

**Research Paper**

*Afr. J. Traditional,  
Complementary and  
Alternative Medicines*  
[www.africanethnomedicines.net](http://www.africanethnomedicines.net)

**ISSN 0189-6016©2009**

ATTITUDES TOWARDS AFRICAN TRADITIONAL MEDICINE AND CHRISTIAN SPIRITUAL HEALING REGARDING TREATMENT OF EPILEPSY IN A RURAL COMMUNITY OF NORTHERN TANZANIA

**Andrea Sylvia Winkler<sup>1,2</sup>, Michael Mayer<sup>3</sup>, Michael Ombay<sup>2</sup>, Bartholomayo Mathias<sup>2</sup>, Erich Schmutzhard<sup>4</sup>, Louise Jilek-Aall<sup>5</sup>**

<sup>1</sup>Interdisciplinary Centre for Palliative Medicine and Department of Neurology, Ludwig-Maximilians-University, Munich, Germany, <sup>2</sup>Haydom Lutheran Hospital, Manyara Region, Tanzania, <sup>3</sup>Department of Traumatology and Sports Injuries, University Hospital of the Paracelsus Medical University, Salzburg, Austria, <sup>4</sup>Department of Neurology, Medical University of Innsbruck, Austria, and <sup>5</sup>Department of Psychiatry, University of British Columbia, Vancouver, Canada

**E-mail:** [drawinkler@yahoo.com.au](mailto:drawinkler@yahoo.com.au)

## Abstract

Most people with epilepsy (PWE) live in developing countries with limited access to health care facilities. In sub-Saharan Africa **with approximately 12 million PWE**, 90% do not receive adequate medical treatment. In this context, traditional medicine, being easily accessible, plays an important role. However, in sub-Saharan Africa, studies on the attitude of people (both affected and not affected by epilepsy) towards traditional medicine for treatment of epilepsy are scarce. In this study, 167 people (59 PWE, 62 relatives, 46 villagers) were interviewed at the hospital and in the community with a semi-structured validated questionnaire regarding the prevailing attitude towards traditional medicine for treatment of epilepsy in a rural area of northern Tanzania. Various traditional healing methods (THM) could be ascertained, i.e. traditional herbal medicine, spiritual healing, scarifications and spitting. 44.3% (n=74/167) of the interviewed people were convinced that epilepsy could be treated successfully with THM. Interestingly, 34.1% (n=57/167) thought that Christian prayers could cure the cause and/or treat symptoms of epilepsy. Significantly more PWE and their relatives were in favour of THM compared to villagers not knowing about epilepsy or not being immediately affected by epilepsy ( $\chi^2$ -test, p=0.004). Further factors influencing people's attitudes towards THM were gender, tribe, religion and urbanity of people's dwellings. Our study demonstrates that not only THM but also prayers in the Christian sense seem to play an important role in people's beliefs regarding successful treatment of epilepsy. Factors influencing this belief system have been identified and are discussed.

**Key words:** epilepsy, traditional medicine, Tanzania

**List of abbreviations:** PWE=people with epilepsy; THM=traditional healing methods; HLH=Haydom Lutheran Hospital; TSH=Tanzanian Shilling

## Introduction

Epilepsy is the most common neurological disorder throughout sub-Saharan Africa. A recent study from northern Tanzania indicates that epileptic seizures account for 3% of all hospital admissions and 27% of neurological diagnoses (Mosser *et al.*, 2007). Prevalence data on epilepsy has been collected throughout Africa with varying results depending on study population and applied methodology ranging from 5.2-74.4/1000 inhabitants with a median prevalence of 15/1000 (Forsgren, 2008; Preux and Druet-Cabanac, 2005). This compares to resource rich countries where the prevalence of epilepsy is estimated to be about 4-8/1000 inhabitants (Forsgren *et al.*, 2005). Nowadays, it is assumed that in resource poor countries 40 million people suffer from epilepsy with the majority not receiving adequate treatment (WHO, 2001). Estimates for resource poor countries suggest that the number may be as high as 90% (Scott *et al.*, 2001; Shorvon and Farmer, 1988). In

our study area, over three quarters of PWE have never taken antiepileptic drugs (own personal data). A recent study from the southern part of Tanzania has shown that over 95% of PWE were not on treatment (Dent *et al.*, 2005). Poor infrastructure, insufficient availability of drugs and scarcity of qualified medical personnel may be responsible for most of the big treatment gap (Scott *et al.*, 2001).

