Western and Traditional Medicine Use Practices in Shirati, Tanzania

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ABSTRACT

Tanzania is a developing nation with a high burden of disease and two main types of health care: traditional medicine and western medicine. Patients in Tanzania often utilize both traditional and western medicine when attempting to cure a single ailment, however little is known about their health care seeking process. The objective of this study is to investigate the use and practices of traditional and western medicine in Shirati, Tanzania. Shirati is located within the Tarime District, situated in the north of the Mara Region of Tanzania in the northwestern portion of the country. To understand traditional medicine and how and why patients use it, I conducted interviews with traditional healers and patients of traditional healers. To collect additional information about the utilization patterns of traditional medicine, I conducted surveys of patients of traditional healers using similar questions to those included in the interviews. I found that patients suffered from a variety of ailments and often sought out both traditional and western medicine to cure a single ailment, with a majority using western medicine first. The most commonly listed reason for going to a traditional healer was because treatment at the hospital did not heal them. However, a large majority of the patients surveyed indicated that they believed both traditional and western medicine were important in the community. Although traditional medicine is often not the first choice of patients, they still value the role that it plays in the health care system.

KEYWORDS

traditional medicine, western medicine, health care, utilization, Tanzania

INTRODUCTION

Tanzania is a developing nation with a high burden of disease and two main types of health care: traditional medicine and western medicine (Policy and Planning Department, 2006). The most prevalent diseases and causes for seeking medical attention are malaria, acute respiratory infections, intestinal worms, pneumonia, skin and eye infections, diarrheal diseases and anemia (Policy and Planning Department, 2006). The leading causes of death for citizens of Tanzania are HIV/AIDS, lower respiratory infections, malaria, diarrheal diseases, perinatal conditions and tuberculosis (WHO, 2006). The World Health Organization (WHO) (2006) estimates that in 2002 there were 822 physicians in Tanzania and approximately 13,000 nurses to serve a population of 33 million. While there are few doctors for a large amount of patients, there is one traditional medicine practitioner for every 350 to 450 people (Strangeland, Dhillion & Reksten, 2008). Although the government of Tanzania now recognizes traditional medicine, it has not always been that way. When Germans colonized Tanzania in the late 1800s, traditional healers were believed to be a risk to the government and were persecuted. It was not until 1968 that the Ministry of Health acknowledged the right of traditional healers to exist and practice medicine (McMillen, 2004; Görgen, 2001). According to Tanzania's National Health Policy, the Ministry of Health recognizes "the role and contribution of traditional and alternative health care in the health status of Tanzanian people" (Ministry of Health, 2002). Now that both traditional and western medicine services are widely accepted, patients are able to choose between the two when in need of medical attention. Many studies, including one conducted by Satimia, McBride and Leppard (1998), look at how Tanzanian patients use either traditional or western medicine, but few look at both. Very little is known about how patients utilize both traditional and western medicine to cure a single ailment. Mwabu (1986) studied this issue in Kenya, but little to no research has been conducted on the subject in Tanzania.

It is estimated that between 60 and 80 percent of people in Tanzania use traditional medicine in everyday health care (Ministry of Health, 2002; Görgen, 2001). Traditional healers in Shirati can be categorized into four different types: diviners, herbalists, traditional birth attendants (TBAs) and bone setters (Lasker, 1981). Diviners deal with supernatural causes of ailments, attending to bewitched people through their powers and rituals (Lasker, 1981). Herbalists use herbal medicine, minerals or animal extracts in the healing process (Gessler et al.,

1995). Traditional Birth Attendants aid women in giving birth and are community based, working mostly outside of the western health care system (Mbaruku, Msambichaka, Galea, Rockers & Kruk, 2009). It is estimated that TBAs take part in more than 60% of the deliveries in rural Tanzania (Semali, 1992). Bone setters heal fractured bones and treatments include setting the bone and the use of herbal cream, massaging and bandaging (Omololu, Ogunlade & Gopaldasani, 2008). Although patients use these types of traditional healers often, they do not necessarily use them exclusively. Many patients use more than one method of treatment when seeking to cure an ailment (Gilson, Alilio & Heggenhougen, 1994). The patterns of health care use were studied by Mwabu (1986), who concluded that the patient's inclination to seek multiple types of health care for a single illness was influenced by one or more of the following factors: patients will search among health care providers until they find one that will cure them, some patients believe that certain illnesses require treatment by multiple sources to be cured and some patients believe that they must see more than one provider to be cured. These observed patterns of use are the result of the individual and social-level choices that patients and communities make between different health care systems.

