transported from outside the island. In addition, all the goods that villagers need, such as commodities and food items, are transported from the mainland. Because of the lack of electricity, many households use flashlights, candles, and firewood.

Both villages have a dispensary (based on Western medicine) staffed by one health volunteer. The maximum distance between each household and the dispensary is 15 minutes on foot. In addition, both villages have 2 to 4 traditional healers. The health post, where nationally qualified nurses are available, is located about 35 minutes away from VC by car and about 60 minutes away from VD on foot, occasionally involving having to cross rivers. The health center, where doctors are available, is located about 40 minutes away from VC by car and about 200 minutes away from VD traveling by wooden boat and donkey-drawn cart.

In Senegal, the average monthly income is 51,176 CFA francs (100 CFA francs is about 0.17 USD) (La Bank Mondiale, 2016), and bread, which is commonly used by the villagers for breakfast costs 50 CFA francs per serving. For treatment at the health post, adults and children are charged 200 and 100 CFA francs, respectively, as a basic treatment fee. Treatment for malaria costs approximately 2,000 CFA francs, which is the sum of a basic treatment fee and the cost of common malaria medication lasting for 3 days.

3. Subjects and data-collection procedures

The survey was conducted in two stages. The

first survey investigated healthcare utilization behaviors. We selected 29 households from VC and 21 households from VD. All members of selected households underwent a face-to-face interview using a survey questionnaire. The questionnaire inquired about illnesses experienced during the past 3 months and the type of treatment chosen.

The second survey was a fact-finding survey involving the traditional healers. The subjects were traditional healers visited by the villagers who participated in the first survey. Because this study was conducted in areas with no electricity and poor communication and transportation systems, we visited individual subjects to request for their participation in the study. When subjects consented to participate, we then attended actual treatment sessions and conducted a single interview lasting approximately 40 min. In clinical settings, we asked other patients for participation in the study. The lead author went into the treatment room and observed both traditional healer and patient from the site designated by the transitional healer to obtain information on actual treatment practice including diagnostic methods, treatment details, and prescriptions. Interviews were conducted by lead author and one local research assistant who was a Sérère-Sine-speaking.

In the interview, each healer was asked about treatment policy, patient characteristics, and cooperation with other healthcare professionals. In addition, the researcher described to the healer what had been observed in the treatment room to verify that the interpretations were correct. The content of the interviews was written down in a field notebook, with no videography or audio recording used. Both surveys were conducted from March through June of 2009.

4. Analysis

In the first survey, we simply summed the number of diseases in the past 3 months and the number of diseases for which traditional medicine was employed (including traditional healers and over-the-counter drugs).

In the second survey, the situation of traditional healers who were actually patronized by the villagers, as revealed in first survey, were summarized descriptively with a focus on clinical practice, treatment policy, patient characteristics, and the integration of Western medicine.

5. Ethical considerations

The study was anonymous and conducted in accordance with the 1975 Declaration of Helsinki. The study was approved by the travel medicine, private medical treatment, and traditional medicine divisions of the Health Prevention Ministry in Senegal and was approved by the Ethics Committee of Osaka University, Japan (Approval No.: 102).

To obtain consent on their participation prior to the study, we informed traditional healers and patients verbally that interviews would be conducted by the lead author with a help of an interpreter who translates French to/from the local language, notes would be taken during interview, the interpreter would not disclose the content of each interview under any circumstances, and the lead author would oversee its confidentiality. Traditional healers and patients were also informed that they could remain silent when they preferred not to disclose certain things and that data we obtained would be analyzed in a study and published in conferences and journals.

III Results

We present mainly the results of the second survey.

1. Demographic characteristics

Responses were received in VC from 182 people and in VD from 129 people, and the corresponding number of valid respondents was 182 and 128. The approximate response rate was 84% in VC and 80% in VD. In both villages all respondents were Muslim.

2. Healthcare utilization behaviors of traditional medicine

In VC, Traditional medicine was utilized for 22 diseases and in 27 behaviors. Of these 27 behaviors, 15 involved utilization of traditional over-the-counter drugs and 12 involved utilization of a traditional healer. Because these 12 healthcare utilization behaviors included visits to the same traditional healers, the actual number of traditional healers villagers used was 6.

In VD, Traditional medicine was utilized for 39 diseases and in 43 behaviors (total). Of these 43 behaviors, 35 involved utilization of traditional over-the-counter drugs and 8 involved utilization of a traditional healer. Because these 8 healthcare utilization behaviors included visits to the same traditional healers, the actual number of traditional healers villagers used was 5.