Traditional healing methods (THM) have been used by Africans for the prevention, diagnosis and treatment of social, mental and physical ailment of different origins before and even after the advent of conventional medicine (WHO, 2004). THM is accessible to more than 80% of the African population and in many African countries seemingly represents an important pillar of epilepsy treatment (WHO, 2004). It may seem surprising that western researchers know so little about knowledge about and attitude towards traditional medicine and healing methods as practiced by different African ethnicities. Since many medical facilities throughout Africa have been established by missionaries, for those people who have come in contact with Christianity, Christian praying has become an integral part of their understanding of healing. Feelings of shame and fear when asked about traditional healing often make it difficult, especially for those who have become Christians and have accepted western medicine, to reveal their knowledge of non-western therapies. In our study, we therefore aimed at investigating the knowledge of and attitudes towards THM and the influence Christianity may have on the treatment of epilepsy within a rural population of northern Tanzania.

## Methods

### Research setting

The study was conducted at the Haydom Lutheran Hospital (HLH), a mid size hospital (350 beds), in the village of Haydom in northern Tanzania, Manyara region, Mbulu district. The nearer catchment area of HLH comprises approximately 270.000 people. The population mainly belongs to two tribes, the Iraqw and Datoga people of Cushitic and Nilotic origin, respectively. Most of the Iraqw are subsistence farmers, the staple food being maize and the Datoga are agropastoralists. Attached to the hospital is The Haydom Lutheran Epilepsy Clinic, which was established by a neurologist (ASW) in 2002. Two especially trained nurses are caring for more than 400 PWE. Of those 346 were diagnosed by ASW and thus eligible for the study. Epilepsy was defined as two or more afebrile seizures unrelated to acute metabolic disorders or withdrawal of drugs or alcohol (Senanayake and Roman, 1993).

### The study

The study was conducted from the 20<sup>th</sup> of February 2005 to the 22<sup>th</sup> of April 2005. PWE (n=57) and their relatives (n=55) attending the Haydom Lutheran Epilepsy Clinic were interviewed consecutively with a questionnaire by a last-year medical student who was assisted by a well trained secondary school graduate serving as interpreter. Beside his language skills, our interpreter also had knowledge of local customs and traditions and was keen himself to gain more insight into the beliefs of his people. He received basic training in medical terminology and the use of the questionnaire. The recruitment of patients was also supported by the hospital staff, especially the nurses, who took care of the Epilepsy Clinic. People included into the study were adults (16 years or older) and on examination had normal cognitive function. In a community-based approach, people, selected at random, were interviewed in five also randomly selected villages within the nearer catchment area of the HLH. In Tanzania, villages are subdivided into ten-cells which are administered by ten-cell leaders. For each randomly selected village, one ten-cell leader was also chosen at random. He identified families willing to participate in the interviews. Per family no more than two people were interviewed. Interviewed people belonged to five different groups:

1. PWE (n=2): individuals affected by epilepsy
2. relatives of PWE (n=7): they were close relatives of PWE
3. people with epilepsy in their neighbourhood (n=9): they knew PWE living close by
4. people with epilepsy in village (n=12): they knew PWE living in the same village but not in their neighbourhood
5. people without any connection to epilepsy (n=25): they did not know PWE or may not have heard of epilepsy at all.

Another part of our study consisted of interviews conducted with four traditional healers. The aim was to identify various THM and at the same time verify the information obtained from our study population. All individuals participating in the study gave informed consent prior to the interviews.

Prior to the main study, a pilot study was carried out to train the interviewer and to test the overall methods. In total, 15 PWE and their relatives were interviewed at HLH. These people were excluded from analysis later.

## The research tool

The questionnaire was developed by ASW during her stay at the HLH from July 2002- November 2004. Together with local colleagues, who were familiar with the cultural aspects, religious beliefs and social background, questions were rephrased and adjusted to the cultural context. The first part of the questionnaire deals with personal details of the patients, relatives and the other villagers, gathering information about age, gender, tribe, religion amongst other. Part two of the interview aims at gaining knowledge about the belief system of epilepsy, employing both open and closed questions.