The decisions that patients and communities make about health care can be influenced by many different factors. A study by Gilson et al., (1994), in the Morogoro region of eastern Tanzania, found that the highest ranked factors for treatment choices were availability of drugs, trust in the health care provider, higher level of care, better follow up treatment and severity of problem. Research conducted by Mwabu (1986) in Kenya divided factors into two categories: personal characteristics and qualities of health care providers. Personal characteristics included age, education, income, sex and religion. Qualities of health care providers consisted of quality of treatment, accessibility, money and time spent for treatment and personal relationships. These factors have seldom been studied in the Tanzanian context, especially in Shirati. To better understand the decisions patients make when choosing between health care systems in Tanzania, data should be collected on utilization patterns of traditional medicine in the area.

The objective of this study is to investigate the use and practices of traditional medicine in the Tanzanian context. This study aims to determine if there are general patterns in the use of traditional healers and western medicine by patients. Lastly, information generated from this study will be used to help understand the process people go through when attempting to cure an illness.

METHODS

Study site

Shirati is located within the Tarime District, situated in the north of the Mara Region of Tanzania in the northwestern portion of the country and bordered by Lake Victoria and Kenya. As of 2003, Mara had a population of 1.4 million people (President's Office, Planning and Privatisation, 2003). The village of Shirati, Tanzania is an ideal location to study utilization patterns of traditional medicine, especially in relation to western medicine, because the proximity of the hospital allows patients to make a more active choice between the two, rather than a choice of necessity due to a lack of options. The Tarime District contains 2 hospitals, 10 health centers and 44 dispensaries. In addition, there is one traditional medicine practitioner for every 350 to 450 people (Strangeland et al., 2008). The main source of western medical care in the village, the Shirati Mennonite hospital, is centrally located in the village.

Interviews

To understand traditional medicine and how and why patients use it, I conducted interviews with patients and practitioners of traditional medicine. I interviewed a total of 25 people (fourteen healers and eleven patients) during a two-week period in June 2010. I asked questions about the processes of healing, ailments that were treated and significance of or satisfaction with traditional medicine. The fundamental topics covered by the questions for the traditional healers and patients differed and are outlined in Table 1.

Table 1. Questions asked in the interviews.

Questions for Traditional Healers	Questions for Patients
• Types of ailments they treat • Methods used for treatment • How they became healers • What they believed their role in the community was	• Type of ailment they had treated • Methods used for treatment • Reasons for choosing that form of treatment • Satisfaction with treatment received

With the help of a translator, I interviewed between two and five people each day. The translator was a well-respected local from the village of Shirati, and was fluent in both Kiswahili and English. Traditional healers and patients were visited beforehand in the village to inform them about the interview and obtain verbal consent. During the interview, the translator asked the subjects questions in Kiswahili and then translated their response into English; the entire conversation was documented with an audio recorder. The interviews with the traditional healers lasted between 20 to 30 minutes, while the interviews with the patients lasted 10 to 15 minutes. I transcribed the interviews using Atlas.ti software.

Surveys

To collect additional information about the utilization patterns of traditional medicine, I conducted surveys of patients of traditional healers using similar questions to what had been included in the interviews. Between 50 and 100 patient surveys were collected during the month of December 2010 by the local translator. The translator conducted approximately five surveys per day, each lasting between 10 to 15 minutes. The objective of the survey was to collect information about: 1) the ailment treated; 2) the type of healer and their treatment methods; 3) number and order of treatments; 4) if they went to any other forms of medicine; and 5) why they went to the healer. The interviewer translated the questions from English and asked the questions to the participants in Kiswahili. He then recorded the answers in English on the survey sheet. I entered the results of the survey sheet into a database on the computer.

Analysis

I categorized the responses to the different questions to determine if there were any noticeable patterns of traditional medicine use, and if it was applicable, patterns of hospital use as well. I specifically described how patients use traditional medicine in relation to western medicine. To do so, I looked at the number of treatments each patient received for each ailment and tried to discern if there was a pattern in the type of treatment sought. The percentage of people that also went to western medicine practitioners, the percentage of patients that believed

traditional medicine was important in the community and the reasons that they chose the specific method of treatment were also included in the analysis. Information from the interviews was coded to synthesize the most important information in the interviews. Information gathered from both the surveys and the interviews and information from the literature was used as a frame to determine the reasons patients made the choices they did about their treatment methods.

