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Traditional Herbalists and Cancer Management in Kumasi, Ghana

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Abstract

Cancer incidence rates are increasing in sub-Saharan Africa where traditional medical practitioners (TMPs) are involved in cancer management. Little is known about the specific role that TMPs play in cancer management in Ghana; we hypothesize that an understanding of the practices of TMPs with regard to cancer patients would help to enhance literacy about cancer amongst TMPs and would contribute to the diagnosis of cancer at earlier stages, by avoiding the detrimental delays while enlisting their help in certain activities that enhance cancer care. To elucidate the nature of the involvement of TMPs in cancer management, we conducted semi-structured interviews with 42 TMPs who practice in Kumasi, Ghana. The interviews elicited information about their knowledge and practices regarding cancer management and interactions with local hospitals. The results showed that TMPs tended to identify cancers as diseases of visible masses, fungating lesions, ulceration, and bleeding reflecting the advanced stages and types of cancers they usually encounter. TMPs identified certain causes of cancer and believed that they can treat and prevent cancer. These results indicate that TMPs are significant health service

delivery resources in Ghana for patients potentially affected with cancer. Our work suggests that dedicated efforts to further integrate TMPs into the overall health care system would be beneficial to patients. Future research should examine the role of cancer education and training programs for TMPs to enhance their knowledge, strengthen their ability to complement allopathic practitioners, and increase early detection and treatment efforts through appropriate and timely referrals.

Keywords

Traditional herbalists; Cancer; Epidemiology; Ghana

Background

It is estimated that more than half of incident cancer cases and two thirds of cancer deaths occur in developing countries [1]. As life expectancy increases over the next few decades, cancer incidence and mortality in sub-Saharan Africa are expected to increase drastically [1–4]. In Ghana, cancer is already a leading cause of mortality [4], and future increases in incidence and mortality are predicted [1–5].

Among the most significant challenges Ghana faces in cancer control and prevention are low public awareness of the symptoms of cancer, late presentation of the disease across subtypes, and incomplete or delayed treatment [6]. Data from the Oncology Directorate at the Komfo Anokye Teaching Hospital (KATH) in Kumasi, Ghana, indicate that 66 % of cervical cancer patients present at stage III and only 7 % present at stage I [6]. Use of alternative therapies often leads to delays in treatment and late-stage presentation, increasing the likelihood of poor survival [7, 8]. For example, about half of the women in a study about breast cancer treatments in Ghana used alternative treatments before and during hospital treatments, which often led to delays in the conventional treatment. Furthermore, nearly 90 % of patients who stopped hospital treatment altogether pursued alternative therapies instead [7, 8].

Traditional medical practitioners (TMPs) are the most prevalent providers of alternative treatments in Ghana, and populations throughout Africa rely on TMPs for primary health care needs [9–11]. The World Health Organization (WHO) estimates that more than 100,000 TMPs are uniformly distributed throughout Ghana, resulting in approximately one TMP for every 400 people [10]. In contrast, there is only one allopathic practitioner for every 12,000 people [10]. Not surprisingly, the WHO estimates that 70 % of the population in Ghana relies on traditional medicine for health care [10].

TMPs are culturally accepted as medical practitioners throughout the country and play important psychosocial and perhaps also medical roles in conducting treatments not provided by allopathic medicine, due to the deficits in allopathic practitioners and/or distrust of conventional medicine or other factors [7, 8, 12, 13]. Due to their important cultural role, availability, and accessibility in Ghana, traditional healers are a vital part of the health care system. Widespread beliefs in spiritual causes underlying chronic conditions and the cultural endorsement of traditional healers as experts in spiritually derived conditions further suggest the importance of their role in cancer [12, 13]. In Africa, research has been conducted on the

role of traditional healers in mental health care [14–16] as well as communicable diseases such as HIV/AIDS [17–20]. Several studies have been conducted on traditional healers in cancer in sub-Saharan African countries [21–23], yet there is little information about the role of traditional healers in cancer management in Ghana.