## Data Analysis

The data was analysed using SPSS 11.5 (Statistical Package of Social Sciences SPSS Inc., Chicago, USA). The  $\chi^2$ -test was used to test the association between two categorical variables. *The significance level was set at  $p < 0.05$ .*

## Legal and ethical aspects

The study protocol as well as the manner in which informed consent was obtained was approved and the project ethically cleared by The National Institute of Medical Research, Tanzania. Research permit was granted by the Tanzania Commission for Science and Technology. Further permits were obtained from the regional and district medical officers.

## Results

Demographic details of the study population are listed in table 1. Details on interviewed traditional healers were not known. There was one woman and three men. One man was around 20 years, the other three were above 60 years of age. They were all animistic people. During interviews with people affected (PWE and their relatives;  $n=121$ ) and those not affected by epilepsy ( $n=46$ ; see table 1) together with traditional healers ( $n=4$ ) various THM could be ascertained, i.e. traditional herbal medicine, spiritual healing, scarification and spitting. Healing methods with a Christian background, i.e. exorcism and prayers, have not been included in THM, but dealt with separately. Most THM are performed or applied in combination. The information about the costs of THM varied from 500 Tanzanian Shillings (TSH; 1000 TSH=1 US\$) to up to one cow (=equivalent of approximately 100.000 TSH), depending on the duration and success of the treatment. Since most of the THM for epilepsy was used in combinations, the costs for the single procedures could not be assessed.

## Definitions of traditional healing methods suitable for epilepsy as ascertained through interviews with traditional healers and affected people

### Traditional herbal medicine

This refers to plants with healing potentials. For epilepsy, powder is produced from roots, barks and leaves of trees and plants, which are unknown to the recipient, but are commonly available at the market. Some people explained that it is added to porridge or tea. Others reported about a topical application, sometimes into skin lacerations set just for this purpose (also see below "scarification"). There is also another type of herbal medicine which belongs to the supernatural realm and is only known to traditional healers. It is assumed that epilepsy requires some kind of antidote against the "poison of witches". Only traditional healers can detect the poison and find the herbal antidote. These herbs grow in specific places and come from certain plants which are "immune" against evil powers. They are only known to traditional healers, knowledge is passed on from generation to generation. Treatment with these plants is much more expensive compared to the ordinary herbal medicine.

### Traditional spiritual healing

People who actually tried traditional spiritual healing usually described it as a form of prayer conducted by a designated ritual leader of a certain tribe. The traditional healers use their "connection" to the divine in order to "pray" for health and fortune for their "clients". Among the animistic people of the Iraqw and Datoga tribe the sun and water/springs are believed to be the source of life and health, respectively, and thus in one form or another are included into the ritual. A special healing method for epilepsy could not be identified through interview with traditional healers. However, it may be that healers would not want to give away their well kept secrets.

## Scarification

This is a procedure during which the healer makes small incisions into the skin of body parts which in his opinion are affected by seizures. These incisions are sometimes used as a depot for herbal medicine, in other cases the scarification itself represents the treatment. Traditional healers explained that through bleeding the cause of epilepsy whatever nature would leave the patient's body. In most cases, the incisions are set on head and face, but may be found all over the body.

**Table 1:** Characteristics of interviewed individuals

	Absolute number (n)	Percent
<b>1. Relationship of the interviewees with epilepsy</b>		
Patient him-/herself	59	35.3 %
Epilepsy in family	62	37.1 %
Epilepsy in neighborhood	12	7.2 %
Epilepsy in village	9	5.4 %
No connection	25	15.0 %
Total	167	100.0 %
<b>2. Patients' and relatives' status at the Epilepsy Clinic</b>		
Re-attenders	74	66.1 %
New patients	38	33.9 %
Total	112	100.0 %
<b>3. Gender</b>		
Male	107	64.1 %
Female	60	35.9 %
Total	167	100.0 %
<b>4. Age</b>		
16-35	93	55.7 %
36-50	56	33.5 %
51+	18	10.8 %
Total	167	100.0 %
<b>5. Tribe</b>		
Iraqw	109	65.3 %
Datoga	24	14.4 %
Bantu	31	18.6 %
Other	3	1.8 %
Total	167	100.0 %
<b>6. Confession</b>		
Christian	139	83.2 %
Muslim	5	3.0 %
Animistic people	21	12.6 %
Other	2	1.2 %
Total	167	100.0 %
<b>7. Degree of urbanity</b>		
Rural	131	78.4 %
Semi-urban	36	21.6 %
Total	167	100.0 %