3. Traditional healers

The breakdown of 11 traditional healers utilized by villagers in the 2 villages was 1 diviner, 3 traditional marabouts, 5 herbalists, and 2 marabou prayer. Five of the 11 traditional healers utilized by the sample villagers consented to participate in the second survey. The 5 traditional healers who were interviewed comprised 1 diviner, 1 traditional marabout, and 3 herbalists (Table 1). Despite the consent of the healers and patients, we were not allowed to observe several treatment sessions, and sometimes only 1 patient was available during a limited study period, which in turn limited the survey data.

None of the traditional healers had any formal education in traditional medicine, but they all accumulated knowledge through experience. In addition, none of the healers disclosed the names of the plants they used because the information should remain confidential. All the diagnoses presented in this section were made by traditional healers themselves. All of their patients had chronic diseases; none had acute infectious disease.

1) Diviner

This traditional healer was a man in his 40s who lived in a village 75 minutes on foot from his patients. He divined causes of diseases, how to solve foreseeable future difficulties, and offered advice to patients. Sometimes, he would use an animal's horn or tail and make divinations on the basis of how the object fell, the direction in which it slanted, or the speed at which it fell. Other times, he would not use tools and would make divinations while drawing on the ground with a tree branch.

After he divined the cause of the disease, he prescribed patients a special liquid to treat the disease and prevent its recurrence. The special liquid appeared to be an artificial fragrance mixed with wood shavings. The diviner said that the special liquid works when applied and rinsed off when bathing in the morning.

2) Traditional marabout

This traditional healer was a man in his 40s who lived 30 minutes from his patients by bus and 20 minutes by donkey-drawn cart. He prayed by reciting Islamic scripture and texts based on scripture, and he also advised on physical issues and life challenges such as marriage and job search. Most of the advice that he gave was about mental health and many psychiatric patients were living at his house, where he also consulted patients. He reported that patients' symptoms improve when they live with him.

He treated patients in a single room located 50 m away from the waiting area. There were no windows and had a single rug on the floor. Once patients entered the room, an assistant locked the door from the outside and treatment began after the lock was checked. As it is said that the treatment will not work if it is described to another person, it was not possible to record what the treatment involved.

A person who came to be treated for evil spirits was prescribed holy water. The water was provided in a 2-liter plastic bottle that contained seven tree leaves and a piece of paper with a charm written on it. The patient was told to drink the whole bottle over 15 days.

3) Herbalist A

This traditional healer was a man in his 50s who lived in a village 10 minutes from his patients by bus and 35 minutes by donkey cart. He prepared and prescribed plant parts such as leaves and roots according to physical symptoms. He also advised on everyday life problems.

When he saw a patient complaining of languor, he asked about the symptoms and then prescribed medicines. The medicines he prescribed were tree shoot leaves that he had picked that morning and some kind of powder. He asked the patient for their name, chanted something at the medicines, and spat at them saying "puh". He told the patient to put the shoots and powder in water and wash the whole body with that water once daily.

4) Herbalist B

This traditional healer was a man in his 40s who lived in a suburb of the capital city that was a 6-hour drive from his patients. His clinic was in a four-story

building with an examination room on the first floor, a dispensary on the second floor, and his personal residence on the third and fourth floors.

He had a university education in science. He saw patients from 8 AM to 5 PM, with an average of 1,000 patients coming each day. The base fee for a visit was 400 CFA francs and each treatment cost 200. Although he carefully listened to new patients talk for about 10 minutes, he consulted with returning patients for only 10 to 15 seconds each.

He asked patients deliberate questions about their lifestyle, their overall medical history, the history of their current disease, and their symptoms. After listening to the patient's answers, he computed what to prescribe in his head. He said, "The herbs prescribed and their relationship with the patient are what later determines the 'truth' borne from them" (i.e., the effect that transcends scientific evidence). He examines patients again after 1 week to assess the "truth" borne from the relationship between the person and the medicine and decides to change the medicine or the dose as necessary.

On the second floor, women were seen rolling up medicine (wood chips) in paper. The basic fees received were put toward clinic expenses such as staff salaries, paper for wrapping up medicines, and patient registration cards/appointment cards. The herbalist retained all treatment fees as his salary.

Most of the patients who came to the clinic had chronic diseases such as low back pain. The dates that patients would return for follow-up appointments were determined on the basis of the type of disease they had, with patients who visiting at the same time generally being prescribed the same medicines.

5) Herbalist C

This traditional healer was a man in his 40s who lived in a suburb of the capital city a 2.5-hour drive from his patients. He worked at a traditional healing center managed by an American nonprofit. The goals of this center were to re-evaluate traditional medicine and to conduct cultural research on science adoption and medical practice from the perspective of long-established belief systems (animism) and universal spirituality.