The objectives of this study were to examine the role that traditional herbalists play in cancer management in Kumasi. In addition, as a secondary objective, we evaluated the effect of a formal educational training workshop on cancer and its reflection on the knowledge and referral patterns of traditional herbalists in Kumasi.

Methods

In conjunction with WHO's promotion of traditional medicine [9–11], the Ministry of Health (MOH) in Ghana recognizes the essential role of TMPs in health care and has made efforts to integrate traditional medicine into the national health care system. In 2000, the MOH established the Traditional Medicine Practice Council (TMPC) to promote, control, and regulate traditional medical practice and to register those TMPs who comply with government guidelines [24]. The establishment of the TMPC encouraged TMPs to gain more formal training and education to authenticate their practices in the eyes of both the government and the general public. As a result, opportunities for TMPs to receive training and education have become quite commonplace in recent years [24, 25].

The Oncology Directorate at Komfo Anokye Teaching Hospital (KATH) in Kumasi provided training workshops that aimed at educating all registered TMPs in Kumasi on the signs and symptoms of common cancers. This workshop emphasized the importance of prompt referrals and provided all participants with KATH referral forms. KATH has received an overwhelming response and interest from both registered and unregistered TMPs and has trained 150 TMPs so far over a period of 6 months. These workshops however, had no formal evaluation or follow-up component and thus no means to measure the knowledge gained as a result of the training or any potential changes in referral patterns after the training.

Along with the TMPC regulations, the MOH established the Ghana Federation of Traditional and Alternative Medicine (GHAFTRAM) to serve as a national umbrella organization to encompass formerly independent traditional healers' associations [24, 25]. There are seven associations included under GHAFTRAM, each representing a different traditional approach to healing. For example, the Ghana National Association of Traditional Healers (GNATH) is one such association under GHAFTRAM and includes those TMPs who identify themselves as traditional herbalists. According to Ghana's 2010 Population and Housing Census, there are 3,144 TMPs registered with the TMPC in the Ashanti region in central Ghana [26]. Of these, 179 are located in the Kumasi area, including 101 registered TMPs who are members of GNATH located in the Kumasi area ([26] and personal communication with the GHAFTRAM president).

Semi-structured interviews were conducted among TMPC-registered herbalists who practice in Kumasi. The interview was developed based in part on an instrument used in previous

similar studies [25, 27] and was reviewed by a co-author of this study (KA). The instrument was pilot tested on ten eligible participants. As no significant changes were made to the original interview instrument, the ten pilot-tested interviews were included in the analysis.

Interviews were conducted from June 2011 to September 2011. Potential participants were telephoned to set up an interview date, time, and location with the majority of the interviews taking place at the location of the herbalists' practices. Written informed consent was obtained from study participants before the beginning of the interviews. All interviews were conducted in Twi by a trained medical herbalist, a coauthor of this study (RLN), who was trained as an interviewer for the purposes of this study. The interview took an average of 45 min to complete and consisted of five sections, as follows: background, training history, practice details, cancer, and perspectives on biomedicine. Interviews were audio-recorded to ensure accurate translation and the recording of responses, if a separate written consent was obtained. Potential participants were contacted a maximum of three times by phone before being counted as having refused. Those herbalists who did not currently and regularly see patients were ineligible for this study.

A list of 101 TMPC-registered herbalists in Kumasi was obtained from the president of GNATH. Of these, 58 herbalists from different geographical regions of Kumasi were contacted; nine were ineligible, and seven refused to participate. The final sample consisted of 42 eligible participants.

Interview data were entered and managed in Excel and analyzed in both Excel and SAS (version 9.2; SAS Institute, Cary, NC). A mixed-methods approach was used for analysis. Qualitative data from open-ended interview questions were categorized and coded to generate broad common themes for analysis. Both qualitative and quantitative data were used to generate descriptive statistics to provide an overview of the demographic background; training history; practice details; knowledge of, and approaches to, cancer; and perspectives on biomedicine. To evaluate the KATH training workshop on cancer, the sample was stratified based on workshop attendance. Chi-square tests and *t* tests were used to determine differences between these two groups on selected variables from each interview section.