RESULTS

Demographics

The demographics of the patients in the study varied widely. The sex of the patients interviewed and surveyed was split almost evenly between males and females. Of the 57 subjects, 54 people responded to this question and 25 were males and 29 were females. The average age of the participants was 51, with 55 of the 57 people answering the question. Of the 53 patients that indicated which tribe they belonged to, 81% were members of the Luo tribe. Other tribes included Kine, Msukuma, Jita, Manyema, Mganda and Suba. The level of highest education varied among participants. A majority of patients (71%) had some level of primary school as their highest education level. Very few (3) patients had no formal education, and several made it to University.

Ailments treated

Of the 57 patients in the study, two responded about more than one ailment, therefore 59 different treatment processes were discussed. However in one survey the ailment was unclear and 58 ailments were recorded. Patients suffered from a wide variety of ailments, the most common being pain, especially in the limbs. Other ailments seen in more than one instance included tuberculosis, diabetes, infertility, amoebic dysentery, high blood pressure, stroke, numbness of limbs and malaria.

Cost of treatment

The cost for treatment at a traditional healer or the hospital varied widely on a case-by-case basis. The minimum and maximum costs for western and traditional medicine were similar: cost for treatment by a traditional healer ranged from 0 to 7,550,000 Tanzanian Shillings ($ 4,980 USD), and cost for treatment by the hospital ranged from 0 to 8,000,000 Tanzanian Shillings ($5,277). However, the average cost differed between western and traditional medicine. The average cost of traditional medicine was 266,490 Tanzanian Shillings ($175), while the average cost of hospital treatment was 675,517 Tanzanian Shillings ($445). Some treatments were free to the patient because either the patient was related to the traditional healer, or the government helped with the hospital bills. This data is from 99 different individual treatments out of a recorded 124 treatment instances in the study.

General patterns of utilization

I discovered several utilization patterns during this study regarding the types of treatment sought, the number of treatments used to cure the same disease, and the order of treatments used in the event of using more than one treatment. The majority of those interviewed went to both traditional medicine and the hospital to treat their ailments (Fig. 1). Seeing that people used more than one method of treatment for a single ailment, I wanted to look at exactly how many treatments and what different types each person received for each illness. Of the 59 different ailments treated, only six people were cured after their first treatment; a majority of people (44) went to two different forms of treatment before they were healed. Six people actually went to three different forms of treatment to cure the same disease and three people went to four different treatments (Fig. 2). Because such a large majority of people went to more than one form of treatment, I wanted to look at their treatment preference by seeing if there was a pattern in which treatment people sought first. For their first treatment, 50 patients went to the hospital and only 9 went to traditional medicine. Of the people that received two or more treatments for their illnesses, 7 patients went to the hospital and 36 went to traditional medicine for their second treatment (Fig. 3). For Treatments three and four, about half went to traditional medicine and half went to the hospital.