## Spitting

There are two different meanings of "spitting". While some interviewees and traditional healers described spitting as a form of "diagnostic technique" performed by traditional healers, who actually spat on the patient, others explained spitting as a therapeutic part of herbal medicine. A special herbal drink makes patients vomit with the result that the "poison of witches" leaves the body. This is a general procedure and not specific

for epilepsy, but is very often applied in the context of seizures. In this study we refer to the therapeutic understanding of the term.

### Attitude of interviewed people towards traditional healing methods

In our study, 44.3% (n=74/167) of the interviewed people were convinced that epilepsy could be treated by THM; only 54.1% (n=40/74) gave their opinion as to which healing method could help. The other 55.7% (n=93/167) thought that traditional medicine had no positive influence on epilepsy.

In the following paragraphs, various THM will be analysed regarding people's belief systems. The overall opinions are summarized in table 2. In the text, sub-analysis as to which area (symptoms, cause or both) of epilepsy may be influenced by a specific THM is presented. The three categories, i.e. symptoms of epilepsy, cause of epilepsy or both, are mutually exclusive, i.e. people could only opt for one of the categories.

4.2% (n=7/167) thought that treatment by an herbalist may improve symptoms as well as eliminate the cause of epilepsy. 0.6% (n=1/167) thought that the cause only could be treated by a traditional herbalist, while 4.8% (n=8/167) were convinced that symptoms from epilepsy could be alleviated by herbal medicine.

4.2% (n=7/167) of the study population thought that spiritual healing could help symptoms and cause of epilepsy. Another 2.4% (n=4/167) believed that spiritual healing would eradicate the cause while 0.6% (n=1/167) thought that it may help symptoms of epilepsy only.

Scarification seemed to be the least popular procedure among the THM. Only 0.6% (n=1/167) thought that scarification could help PWE treating symptoms and cause, 2.4% (n=4/167) thought that scarification could influence the cause and another 0.6% (n=1/167) thought that symptoms of epilepsy could be treated with scarification.

3% (n=5/167) thought that spitting could treat symptoms and cause, and 0.6% (n=1/167) thought that spitting could eliminate the cause only.

Three people (1.8%, n=3/167) thought that exorcism would reflect positively on symptoms and cause of epilepsy. These people were either priests themselves or relatives of priests.

Of the people interviewed, 14.4% (n=24/167) were convinced that Christian prayers could influence cause and symptoms of epilepsy, and 19.8% (n=33/167) thought that the cause of epilepsy only could be treated by prayers. While only 11.9% (n=7/59) of the patients and 11.3% (n=7/62) of the relatives thought that prayers would help both, symptoms and cause, their neighbours in the village (58.3%, n=7/12) were more convinced ( $\chi^2$ -test, p=0.001). Patients and relatives who came to HLH as re-attenders (12.2% (n=9/74)) believed less that prayers could influence the cause of epilepsy than new patients or relatives (34.2% (n=13/38);  $\chi^2$ -test, p=0.020).

**Table 2:** Belief in traditional healing methods and prayers in the Christian sense

Healing method	Percentage of n=167 (n)
Traditional herbal medicine	9.6% (16)
Traditional spiritual healing	7.2% (12)
Scarifications	3.6% (6)
Spitting	3.6% (6)
Exorcism	1.8% (3)
Christian prayers	34.1% (57)

### Factors influencing the attitude towards traditional healing methods

While half of the patients and their relatives believed in the power of THM, the percentage was much lower among people not directly affected ( $\chi^2$ -test, p=0.004; table 3). Also, men seemed to tend much more towards THM with 52.3% (n=56/107) compared to women (30%, n=18/60;  $\chi^2$ -test, p=0.005). Interestingly, there was no significant difference in the attitudes towards THM when comparing patients and relatives who were new to the Epilepsy Clinic and those who were re-attenders ( $\chi^2$ -test, p=0.801). 57.9% (n=22/38) of new people and 55.4% (41/74) of re-attenders were in favour of THM. Furthermore, the belief in THM was influenced by tribe