This study was approved by the Institutional Review Board of the University of Michigan, the Committee on Human Research, Publication, and Ethics of the Kwame Nkrumah University of Science and Technology, and the Komfo Anokye Teaching Hospital in Kumasi, Ghana.

Results

Table 1 provides information on the socio-demographic characteristics and training history of the study participants. The majority (66.7 %) of herbalists were male. Ages of participants ranged from 26 to 78 years, with a mean of 47.8 years. Most participants were Christian (71.4 %), and the vast majority (85.7 %) had achieved some level of education. Roughly half of the herbalists (52.4 %) practiced herbal medicine as their primary occupation. Regarding treatments prescribed to patients, 21.4 % regularly utilized spiritual therapies such as prayer

or divination in conjunction with herbal remedies. The most common forms of training in herbal medicine were training by family members (59.5 %) and the receipt of knowledge from spiritual sources such as through dreams or visions (28.6 %). About a quarter (23.9 %) of the study participants reported receiving some form of formal education and/or training in herbal medicine.

Table 2 displays details of the participants' herbal medicine practices. The overwhelming majority of participants require cash payments for their services. About half of participants (54.8 %) stated that they specialize in specific diseases and/or conditions, the most common being typhoid, malaria, and infertility, three very common conditions affecting residents in Kumasi. The majority of herbalists (59.5 %) kept some form of records of their patients. Many use biomedical equipment such as weighing scales or stethoscopes, and most participants collaborate with biomedical facilities through the use of laboratory diagnostics or referrals for treatment. In fact, 85.7 % of participants said they referred patients to hospitals or clinicians routinely. The herbalists refer patients with particularly severe conditions, such as those who require surgery, or those patients for whom they feel that they do not have the adequate knowledge or skills to treat appropriately.

Tables 3 and 4 provide the distribution of participant responses from the cancer section of the interview. All but one participant (97.6 %) claimed to know what cancer is. The most common descriptions of cancer were "wounds" (60.0 %), "destruction of cells and/or tissues" (20.0 %), "lumps" (15.0 %), and "growth" (7.5 %). Of the 42 participants, only ten (25.0 %) mentioned spread or metastasis in their description of cancer. The most common types of cancer recognized by participants were breast (83.3 %), head and neck (52.4 %), skin (52.4 %), and cervix (28.6 %). More than half of the participants (59.5 %) reported knowing what causes cancer. Descriptions of cancer causes included lifestyle factors such as smoking or alcohol use (48.0 %), infections (28.0 %), and nutrition (28.0 %). Only two participants (8.0 %) stated that cancer has spiritual causes. Several participants mentioned breast cancer-specific causes, including "keeping money in bras" (12.0 %) and "excessive fondling of breasts" (12.0 %). Among all participants, 57.1 % said they knew how to prevent cancer, and 21 % said they educate their patients on cancer prevention. Methods of cancer prevention mentioned by participants included lifestyle improvements such as avoiding alcohol and smoking and increasing exercise (41.7 %), improved diet (37.5 %), and avoiding medications such as antibiotics (16.7 %). Several participants said cancer prevention can include safe sexual practices (12.5 %) as well as early diagnosis and treatment (12.5 %).

About half of all participants (52.4 %) reported seeing cancer patients. The most common cancer sites seen by participants were breast (77.3 %), prostate (31.8 %), head and neck (27.3 %), skin (27.3 %), and cervix (9.5 %). The majority of herbalists (63.6 %) claimed to diagnose cancer themselves through patient histories and examinations. Many participants indicated that they diagnose breast cancer by palpation of the breast as shown in the KATH workshop. Participants also know that patients have cancer from reviewing the reports of the hospital/physician (36.4 %) or laboratories (26.3 %).