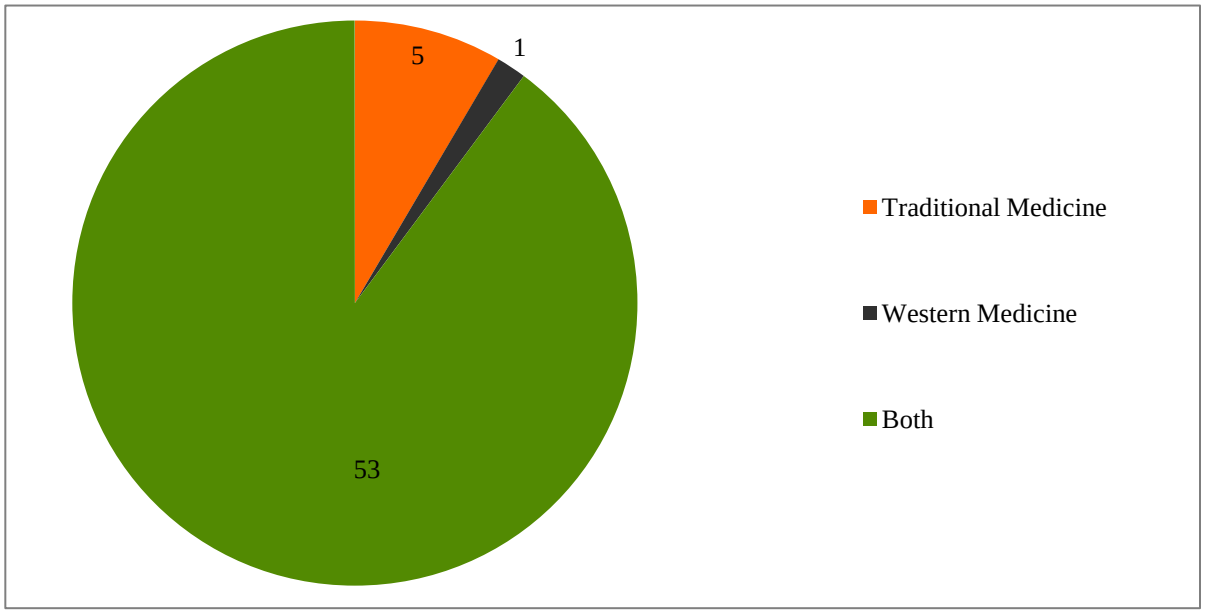

Figure 1. Types of treatment. Indicates the different types of treatment patients utilized to cure a single ailment.

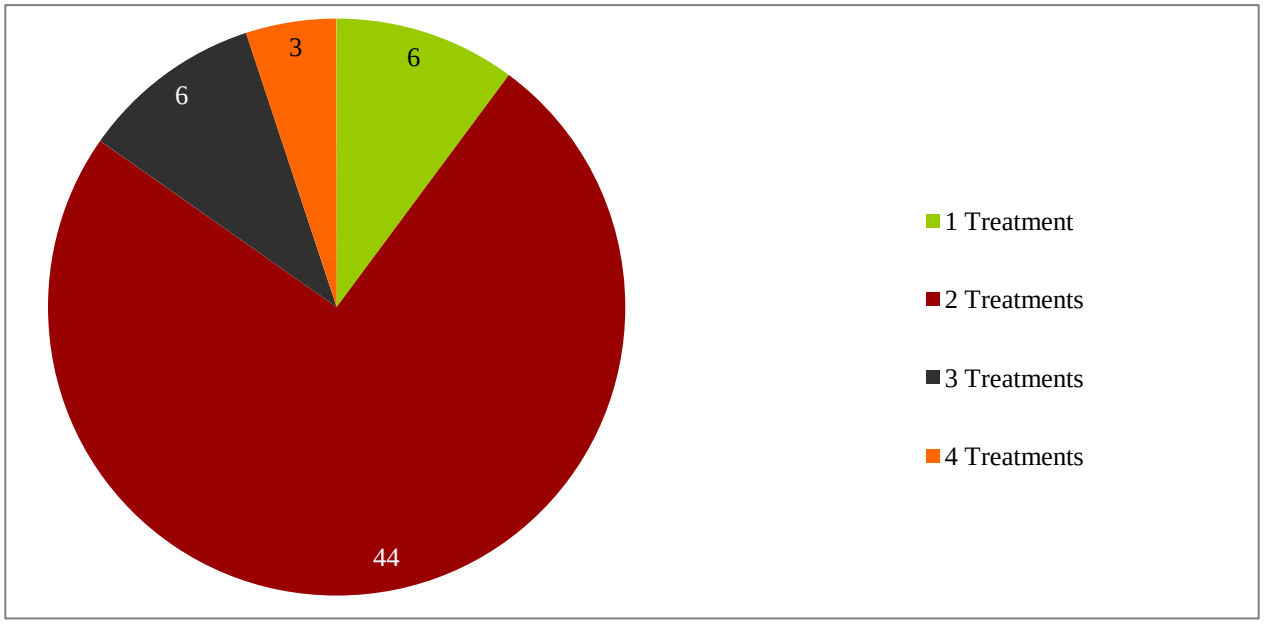

Figure 2. Number of treatments used to cure one ailment. Indicates how many different treatments a single patient went to before they were healed.