(34.9% (n=38/109) of the Iraqw, 58.3% (n=14/24) of the Datoga and 71% (n=22/31) of the Bantu thought that THM could help PWE ( $\chi^2$ -test, p=0.001)) and by religion (38.9% (n=54/139) of Christians and 81% (n=17/21) of animistic people trusted in THM ( $\chi^2$ -test, p=0.004)). Urbanity of the interviewee also influenced the attitude towards THM regarding epilepsy. People from rural areas (51.2%, n=67/131) were more in favour of THM compared to people from semi-urban environments (19.4%, n=7/36;  $\chi^2$ -test, p=0.001). Factors influencing the belief in THM are summarized in table 4.

**Table 3:** Belief in traditional healing methods analyzed by association with epilepsy

	Trust in THM	Do not trust in THM	Total
Patient	57.6% (n=34)	42.4% (n=25)	100% (n=59)
Epilepsy in family	48.4% (n=30)	51.6% (n=32)	100% (n=62)
Epilepsy in neighborhood	8.3% (n=1)	91.7% (n=11)	100% (n=12)
Epilepsy in village	33.3% (n=3)	66.7% (n=6)	100% (n=9)
No connection	24% (n=6)	76% (n=19)	100% (n=25)
Total	44.3% (n=74)	55.7% (n=93)	100% (n=167)

THM=traditional healing methods

**Table 4:** Factors influencing belief in traditional healing methods

Factors	P-value of $\chi^2$ -test
Association of the interviewee with epilepsy	0.004
Gender	0.005
Tribe	0.001
Religion	0.004
Urban versus rural living	0.001

## Discussion

THM are practised throughout the African continent and widely accepted as a helpful therapy for virtually all ailments, including epilepsy. During the past years scientists and organizations seem to have recognized the role of THM as a part of the local health system, trying to assess the usefulness of traditional healing and the role of the healers within their social environment (Aall-Jilek, 1965; Baskind and Birbeck, 2005; Danesi and Adetunji, 1994; Jilek-Aall, 1999; Jilek-Aall and Jilek, 1989; Matuja and Rwiza, 1994; Millogo *et al.*, 2004; Preux *et al.*, 2000; Rwiza *et al.*, 1993; WHO, 2004).

In our study, 44.3% of all interviewees thought that THM could make an important contribution to the treatment of epilepsy. However, when looking at single methods only few people were able to say whether herbal medicine, spiritual healing, scarification or spitting could help PWE. The attitude towards THM, as assessed in the present study, compares well to the result of a previous study of 346 PWE attending the Haydom Lutheran Epilepsy Clinic (own unpublished results), where 47% of PWE had used or were still using THM. The discrepancy of answers to the generic question whether epilepsy could be treated by THM and answers to questions asking about specific THM may be explained by the following: First, most patients and their relatives were recruited from the HLH, a Lutheran Mission hospital. PWE rely on the treatment provided by the hospital and therefore may not want to go into any details of THM. A merely community-based study may be preferable

in this aspect, but identifying PWE in the communities who do not have contact with the HLH may prove difficult. Furthermore, the design of the questionnaire or the mode of its administration may have led to some bias.

34.1% of people thought that Christian prayers would be appropriate for the treatment of epilepsy (for cause and symptoms of epilepsy or cause alone). This may be biased by the fact that most interviews were conducted at HLH, although more PWE in the neighborhood than PWE and their relatives were of the opinion that prayers could influence epilepsy. Information on epilepsy clearly seems to matter when it comes to the attitude of PWE and their relatives towards prayers, as new patients and their relatives more often thought that Christian prayers could help compared to re-attenders. The popularity of THM and Christian prayers in our study clearly demonstrate that healing elements pertaining to the traditional and Christian beliefs may co-exist. Jilek-Aall (1999) has already emphasized that in many parts of Africa, syncretic amalgamation of indigenous traditions with Judeo-Christian doctrines may influence attitudes toward epilepsy. The co-existence of traditional and Christian belief systems has also been described in other countries such as Uganda, Mozambique and South Africa (Edwards, 1983; Pfeiffer, 2005; Teuton *et al.*, 2007). In sub-Saharan Africa, Christian concepts of disease, including its cause and treatment such as prayers, alongside THM have been reported for psychosis, infertility and HIV/AIDS amongst others (Adogame, 2007; Obisesan and Adeyemo, 1998; Teuton *et al.* 2007; Wanyama *et al.* 2007). In the latter, the belief in divine healing may even represent a barrier to antiretroviral therapy adherence (Wanyama *et al.*, 2007).