There were two types of traditional healers: "specialists" that could treat certain types of symptoms only and "generalists" that could provide comprehensive treatment for the whole person rather than just for symptoms of their disease. The youngest traditional healer was 6 years old and the oldest was about 60. There is no defined training curriculum or licensing system for traditional healers; instead they learn from knowledge that is passed down the generations. The young healers at the center learned with the mentorship of experienced healers, and parents educated their children by conveying their knowledge and experience.

The healers always made charts for individual patients at their first examination and used them at each examination. Western-style medical devices were always used in first examination. The center also had medical instruments/tools such as microscopes and diabetes test kits. These were used to provide patients with holistic treatment for the body and soul after assessing their physical condition.

Clinical technicians (whose qualifications were unknown) handled the medical devices. The technicians reported objective test results to patients and informed them that their disease could be treated by Western medicine, thus giving patients a choice about medical facilities and treatment methods. When patients chose traditional medicine, their test results were passed to their primary healer. Keeping the results in mind, the healer listened to the inner soul of the patients before making a diagnosis and treating them.

The director of the center said, "Whereas modern medicine treats part of the body [i.e., symptoms], traditional medicine treats the heart and the body as a whole. Since the soul and body are connected, the soul can act on the mind to cure diseases."

The base cost was 500 CFA francs per examination and the consultation fee was 3,000 CFA francs. Patients could appoint their primary care healer. Therefore, highly skilled healers earned high salaries. Consultation fees were allocated toward the traditional healers' salaries, so the more patients they saw, the higher the salary they received. Most patients had diseases such as rheumatism, viral hepatitis, diabetes, asthma, and psychogenic diseases. The medicines were plant and animal products collected by each traditional healer, and the specifics of the products

Table 1. Traditional healers' daily activities

Diviner	
Situation	Private room in a residence
Organization	Independent activity
Treatment policy	Divination about the causes of the disease, divination about ways to resolve difficulties that will arise in the future, advice based on divination results.
Diagnostic methods	Instruments used for divination may vary depending on the nature of the consultation. (1) Divination without instrument, by writing down something in the sand with a tree branch. (2) Divination with an animal's horn or tail, by examining the way it falls down (tilt, direction, and speed).
Treatment	Prescription of a special liquid to fight against disease or to help solve difficulties.For efficient use, the liquid should be applied to the body after the morning bath, without being rinsed off.
Cost of treatment	Patients decide themselves how much (the amount of money) they can pay for the treatment (as a general rule, price varies from 100 CFA francs, usually around 1,000 CFA francs)
Patient category	People with physical symptoms or concerns about their daily lives
Number of patients per day	–
Number of practitioners	one practitioner
Cooperation with other medical facilities	Sometimes as in Case of Herbalist C
Traditional marabout	
Situation	Independent structure (settings)
Organization	Independent activity
Treatment policy	Besides solving physical problems, they will propose solutions to some of the life's challenges like marriage or finding a job.
Diagnostic methods	Listening to (patient's) complaints
Treatment	A quote from the Koran or a similar text is recited, meanwhile, after which holy water is used to chase away evil spirits, etc. The patient should drink or apply this holy water for 15 days. The holy water is contained in a 2-liter plastic bottle and is composed of water, 7 different leaves from trees, and a paper sheet on which is written a magic formula (charm).
Cost of treatment	The patient himself decides the amount of money he will pay for the care (generally, starting at 100 CFA francs, this patient has paid 40,000 CFA francs)
Patient category	Mainly people with psychological symptoms
Number of patients per day	Up to 30 people
Number of practitioners	one practitioner
Cooperation with other medical facilities	–
Herbalist A	
Situation	Room in a private residence
Organization	Independent activity
Treatment policy	Prescriptions of preparations made from leaves and roots of plants to cure physical symptoms and to solve problems that occur during everyday life.
Diagnostic methods	Listening to (patient's) complaints
Treatment	Only the seedlings (young leaves) are harvested from the branches during morning time. A (magic) formula is pronounced over the medicinal plants, which have been dried and crushed into powder before the final spitting of saliva (spittle) on the packaging. Once a day, a bunch of leaves is shredded (torn off) and mixed with the water used for the bath. "
Cost of treatment	The patient himself decides the amount of money he will pay for the care (generally, from 1,000 CFA francs, this patient has paid 10,000 CFA francs). Sometimes, some herbalists indicate the price to the patient.
Patient category	People with physical symptoms or concerns about their daily lives
Number of patients per day	–
Number of practitioners	one practitioner
Cooperation with other medical facilities	–