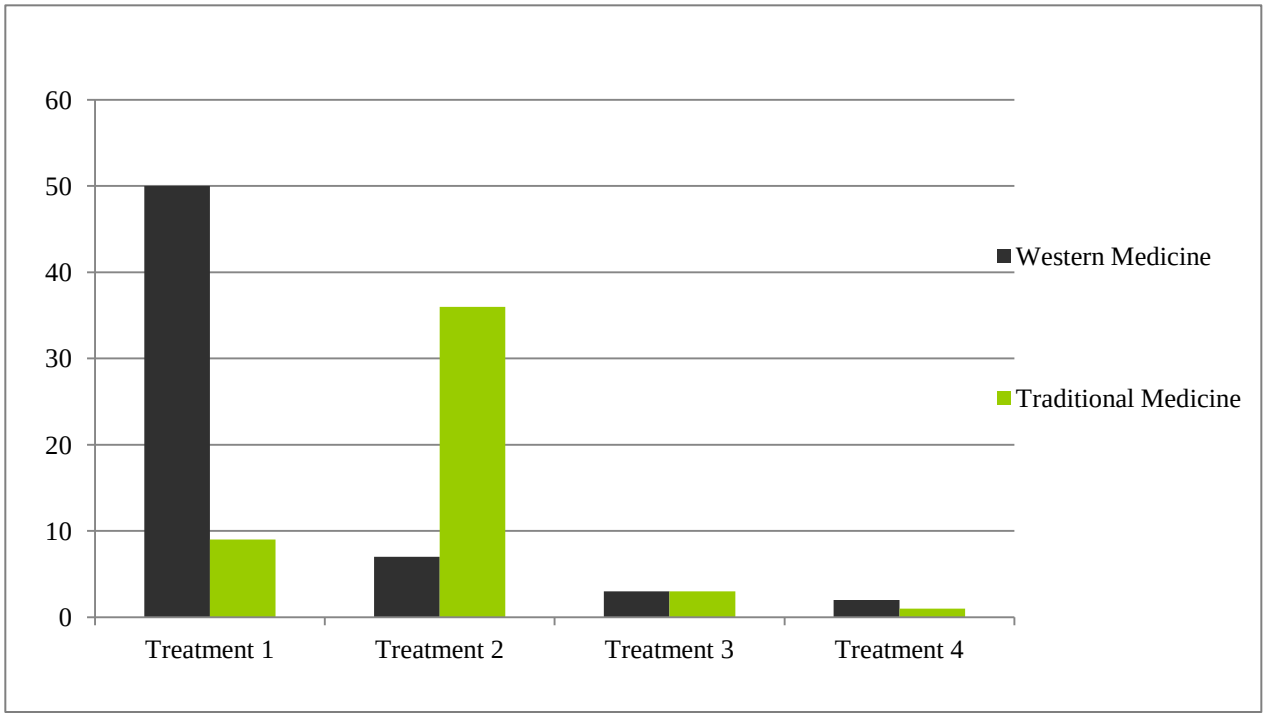

Figure 3. Sequence of treatments. Indicates where patients went to be healed during each step in their treatment process.

Reasons for going to a traditional healer

I asked patients why they went to a traditional healer during both the interviews and surveys. However, these questions were framed in different ways in the interviews and the surveys and therefore will be reported separately.

Interviews

Patients answered with several reasons for going to a traditional healer. The most common response was that treatment at the hospital did not work and that they went to traditional medicine as a second option. Two people said that one needs a combination of western and traditional medicine to be completely cured. One patient said that the hospital only gave her pain medication and that she went to the traditional healer to be fully healed. The other patient had tuberculosis and was given tablets by the hospital to kill the virus. He had started growing a hump on his back and was told by a hospital worker to go to a traditional healer to

have the hump cured. Another reported reason for going to a traditional healer was that they cure some illnesses better than the hospital; the source of treatment depends on the type of the ailment.

Surveys

Less than half (43%) of the patients responded to this question on the survey (20 out of 46). Three patients listed more than one reason for choosing a traditional healer. The most common response was known effectiveness, followed by speed of treatment. One person listed cost as the reason they went to the traditional healer and another patient stated that they thought they only had a minor problem.

Importance of traditional medicine in the community

I asked patients if they thought traditional medicine was important in the community in both the interviews and surveys. These results are reported separately because the attitudes and responses differed between the interviews and surveys.