As to the various healing methods, herbal medicine seemed to be the easiest accessible, with mixtures of dried leaves, roots and barks for treating virtually everything. Some of the herbs, which were used by traditional healers, were actually identified as having anticonvulsant activity (Jilek-Aall and Jilek, 1989; Moshi *et al.*, 2005). In our study only 9.6% (n=16) could see a positive influence on the development of epilepsy through herbal medicine. This is in contrast to the findings of a study from southern Tanzania, where over 44% believed in the healing power of herbal medicine for PWE (Rwiza *et al.*, 1993). When examining PWE from the Haydom Lutheran Epilepsy Clinic, also 44% had used or were still using traditional herbal medicine (own unpublished data). The difference between people's attitudes towards traditional herbal medicine and the number of PWE actually resorting to this kind of treatment may reflect the influence of HLH as a mission hospital on people's statements or be caused by methodological drawbacks of the questionnaire (see above).

Interestingly, similar concepts of traditional herbal medicine have been reported from different cultures. A study from the Central African Republic mentions laxative agents to drive out evil spirits as method for treatment of epilepsy (Bernet-Bernardy *et al.*, 1997). This seems to have the same effect as the method described as "spitting" in our study, where herbs with an emetic effect are applied. In southern Tanzania, herbal remedies with emetic effects are given to PWE in order to bring up the "toad" of epilepsy (Jilek-Aall and Jilek, 1989). The treatment of epilepsy by herbal medicine in the supernatural context where herbal antidotes are applied against bewitchment was also observed in Zambia (Baskind and Birbeck, 2005). This may emphasize the theory on cross-cultural healing, i.e., traditional beliefs as well as the THM freely fluctuating across the African continent, assuming an ancient origin of concepts (Millogo *et al.*, 2004; Rekdal, 1999).

Traditional spiritual healing in the context of epilepsy was only identified by one other research group which examined knowledge of and attitudes towards epilepsy among a rural population from southern Tanzania. In this study, only 1% of interviewed people believed in traditional spiritual healing through rituals and another 3.5% in positive influence of charms on epilepsy (Rwiza *et al.*, 1993). These figures are slightly lower than in our study where 7.2% thought that epilepsy and/or its symptoms could be cured through traditional spiritual healing.

Again, similarly to traditional herbal medicine, the practice of scarification seems to be used cross-culturally. Grunitzky *et al.* (2000) and Balugou *et al.* (2000) observed several techniques of scarification in Togo, where dependent on the frequency and severity of seizures smaller or larger incisions were made on the forehead. In contrast to these findings, the scars in our patients were not limited to the forehead but were set all over the body, depending on which body part was mostly affected by the seizures. In our study only 3.6% (n=6) thought scarification could help PWE, but when considering PWE from a previous study 18% had actually used them (own unpublished data). This is in contrast to the study from Grunitzky *et al.* (2000) from Togo, where 80% of PWE had scars from scarification.

Spitting, as described in the diagnostic context (see results), was not reported from any other place neither within nor outside Tanzania. In the interview, the therapeutic meaning of spitting was referred to, which actually represents a subgroup of traditional herbal medicine (see results). Only 3.6% of the interviewed people believed in this healing method. Data on the actual performance of this method by PWE, as reported for the methods above, were not available.

In the reviewed literature, only one article was found, where Christianity was mentioned in the context of epilepsy treatment. Rwiza *et al.* (1993) reported that prayers were considered a helpful treatment for epilepsy by 0.5% of the study population. In our study, this number was much higher with 34.1% of the interviewed people being convinced that prayers could cure the cause of epilepsy and to a certain extent relieve patients' symptoms **or treat symptoms only**. Exorcism as a healing method was not important in our study and not even mentioned by the other study from Tanzania (Rwiza *et al.*, 1993). The popularity of prayers may be explained by

the strong belief that epilepsy may indeed be caused by supernatural powers, which was the opinion of 55% of our study population (own unpublished data), and the influence of Christianity in our research area.