Herbalist B	
Situation	Independent Structure (Settings)
Organization	Independent activity
Treatment policy	Depending on the relationship between the prescribed medicinal plants and the patient, results may vary.
Diagnostic methods	The history of the current disease, patient's medical history and lifestyle are examined very carefully. The herbalist mentally analyzes all the prescribed drugs and decides which ones to use in his head.
Treatment	The leaves and roots of plants are boiled, and the patient can drink the broth (mixture) or use it to wash the body. A further consultation takes place one week later, and the nature and dosage of medications are changed as needed.
Cost of treatment	Uniform (fixed price) 600 CFA francs
Patient category	Most are patients with chronic diseases
Number of patients per day	Almost 1,000 new patients
Number of practitioners	one practitioner
Cooperation with other medical facilities	—
Herbalist C	
Situation	Independent Structure (Settings)
Organization	NGO (Non-Governmental Organization)
Treatment policy	Because the body and soul are inseparable, a holistic medicine including the soul is implemented.
Diagnostic methods	Investigations take place with medical equipment but the diagnosis is made by taking into account the voice of the soul.
Treatment	In the case of traditional medical care, parts of plants or animals are prescribed.
Cost of treatment	Uniform (fixed price) 3,500 CFA francs
Patient category	Most patients suffer from rheumatism, viral hepatitis, diabetes, asthma, and psychogenic diseases.
Number of patients per day	Almost 10 new patients
Number of practitioners	Usually 20 practitioners (500 registered practitioners)
Cooperation with other medical facilities	When the patient wishes to be treated with modern medicine, he will be sent to the nearest doctor. Trainings with regional hospitals are regularly organized. Mutual patients transfers are actively implemented.

were confidential even to other traditional healers working at the same center.

The basic philosophy of the center was that because modern medicine and traditional medicine complement one another, it is important for treatment to involve both elements, so the center regularly held joint workshops with Region A Hospital. The center and hospital also actively referred patients to one another.

IV Discussion

We considered in 5 viewpoints based on findings.

1. Traditional healer viewed from the treatment method

Senegal adopts the WHO definition of traditional medicine and promotes the Traditional Medicine Strategy. Based on the treatment method, the WHO classifies traditional medicine into drug therapy with, for example, plant products and non-drug therapy. The latter includes manual therapy, Qigong therapy, hyperthermia treatment, yoga, and physical therapy combined with mental imagery for physical, mental, and spiritual benefits (WHO, 2002d).

Among the 5 traditional healers in this study, 3 used drug therapy and 1 used non-drug therapy. Despite being recognized as traditional healers by villagers, diviners do not fall in the category of traditional healers. This suggests that the criteria that the government uses for traditional healers are different from those used by citizens. It is also possible that the recognition of traditional medicine varies between the government and citizens. Therefore, to make the Traditional Medicine Strategy viable, it is necessary to integrate the different views of traditional medicine.

2. Worldview of traditional medicine from the perspective of diagnosis and prescription

Traditional marabouts and herbalists make a diagnosis after listening to the patients, which is similar to a diagnostic process observed in Western medicine. However, what is characteristic about traditional medicine is that the healers listen to the "inner soul" of patients before making a comprehensive diagnosis. In addition, the healers prescribe medicinal plants or water containing medicinal plants (holy water), showing that cure is brought by a harmonious combination of medicinal plants and prayer or medicinal plants and soul. The WHO describes traditional medicine as a mysterious and supernatural force (WHO, 2002b), thus, we think that this worldview about traditional medicine is shared by Senegal. Therefore, it is extremely difficult to study traditional medicine from the perspective of Western medicine where diagnosis and treatment are performed based solely on scientific evidence.

When evaluating traditional medicine as a policy, the participation of traditional healers who can convey the worldview of traditional medicine is essential to develop traditional medicine strategies.

3. Ensuring the safety of traditional drugs

An aim of the traditional medicine strategy outlined in the PNDS is the protection of citizens. One way to achieve this is through the investigation of traditional medicines. After examining plants used by traditional healers, Senegal registered 17 plants to the Traditional Pharmacopoeia (Ministre de la Santé et de la Prévention Médicale, 2006a). This number is very small compared with ≥3,000 plants registered in India for one of the three major traditional medicines (Ayurveda) (Dubey, Kumar, & Tripathi, 2004). The three major traditional medicine categories are organized from the perspective of academia and medicine, and medicines used in each practice are not simple crude drugs made from natural materials, rather they are made to improve potency and reduce toxicity through various ingenuous attempts (Fabricant & Farnsworth, 2001). In the case of the 17 plants registered in Senegal, their active ingredients have been elucidated, but no attempt has been made to remove the toxic substances.