Of the 22 participants who see and treat cancer patients, 12 (54.5 %) do not allow these patients to see others for treatment. Those who do allow their patients to see others for

treatment (45.5 %) report that their patients can avail themselves of biomedical resources including hospitals and doctors (80.0 %) or other traditional healers (40.0 %). All of the participants reported following their cancer patients to track their status and adherence to treatment. Slightly more than half of participants (54.6 %) reported referring cancer patients to hospitals when they cannot provide adequate treatment.

Among all 42 participants, 22 (52.4 %) believe cancer patients in Ghana face barriers to seeking and receiving treatment. The most common barriers mentioned included cost (50.0 %), lack of knowledge of cancer (50.0 %), stigmatization (31.8 %), and fear of treatment (13.6 %). Other barriers to treatment included distance to health centers and lack of sufficient numbers of health centers.

The final interview section explored participants' perspectives on collaboration with allopathic medicine. The majority of participants (64.3 %) reported that they collaborate with allopathic practitioners in some manner. Reasons for not collaborating with allopathic practitioners included perceived disrespect from allopathic practitioners and lack of relationships and/or rapport. Nearly all participants (97.6 %) feel that further integration between traditional and allopathic medicine will be positive and beneficial to both types of practices.

Examination of the differences between participants who attended the KATH workshop and those who did not showed a greater proportion of women attending the KATH workshop than men. No other statistical differences were found with respect to the background characteristics of the two groups.

Discussion

This study identified the following important observations. First, the vast majority of TMPs in this population recognize cancer, but their recognition appears to occur only when the signs of the advanced stages of cancer are encountered. The most common signs and cancers they reported were masses (breast and head and neck) and visible lesions/ulceration or discharge (skin or cervical cancers). TMPs' definition of cancer as "wounds," "lumps," and "growths" confirms the fact that most cancers seen by traditional healers are advanced and visible either in size or advanced stage of fungating or infected lesions. The second observation is that these herbalists practice this occupation as a source of income, and among those who see cancer patients, most believe that they can treat and prevent cancer. Finally, this study found that these practitioners are part of the health care system as they keep records, follow up with patients, and refer cancer patients to hospitals, when they deem it is needed.

Regarding TMPs' recognition of advanced cancers, it is interesting to note that there are other prevalent cancers in this community that were not reported by study participants such as prostate cancer and HIV-related malignancies. Because the vast majority of cancers in this population are diagnosed at advanced disease stage, only advanced cancers that present with large masses, ulceration, or bleeding/discharge tend to be recognized by the healers. Previous research from Ghana and other countries in Africa has shown that TMPs most

often claim expertise in visible ailments, such as wounds, snake bites, skin conditions [28–30], or locally prevalent diseases such as malaria [31–33]. Studies on oral health in sub-Saharan Africa indicate that TMPs identify visible symptoms of oral diseases, such as bleeding gums, but diseases of non-visible signs needed training and hands-on experience [27, 34]. Our study indicates that herbalists tend to lack knowledge of the early stages of cancer. Since TMPs are very eager to receive further training from conventionally trained practitioners, it may prove useful for TMPs in Ghana to be made more aware of the early signs and symptoms of locally prevalent cancers in order to augment the early detection of cancer and to integrate this downstaging with treatment efforts of the local hospitals.

These results also indicate that TMPs do play a substantial role in cancer management in Ghana. Previous studies in both Ghana and other sub-Saharan African countries showed that patients often seek traditional treatments for cancer [7, 8, 12], indicating widespread beliefs in the efficacy of herbal and spiritual treatments and the availability and accessibility of such practitioners. Moreover, several previous studies found that TMPs often cite cancer as one of the diseases they commonly see and treat among their patient populations [13, 21, 35]. Similarly, these results reaffirm the role TMPs in Ghana currently play in treating and preventing cancer and define areas of knowledge and skill that could be strengthened among TMPs to improve the availability and quality of care received by cancer patients.