Interviews

Patients interviewed generally agreed that some traditional healers were important in the community, but not all. They believed that some healers are superior to others. Some of the responses included the belief that the healers are sometimes helpful, or only helpful if you go to the best ones. One person believed that seeing an herbalist is only temporary and that complications will arise, after which you should go to the hospital. Most people recognized that the hospital is the best option and emphasized that you should go to the hospital first, then to traditional medicine if treatment at the hospital didn't work.

Surveys

A large majority of patients believed that traditional medicine was important in the community. Of the 45 patients that answered this question, only four patients (9%) said that traditional medicine was not important. Three patients stated that this was because it did not cure or help them. The other patient believed that traditional medicine cannot help anyone, and personally relies on God. There were multiple reasons that vast majority of subjects gave for traditional medicine being important in the community. The most frequent response was that a traditional healer personally cured them, or even if it did not, it helped many other people in the community. Another common response was that traditional medicine was sometimes helpful. Many patients also stated that traditional medicine cures some illness better than the hospital.

Importance of the hospital in the community

Of the 46 patients surveyed, only one person stated that that the hospital was not important because it did not cure them. Nearly half of the patients believed the hospital was important because it either cured them, or they recognized that it helped a lot people in the community, even if it didn't personally help them. The second most common response was that the hospital treats some ailments better than traditional medicine. Other reasons listed included: the hospital has superior technology and gives more accurate diagnoses, the hospital helped part of the problem and the hospital is better than traditional medicine.

DISCUSSION

I found that patients suffered from a variety of ailments and often sought out both traditional and western medicine to cure the same ailment, often using western medicine first. Patients interviewed most commonly sought treatment from traditional medicine when previous treatments at the hospital did not cure them. However, when asked about the importance of traditional medicine and the hospital, most patients indicated that both were important in the community.

Cost of treatment

Although the average cost of western medicine was higher than traditional medicine, it was not the primary motivating factor in seeking a specific treatment, because the more expensive treatment was often chosen first. The average cost of hospital treatment is more than double the average cost of treatment by a traditional healer, however, 84% of patients chose to go to the hospital for their first treatment. This indicates that patients' decisions are not based on cost of treatment, but other factors, most likely known effectiveness. Cost of traditional medicine was also found to be cheaper than western medicine in a study conducted in rural southwestern Tanzania (Satimia et al., 1998). Despite the lower cost of traditional medicine, only one patient surveyed mentioned cost as a reason for choosing a specific treatment. One possible explanation is that people are more willing to pay for hospital care despite the fact that it is more expensive (Muela, Mushi & Ribera, 2000).

It is possible that there is some error in the reported costs of treatment. The costs from the interviews and the costs from the surveys differed, possibly due to error in reporting. According to the CIA's World Factbook, the GDP per capita in Tanzania is $509, which approximately equals 770,000 Tanzanian Shillings (2011). It is not likely patients in rural Tanzania would be able to afford treatments as much as, or more than, their annual income.

General patterns of use

As stated, the majority of those interviewed sought out several different forms of treatment for a single illness, and often went to the hospital first, indicating that treatment at the hospital is perceived to be more effective. My research shows that the use of multiple treatments to cure the same illness is consistent with the literature. Numerous studies have shown that patients in Tanzania and other East African countries, such as Kenya, utilize more than one method of treatment when curing the same ailment (De Savigny et al., 2004; Feierman, 1981; Gessler et al., 1995; Masatu, Klepp & Kvale, 2001; Mshana, Hampshire, Panter-Brick, & Walker, 2008; Mwabu, 1986). Patients in this study most commonly went to the hospital before seeking out traditional medicine. Although the order of treatments is not frequently discussed in the literature, two studies show that western medicine was usually the first choice among patients (Muela, Mushi & Ribera, 2000; Anyinam, 1987). One study conducted in Dar es Salaam,

Tanzania indicated that approximately 21% of patients actually went to a traditional healer before going to a hospital (Gessler et al., 1995).

Reasons for going to a traditional healer

The reasons patients listed for going to a traditional healer suggests that traditional medicine is not the primary form of health care in Shirati. The main reason given for going to a traditional healer was that treatment at the hospital did not work. This response is consistent with a study conducted by Muela et al. (2000), in which most of the subjects stated that they went to traditional medicine when the hospital failed to cure them. Research by Anyinam (1987) also concludes that western medicine, is the first choice in treatment.