In this study, traditional healers used crude drugs in their original forms, suggesting that patients are at risk of adverse events (Truter, 2007). However, because we did not follow-up the patients we observed in treatment sessions, it is unclear whether some of the patients developed adverse events after taking crude drugs prescribed by the healers. In addition, because the names of medicinal plants used by the healers were confidential, we cannot state whether prescriptions made and treatments administered by herbalists are dangerous or safe. In the future, further study is needed to investigate traditional drugs in order to advance the field of traditional medicine while protecting its worldview.

4. Relationship between patient and traditional medicine

Patients who utilized traditional healers had a mental disorder or chronic disease such as diabetes, but not an acute infectious disease. Senegal, a country with a poor transportation system, opened 1,603 dispensaries across the country to facilitate access to healthcare, especially Western medicine, by residents in areas not covered by regular health posts (Ministère de la Santé Publique et de la Prévention, 2009a). Both VC and VD have a dispensary equipped to treat infectious diseases including malaria and common illnesses such as diarrhea. The distance between the house of the patients who participated in this study and the clinic for traditional medicine varied widely from 70 min by walk to 6 h by car, but in all cases, the distance was far longer than that to the health hut.

With regard to treatment cost, when decided by patients themselves, the fee was occasionally 0 CFA francs or was as high as 40,000 CFA francs. According to our previous study conducted in the same village, the average cost of treatment by traditional healers was 973 CFA francs, which was higher than the average cost of treatment at dispensaries (Iwasa, Morimoto, & Ohno, 2014). The results of this study were insufficient to determine the average cost of traditional treatment but are sufficient to predict that the average cost is equal to or higher than the cost of treatment at dispensaries. This suggests that factors other than the distance or cost influence villagers to choose traditional medicine; for example, patients may

decide which medicine to choose based on their self-diagnosis. Further study is needed to clarify the role of traditional healers in the future.

5. Cooperation with Western medicine

Some facilities for traditional medicine are equipped with Western-style medical devices, and patients were allowed to choose a treatment method (Western medicine or traditional medicine) based on their test results. In addition, Western physicians introduced traditional medicine to patients, and traditional healers introduced Western medicine to patients, showing that a blend of healthcare with special features of each form of medicine, instead of vertically segmented medical care, is provided in Senegal.

According to the WHO, 80% of people living in rural African areas utilize traditional medicine (WHO. 2002b). In Senegal, approximately 60% of the citizens prefer Western medicine to traditional medicine, and 30% favor both (Iwasa, 2011), suggesting that for these citizens, Western and traditional medicine cannot be separated. Therefore, beyond personal preference between Western and traditional medicine, but it is more a question of which option is safer and more reassuring to citizens. Offering medical care with physical, mental, and spiritual fulfillment requires that traditional healers understand Western medicine and the physicians and for Western physicians to understand traditional medicine and the healers. In the future, the Traditional Medicine Strategy needs to be discussed within the framework of a comprehensive healthcare system that includes Western medicine.

A limitation of this study is that only 5 of 9 traditional healers were investigated, and we were unable to reveal the actual treatment practice and treatment policy of other traditional healers. However, our investigator attended the actual treatment sessions and was able to make a wide variety of observations, including treatment processes, settings, and costs. In the future, we plan to accumulate more data on the current state of traditional medicine by participating in the clinical practice of various traditional healers.

V Conclusion

Sixty-six of the healthcare utilization behaviors that the villagers engaged in involved the utilization of traditional medicine. Of the 66 behaviors, 20 were related to the utilization of traditional healers. The five traditional healers who were interviewed were 1 diviner, 1 traditional marabout, and 3 herbalists, all of whom had different approaches to diagnosis and treatment. The patients treated by them had chronic diseases. Some traditional healers made a diagnosis and determined a treatment strategy based on a medical interview, whereas others did so by referring to the results of clinical tests using medical devices. In some cases, the healers charged for the treatment, but in other cases, the patients decided how much they would pay for the treatment.

These results shed light on some aspects of traditional healers that have yet to be sufficiently discussed, for example, their diagnostic methods, treatments, treatment policies, and their practices.

Acknowledgements

This study was supported by a research grant from the Osaka University Graduate School. The author offers sincere thanks to the Ministry of Health and Medical Prevention of the Republic of Senegal and the villagers and local research assistants for their cooperation and assistance.

Part of an academic dissertation prepared for a doctoral program offered at the Division of Health Sciences, Osaka University Graduate School of Medicine, was presented in this study.

Conflicts of Interest

There are no conflicts of interest to declare.

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