Traditional herbalists appear to be an integral component of the health care system in Ghana and other resource-limited countries in Africa. They prescribe medications, keep records, follow up with patients, and refer patients to other medical practitioners. Though the proportion of herbalists receiving formal training and education was relatively low, the majority of participants expressed a desire to receive more training and a willingness to collaborate with allopathic practitioners to share knowledge and integrate medical practices. Previous research in Ghana and throughout sub-Saharan Africa similarly found the importance of TMPs to overall public health care systems [18, 25, 35]. For all of the above reasons, these practitioners could thus be seen as an important service delivery resource in the health care system, and certain early detection tasks could be shifted to them, in an effort to maximize the utilization of health care practitioners of all types in the war against cancer in Ghana and sub-Saharan Africa. In addition, they could and appear willing to receive continuous education to expand their medical knowledge and encourage them to refer cancer patients at early stages. It is important to note that with regard to cancer prevention, TMPs conveyed accurate information regarding the beneficial effects of diet and lifestyle, even though this knowledge was not included in the formal workshop taught to them prior to this study's commencing. Previous work has been done on integrating TMPs into public health care systems, particularly regarding HIV/AIDS in sub-Saharan Africa [17, 18, 36, 37]. Many of these studies have found positive, beneficial results after providing training and education to TMPs and implementing integration strategies [17, 18, 37].

This is the first study on traditional healers and cancer management in Ghana. This study benefited from both the availability of records of registered herbalists as well as the established rapport between the local medical community and the herbalists. Another strength of the study is the conduction of the interviews in Twi, so that the maximum amount of information could be obtained unhindered by language barriers. Moreover, the

interviewer had a background in herbal medicine; thus, any language specific to traditional herbalist practices was understood and accurately recorded. Also, the interviews were semi-structured which allowed the capture of both pre-designed information as well as deviations from structured responses in open-ended formats.

This study included TMPs only from Kumasi, and generalization to Ghana should be considered cautiously. The study included registered TMPs, and differences between registered and unregistered TMPs should also be explored before generalization of the results to all traditional practitioners in Ghana. This study was unable to adequately evaluate the KATH training workshop due to the workshop's lack of a pre-training knowledge and practice evaluation.

In summary, this study found that traditional healers represent an available, accessible, and acceptable health resource in Ghana, and as such, they could be provided with the education, training, and opportunity for collaboration and task shifting needed to best complement allopathic medicine. Future cancer education and training programs for traditional healers should continue to provide information on signs and symptoms of locally prevalent cancers. Such programs should also focus on downstaging and emphasize the importance of early referrals to better address the serious problems of late-stage presentation in the country.

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References

1. Boyle, P.; Levin, B. World cancer report. IARC Press; Lyon: 2008. International Agency for Research on Cancer and Inc ebrary.
2. Kamangar F, Dores GM, Anderson WF. Patterns of cancer incidence, mortality, and prevalence across five continents: defining priorities to reduce cancer disparities in different geographic regions of the world. *J Clin Oncol Off J Am Soc Clin Oncol*. 2006; 24:2137–2150.
3. Parkin, DM. International Agency for Research on Cancer. Cancer in Africa: epidemiology and prevention. IARC Press; Lyon: 2003.
4. Wiredu EK, Armah HB. Cancer mortality patterns in Ghana: a 10-year review of autopsies and hospital mortality. *BMC Publ Health*. 2006; 6:159.
5. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. GLOBOCAN 2008 v1.2, cancer incidence and mortality worldwide. IARC CancerBase no 10. 2010 [Internet].
6. Awuah, B. Cervical cancer in Ghana: 6 year review at KATH Oncology. Proceeding at the Conference the Breast and Cervical Cancer in North Africa and the Middle East CGH International Symposium; Cairo, Egypt. October 7, 2010; 2010.
7. Clegg-Lamprey J, Dakubo J, Attobra YN. Why do breast cancer patients report late or abscond during treatment in Ghana? A pilot study. *Ghana Med J*. 2009; 43:127–131. [PubMed: 20126325]
8. Clegg-Lamprey JN, Dakubo JC, Attobra YN. Psychosocial aspects of breast cancer treatment in Accra, Ghana. *East Afr Med J*. 2009; 86:348–353. [PubMed: 20499785]