Our study population was heterogeneous, including PWE, their relatives as well as villagers (table 1), as our aim was to assess the public opinion as broadly as possible, but also to consider people who are actually affected by epilepsy. Our analysis shows that PWE and their relatives seem to believe significantly more in THM compared to people not or only remotely affected by epilepsy (table 2). The status at the Epilepsy Clinic (new versus re-attender) did not seem to influence the attitude towards THM. Also men seemed to be more in favour of THM compared to women. Women generally have more contact with health facilities mainly through the omnipresent Mother and Child Clinics. Therefore women can be accessed easier by education campaigns, which may change their attitudes towards healing methods. Our results also indicate that tribe and religion matters, when it comes to the attitude towards THM, which however is hardly surprising as traditional belief is based on tribal interaction and spirituality. Interestingly, the degree of urbanity seemed to influence the way people thought about THM. People with more urban life style often seem to lose touch with their traditions and take over belief systems predominately based on urban westernization.

In summary, in our study area of rural northern Tanzania, almost half of the interviewed people believe that THM can help treating PWE, their symptoms and/or cause of the disease. However, only half of them were able to indicate which healing method should be employed. Over one third of our study population deemed Christian prayers an appropriate method to cure epilepsy and/or get rid of its symptoms. Factors influencing the belief in THM were the relationship of interviewed subjects with epilepsy, gender, tribe, religion and urban versus rural living.

### Acknowledgments

We are very grateful to the Savoy Epilepsy Foundation, Canada, for supporting this study. Our special thanks go to all our local helpers without whom this study would not have been possible. ASW was supported by The Centre for International Migration, Frankfurt, Germany.

### References

1. Aall-Jilek, L. (1965). Epilepsy in the Wapogoro tribe in Tanganyika. *Acta Psychiatr. Scand.*, **41**: 57-86.
2. Adogame, A. (2007). HIV/AIDS support and African Pentecostalism: the case of the Redeemed Christian Church of God (RCCG). *J. Health Psychol.*, **12**: 475-484.
3. Balogou, A.A., Dodzro, K.C. and Grunitzky, E.K. (2000). Traditional tattoos with neurological diseases in Togo. *Bull. Soc. Pathol. Exot.*, **93**: 361-364.
4. Baskind, R. and Birbeck, G. (2005). Epilepsy care in Zambia: a study of traditional healers. *Epilepsia*, **46**: 1121-1126.
5. Bernet-Bernady, P., Tabo, A., Druet-Cabanac, M., Poumale, F., Ndoma, V., Lao, H., Bouteille, B., Dumas, M. and Preux, P.M. (1997). Epilepsy and its impact in northwest region of the Central African Republic. *Med. Trop. (Mars)*, **57**: 407-411.
6. Danesi, M.A. and Adetunji, J.B. (1994). Use of alternative medicine by patients with epilepsy: a survey of 265 epileptic patients in a developing country. *Epilepsia*, **35**: 344-351.
7. Dent, W., Helbok, R., Matuja, W.B.P., Scheunemann, S. and Schmutzhard, E. (2005). Prevalence of Active Epilepsy in a Rural Area in South Tanzania: A Door-to-Door Survey. *Epilepsia*, **46**: 1963-1969.
8. Edwards, F.S. (1983). Healing and transculturation in Xhosa Zionist practice. *Cult. Med. Psychiatry*. **7**: 177-198.
9. Forsgren, L. (2008) Estimations of the prevalence of epilepsy in sub-Saharan Africa. *Lancet Neurol.*, **7**: 21-22.
10. Forsgren, L., Beghi, E., Oun, A. and Sillanpää, M. (2005). The epidemiology of epilepsy in Europe – a systematic review. *Eur. J. of Neurol.*, **12**: 245-253.
11. Grunitzky, E.K., Balogou, A.A. and Dodzro, C.K. (2000). Clinical and epidemiological aspects of traditional therapeutic scarification in epilepsy in Togo. *Bull. Soc. Pathol. Exot.*, **4**: 251-254.
12. Jilek-Aall, L. (1999). Morbus sacer in Africa: some religious aspects of epilepsy in traditional cultures. *Epilepsia*, **40**: 382-386.
13. Jilek-Aall, L. and Jilek, W.G. Epilepsy and its psychosocial implications in Africa. In: Peltzer, K. and Ebigbo. P.O., editors. *Text book of clinical psychology in Africa*. Enugu: University of Nigeria, 1989. p. 353-364.