In my interviews, I found that another common reason for going to traditional medicine was because it cured certain illnesses better than others. In a study in the Morogoro Region of Tanzania patients stated that for certain diseases such as convulsions and measles one should seek treatment from a traditional healer, whereas if one suffers from a fever or a headache he or she should go to the hospital (Gilson et al., 1994). Similar results were found in a study of treatment seeking behavior of patients with malaria; those with symptoms such as fever sought out western medicine, while those suffering from convulsions more often went to traditional healers (De Savigny et al., 2004).

A third reason given for going to a traditional healer was that traditional medicine must be used in conjunction with western medicine for an illness to be fully cured. This notion is supported by Mshana et al. (2008), which found that people commonly sought multiple treatments for the same illness. Gilson et al. (1994) also found similar results.

Importance of traditional medicine and the hospital in the community

Responses regarding the importance of traditional medicine in the community differed between the interviews and the surveys. Patients interviewed generally conceded that some traditional healers were important to the community, but emphasized the importance of the hospital, despite not being asked about it. However, patients responding to the surveys generally agreed that the both the hospital and traditional medicine are important in the community. Only

a few responded that the hospital was better. This difference between the interviews and surveys may be due to a reporting bias, which I will discuss later in the paper. When responding the importance of traditional and western medicine, a common response was that some ailments are better cured by the hospital and others are better healed by traditional medicine. This belief is supported by research conducted in other studies (Gilson et al., 1994; De Savigny et al., 2004; Anyinam, 1987). Other patients believed that the hospital was important because it could give a more accurate diagnosis and had superior technology. This belief was also common in a study by Satimia et al. (1998), in which 88% of patients responded that they went to modern medicine because it was more scientific. Similar views were reported in research conducted by Muela et al. (2000).

Limitations

The majority of people interviewed in my study indicated that the hospital was the best method of treatment, and it was commonly used first to cure an ailment. However, a large fraction of these people were not healed at the hospital, and as a result resorted to traditional medicine. Despite being cured by traditional medicine instead of the hospital, they still believe that the hospital is superior. I believe that this response may be due to the fact that the people interviewed thought that this was the answer I was looking for, being a *mzungu* (white person) associated with a doctor from the United States. Other researchers have experienced similar reporting biases when interviewing patients about their use of traditional medicine (Satimia et al., 1998; Sarita & Tuominen, 1993). For instance, when studying factors that influenced the choice between modern and traditional medicine in southwestern Tanzania, Satimia et al. (1998) found that fewer than expected people admitted to seeking out traditional medicine first. Another limitation is the small size of the sample included in my study, which limits the generalizability of the results. In addition, Sarita and Tuominen (1993) noted that the pattern of use of traditional and western medicine varies by community. Since Tanzania is very culturally heterogeneous and my data was only collected in one community, it makes it difficult to extrapolate the results of my study beyond my specific study population.

Future Directions

To better understand the utilization patterns of traditional and western medicine in Tanzania, similar studies to this one should be conducted in various urban and rural areas of the country. This would help to see if the medical choice patterns are the same across the country or if they vary by geographic location and sociocultural circumstance. The effect of reporting bias should also be investigated. Studies could use locals to conduct the surveys so that people are more likely to give more honest answers decreasing the possibility that the interviewee will report what they think the interviewer wants to hear. These results could be contrasted with the results of my study in order to tease out the effects of reporting bias in response to the social role of the interviewer.

Broader Implications/Conclusions

Although traditional medicine does not appear to be the first choice of patients, it is still widely used in Shirati, Tanzania. People in the community often utilize both traditional and western medicine when attempting to cure an illness. The process is most likely driven by adaptive health management. Patients are simply seeking different treatments based on what they believe will work for them in that moment. When one treatment fails to cure them, patients then move on to another form of treatment. Both traditional and western medicine are key components of the health care system in Shirati. It is essential to understand these patterns and processes that individuals engage with, especially on the community level. These processes most likely vary from community to community, and if aid is given to the community, it is important to know how that aid can be distributed to be most effective.

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REFERENCES

Anyinam, C. (1987). Availability, accessibility, acceptability, and adaptibility: Four attributes of African ethno-medicine. Social Science & Medicine, 25(7), 803–811.