9. World Health Organization. Traditional medicine growing needs and potentials. WHO; Geneva: 2002.
10. World Health Organization. WHO traditional medicine strategy 2002–2005. WHO; Geneva: 2002.
11. World Health Organization. Legal status of traditional medicine and complementary/alternative medicine: a worldwide review. WHO; Geneva: 2001.
12. de-Graft Aikins A. Healer shopping in Africa: new evidence from rural–urban qualitative study of Ghanaian diabetes experiences. *BMJ (Clin Res Ed)*. 2005; 331:737.
13. de-Graft Aikins A, Boynton P, Atanga LL. Developing effective chronic disease interventions in Africa: insights from Ghana and Cameroon. *Glob Heal*. 2010; 6:6.
14. Abbo C. Profiles and outcome of traditional healing practices for severe mental illnesses in two districts of Eastern Uganda. *Glob Health Action*. 2011; 410.3402/gha.v4i0.7117
15. Ae-Ngibise K, Cooper S, Adiibokah E, Akpalu B, Lund C, Doku V. Consortium Mhapp Research Programme. ‘Whether you like it or not people with mental problems are going to go to them’: a qualitative exploration into the widespread use of traditional and faith healers in the provision of mental health care in Ghana. *Int Rev Psychiatry (Abingdon, England)*. 2010; 22:558–567.
16. Patel V. Traditional healers for mental health care in Africa. *Glob Health Action*. 2011; 410.3402/gha.v4i0.7956
17. Amzat J. Roles of traditional healers in the fight against HIV/AIDS. *World Health*. 2008; 2:153–159.
18. Furin J. The role of traditional healers in community-based HIV care in rural Lesotho. *J Commun Health*. 2011; 36:849–856.
19. Mngqundaniso N, Peltzer K. Traditional healers and nurses: a qualitative study on their role on sexually transmitted infections including HIV and AIDS in KwaZulu-Natal, South Africa. *Afr J Tradit Complement Alternat Med: AJTCAM/Afr Netw Ethnomed*. 2008; 5:380–386.
20. Peltzer K, Mngqundaniso N, Petros G. HIV/AIDS/STI/TB knowledge, beliefs and practices of traditional healers in KwaZulu-Natal, South Africa. *AIDS Care*. 2006; 18:608–613. [PubMed: 16831789]
21. Abubakar MS, Musa AM, Ahmed A, Hussaini IM. The perception and practice of traditional medicine in the treatment of cancers and inflammations by the Hausa and Fulani tribes of Northern Nigeria. *J Ethnopharmacol*. 2007; 111:625–629. [PubMed: 17320319]
22. Nelson JA, Francis SA, Liverpool J, Soogun S, Mofammere N. Healers in a non-traditional role; a focus group study of Sangoma’s knowledge of and attitudes to cervical cancer prevention and screening in Johannesburg, South Africa. *Sex Reprod Healthc Off J Swed Assoc Midwives*. 2010; 1:195–196.
23. Steyn M, Muller A. Traditional healers and cancer prevention. *Curationis*. 2000; 23:4–11. [PubMed: 11949155]
24. Ghana Ministry of Health (2000) Act 575: Traditional Medicine Practice Act
25. Abel C, Busia K. An exploratory ethnobotanical study of the practice of herbal medicine by the Akan peoples of Ghana. *Altern Med Rev J Clin Ther*. 2005; 10:112–122.
26. Ghana Statistical Service. 2010 population and housing census: provisional results. 2011
27. Agbor AM, Naidoo S. Knowledge and practice of traditional healers in oral health in the Bui Division, Cameroon. *J Ethnobiol Ethnomed*. 2011; 7:6. [PubMed: 21235814]
28. Agyare C, Asase A, Lechtenberg M, Niehues M, Deters A, Hensel A. An ethnopharmacological survey and in vitro confirmation of ethnopharmacological use of medicinal plants used for wound healing in Bosomtwi-Atwima-Kwanwoma area, Ghana. *J Ethnopharmacol*. 2009; 125:393–403. [PubMed: 19635544]
29. Sloan DJ, Dedicoat MJ, Lalloo DG. Healthcare-seeking behaviour and use of traditional healers after snakebite in Hlabisa sub-district, KwaZulu Natal. *Trop Med Int Health: TM & IH*. 2007; 12:1386–1390.
30. Ryan TJ, Hirt HM, Willcox M. Collaboration with traditional health practitioners in the provision of skin care for all in Africa. *Int J Dermatol*. 2011; 50:564–570. [PubMed: 21506973]