14. Matuja, W.B. and Rwiza, H.T. (1994). Knowledge, attitude and practice (KAP) towards epilepsy in secondary school children in Tanzania. *Cent. Afr. J. Med.*, **40**: 13-18.
15. Millogo, A., Ratsimbazafy, V., Nubukpo, P., Barro, S., Zongo, I. and Preux, P.M. (2004). Epilepsy and traditional medicine in Bobo-Dioulasso (Burkina Faso). *Acta Neurol. Scand.*, **109**: 250–254.
16. Moshi, M.J., Kagashe, G.A. and Mbwambo, Z.H. (2005). Plants used to treat epilepsy by Tanzanian traditional healers. *J. Ethnopharmacol.*, **28**: 327-336.
17. Mosser, P., Schmutzhard, E. and Winkler, A.S. (2007). The pattern of epileptic seizures in rural Tanzania. *J. Neurol. Sci.* **258**: 33-38.
18. Obisesan, K.A. and Adeyemo, A.A. (1998). Infertility and other fertility related issues in the practice of traditional healers and Christian religious healers in south western Nigeria. *Afr. J. Med. Med. Sci.*, **27**: 51-55.
19. Pfeiffer, J. (2005). Commodity fetichismo, the Holy Spirit, and the turn to Pentecostal and African Independent Churches in Central Mozambique. *Cult. Med. Psychiatry*, **29**: 255-283.
20. Preux, P.M. and Druet-Cabanac, M. (2005). Epidemiology and aetiology of epilepsy in sub-Saharan Africa. *Lancet Neurol.*, **4**: 21–31.
21. Preux, P.M., Tiemagni, F., Fodzo, L., Kandem, P., Ngouafong, P., Ndonko, F., Macharia, W., Dongmo, L. and Dumas, M. (2000). Antiepileptic therapies in the Mifi Province in Cameroon. *Epilepsia*, **41**: 432-439.
22. Rekdal, O. B. (1999). The invention by tradition: creativity and change among the Iraqw of northern Tanzania. University of Bergen, Norway
23. Rwiza, H. T., Matuja, W.B.P., Kilonzo, G. P., Haule, J., Mbena, P., Mwang'ombola, R. and Jilek-Aall, L. (1993). Knowledge, attitude, and practice toward epilepsy among rural Tanzanian residents. *Epilepsia*, **34**: 1017-1023.
24. Scott, R.A., Lhatoo, S.D. and Sander J.W.A.S. (2001). The treatment of epilepsy in developing countries: where do we go from here? *Bull. World Health Organ.*, **79**: 344-351.
25. Senanayake, N. and Roman G.C. (1993). Epidemiology of epilepsy in developing countries. *Bull. World Health Organ.*, **71**: 247-258.
26. Shorvon, S.D. and Farmer, P.J. (1988). Epilepsy in developing countries: a review of epidemiological, sociocultural and treatment aspects. *Epilepsia*, **29 Suppl 1**: S36-54.
27. Teuton, J., Dowrick, C. and Bentall, R.P. (2007). How healers manage the pluralistic healing context: the perspective of indigenous, religious and allopathic healers in relation to psychosis in Uganda. *Soc. Sci. Med.*, **65**: 1260-1273.
28. Wanyama, J., Castelnovo, B., Wandera, B., Mwebaze, P., Kambugu, A., Bangsberg, D.R. and Kanya M.R. (2007). Belief in divine healing can be a barrier to antiretroviral therapy adherence in Uganda. *AIDS.*, **21**: 1486-1487.
29. World Health Organization (2001). The world health report 2001: Epilepsy. Geneva; WHO Available at <http://www.who.int/whr/2001/en/index.html> Last accessed 10 January 2009
30. World Health Organization (2004). Commemoration of the second African Traditional Medicine Day. Available at <https://www.who.int/countries/eth/news/speeches/310804/en/index.html> Last accessed 8 March 2009