De Savigny, D., Mayombana, C., Mwageni, E., Masanja, H., Minhaj, A., Mkilindi, Y., Mbuya, C., et al. (2004). Care-seeking patterns for fatal malaria in Tanzania. Malaria Journal, 3(1), 27.

Feierman, E. K. (1981). Alternative medical services in rural Tanzania: a physician's view. Social Science & Medicine. Part B: Medical Anthropology, 15(3), 399–404.

Gessler, M. C., Msuya, D. E., Nkunya, M. H. H., Schär, A., Heinrich, M., & Tanner, M. (1995). Traditional healers in Tanzania: sociocultural profile and three short portraits. *Journal of ethnopharmacology*, *48*(3), 145–160.

Gilson, L., Alilio, M., & Heggenhougen, K. (1994). Community satisfaction with primary health care services: An evaluation undertaken in the Morogoro region of Tanzania. *Social Science & Medicine*, *39*(6), 767-780.

Görgen, H. (2001). *The History of Health Care in Tanzania*. Dar es Salaam: GTZ.

Kroeger, A. (1983). Anthropological and socio-medical health care research in developing countries. *Social science & medicine*, *17*(3), 147–161.

Lasker, J. N. (1981). Choosing among therapies: Illness behavior in the Ivory Coast. *Social Science & Medicine. Part A: Medical Psychology & Medical Sociology*, *15*(2), 157–168.

Masatu, M. C., Klepp, K., & Kvåle, G. (2001). Use of health services and reported satisfaction among primary school adolescents in Arusha, Tanzania. Journal of Adolescent Health, 28(4), 278-287.

Mbaruku, G., Msambichaka, B., Galea, S., Rockers, P. C., & Kruk, M. E. (2009). Dissatisfaction with traditional birth attendants in rural Tanzania. *International Journal of Gynecology and Obstetrics*, 107, 8–11.

McMillen, H. (2004). The adapting healer: pioneering through shifting epidemiological and sociocultural landscapes. *Social Science & Medicine*, *59*(5), 889-902.

Ministry of Health. (2002). *National Health Policy* (2nd ed.). Dar es Salaam.

Mshana, G., Hampshire, K., Panter-Brick, C., Walker R., & The Tanzanian Stroke Incidence Project Team. (2008). Urban-rural Contrasts in Explanatory Models and Treatment-Seeking Behaviours for Stroke in Tanzania. Journal of Biosocial Science, 40(01), 35-52.

Muela, S. H., Mushi, A. K., & Ribera, J. M. (2000). The paradox of the cost and affordability of traditional and government health services in Tanzania. Health Policy and Planning, 15(3), 296.

Mwabu, G. M. (1986). Health care decisions at the household level: Results of a rural health survey in Kenya. *Social Science & Medicine*, *22*(3), 315-319.

Omololu, A. B., Ogunlade, S. O., & Gopaldasani, V. K. (2008). The Practice of Traditional Bonesetting: Training Algorithm. Clinical Orthopaedics and Related Research, 466(10), 2392-2398.

Policy and Planning Department. (2006). *Annual Health Statistical Abstract*. Dar es Salaam, Tanzania.

President's Office, Planning and Privatisation. (2003). *Mara Region Socio-Economic Profile* (2nd ed.). Dar es Salaam.

Sarita, P. T., & Tuominen, R. (1993). Use of health care services in two rural communities in Tanzania. *Community Dentistry and Oral Epidemiology*, *21*(3), 133–135.

Satimia, F. T., McBride, S. R., & Leppard, B. (1998). Prevalence of Skin Disease in Rural Tanzania and Factors Influencing the Choice of Health Care, Modern or Traditional. *Arch Dermatol*, *134*(11), 1363-1366.

Semali, I. A.Some aspects of traditional birth attendants' practice in a rural area in Tanzania. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, *86*(3), 330-331.

Stangeland, T., Dhillion, S. S., & Reksten, H. (2008). Recognition and development of traditional medicine in Tanzania. *Journal of ethnopharmacology*, *117*(2), 290–299.

Tanzania. (2011). *CIA world factbook*. Retrieved May 4, 2011, from https://www.cia.gov/library/publications/the-world-factbook/geos/tz.html.

WHO. United Republic of Tanzania. (2006). Retrieved September 29, 2010, from http://www.who.int/countries/tza/tza/en/.