31. Beiersmann C, Sanou A, Wladarsch E, De Allegri M, Kouyate B, Muller O. Malaria in rural Burkina Faso: local illness concepts, patterns of traditional treatment and influence on health-seeking behaviour. *Malar J.* 2007; 6:106. [PubMed: 17686147]
32. Katuura E, Waako P, Ogwal-Okeng J, Bukenya-Ziraba R. Traditional treatment of malaria in Mbarara District, western Uganda. *Afr J Ecol.* 2007; 45:48–51.
33. Okeke TA, Okafor HU, Uzochukwu BS. Traditional healers in Nigeria: perception of cause, treatment and referral practices for severe malaria. *J Biosoc Sci.* 2006; 38:491–500. [PubMed: 16762086]
34. Rudolph MJ, Ogunbodede EO, Mistry M. Management of the oral manifestations of HIV/AIDS by traditional healers and care givers. *Curationis.* 2007; 30:56–61. [PubMed: 17515317]
35. Birhan W, Giday M, Teklehaymanot T. The contribution of traditional healers' clinics to public health care system in Addis Ababa, Ethiopia: a cross-sectional study. *J Ethnobiol Ethnomed.* 2011; 7:39. [PubMed: 22132758]
36. Mills E, Singh S, Wilson K, Peters E, Onia R, Kanfer I. The challenges of involving traditional healers in HIV/AIDS care. *Int J STD AIDS.* 2006; 17:360–363. [PubMed: 16734953]
37. Peltzer K, Mngqundaniso N, Petros G. A controlled study of an HIV/AIDS/STI/TB intervention with traditional healers in KwaZulu-Natal, South Africa. *AIDS Behav.* 2006; 10:683–690. [PubMed: 16715347]

Table 1Demographic background and training history of study participants (*n*=42)

Variable	Mean (SD)	
Age (years)	47.8 (11.3)	
Years of training	6.7 (5.8) ^a	
Years of practice	11.7 (12.1)	
	Groups	<i>n</i> (%)
Gender	Male	28 (66.7)
	Female	14 (33.3)
Religion	Christian	30 (71.4)
	Muslim	6 (14.3)
	Traditional	3 (7.1)
	None	3 (7.1)
Education	Any level of education	36 (85.7)
	No education	6 (14.3)
Occupations in addition to herbal treatment	Yes	20 (47.6)
	No	22 (52.4)
Type of practice	Herbal medicine	33 (78.6)
	Herbal and spiritual	9 (21.4)
Type of training in herbal/spiritual medicine ^b	From family members	25 (59.5)
	Through dreams/visions	12 (28.6)
	Formal training	10 (23.9)
Attended the KATH cancer training workshop	Yes	21 (50.0)
	No	21 (50.0)
Attended other training workshops	Yes	36 (85.7)
	No	6 (14.3)

^aExcludes those who did not know or skipped the question and those who received training immediately from direct spiritual sources^bPercentage may exceed 100 as participants were allowed multiple responses

Table 2Details of study participants' general practices ($n=42$)

Variable	Mean (SD)	
Patients seen/month	119.3 (139.3)	
New patients seen/month	72.5 (113.9)	
	Groups	n (%)
Payment type ^a	Cash	41 (97.6)
	Other ^b	3 (7.1)
Specialization	Yes	23 (54.8)
	No	19 (45.2)
Specialization areas ^{a, c} ($n=23$)	Typhoid	10 (43.5)
	Malaria	8 (34.8)
	Infertility	8 (34.8)
	Hemorrhoids	5 (21.7)
	STDs	4 (17.4)
Keep patient records	Yes	25 (59.5)
	No	17 (40.5)
Refer patients to hospitals or clinicians	Yes	36 (85.7)
	No	6 (14.3)

^aPercentage may exceed 100 as participants were allowed multiple responses^bIncludes gifts or no charge for services^cMost frequently mentioned, not all inclusive

Table 3Cancer-specific knowledge of study participants ($n=42$)

Variables	Groups	<i>n</i> (%)
Recognition of cancer	Yes	41 (97.6)
	No	1 (2.4)
Description of cancer ^a ($n=40$)	Wounds	24 (60.0)
	Destroys cells, tissues	8 (20.0)
	Lumps	6 (15.0)
	Growth	3 (7.5)
	Tumor	2 (5.0)
Recognition of cancer metastasis/spread ($n=40$)	Yes	10 (25.0)
	No	30 (75.0)
Types of cancers recognized ^{a, b}	Breast	35 (83.3)
	Head and neck	22 (52.4)
	Skin	22 (52.4)
	Cervical/uterine	12 (28.6)
Recognition of cancer causes	Yes	25 (59.5)
	No	11 (26.9)
	Don't know/skipped	6 (14.3)
Description of cancer causes ^a ($n=25$)	Lifestyle ^c	12 (48.0)
	Infections	7 (28.0)
	Nutrition	7 (28.0)
	Environmental exposures	6 (24.0)
	Medications	4 (16.0)
	Genetics	3 (12.0)
	Fondling breasts	3 (12.0)
	Keeping money in bra	3 (12.0)
	Spiritual	2 (8.0)
Recognition of cancer prevention	Yes	24 (57.1)
	No	12 (28.57)
	Don't know/skipped	6 (14.3)
Description of cancer prevention methods ^a ($n=24$)	Lifestyle ^b	10 (41.7)
	Diet	9 (37.5)
	Avoid medications	4 (16.7)
	Avoid money in bra	4 (16.7)
	Avoid fondling of breast	3 (12.5)
	Safe sex practices	3 (12.5)
	Early diagnosis and treatment	3 (12.5)
Educate patients about cancer prevention	Yes	21 (50.0)
	No	15 (35.71)
	Don't know/skipped	6 (14.3)
See cancer patients	Yes	22 (52.4)

Variables	Groups	n (%)
	No	20 (47.6)

^aPercentage may exceed 100 as participants were allowed multiple responses

^bMost frequently mentioned, not all inclusive

^cIncludes mention of alcohol, smoking, and exercise as causes of cancer or modes of prevention

Table 4Details of cancer patients seen by participants ($n=22$)

Variable	Groups	<i>n</i> (%)
Types of cancer patients seen ^{a, b}	Breast	17 (77.3)
	Prostate	7 (31.8)
	Head and neck	6 (27.3)
	Skin	6 (27.3)
Participants' cancer patients see others for treatment	Yes	10 (45.5)
	No	12 (54.5)
Others seen for treatment ($n=12$)	Biomedical (hospital, doctor)	8 (80.0)
	Traditional healer	4 (40.0)
Approach to cancer treatment	Herbs only	13 (59.1)
	Herbs and spiritual	9 (40.9)
Follow up with cancer patients	Yes	22 (100.0)
	No	0 (0.0)
Refer cancer patients	Yes	12 (54.6)
	No	10 (45.4)
Places/people cancer patients referred to ($n=12$)	Biomedical (hospital)	12 (100.0)

^aPercentages may exceed 100 % as participants were allowed multiple responses^bMost frequently mentioned, not all inclusive