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## Research paper

## Exploring the safety and clinical use of herbal medicine in the contemporary Ghanaian context: A descriptive qualitative study



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## ABSTRACT

Many individuals remain skeptical about the safety and use of herbal medicine thereby slowing the efforts being made to integrate herbal medicine into Ghana's healthcare system. This study sought to provide an in-depth description of the clinical use of herbal medicine in Ghana through interviews with participants at two locations—a national research centre and a private clinic. The study adopted a descriptive qualitative design involving individual patient and key informant interviews. Data were collected from 13 key informants. Interviews were audio-taped and transcribed verbatim. Data analysis was conducted applying the procedures of content analysis. Two major themes were generated, focusing on the production and processing of herbal medicine and its use. The sub-themes generated were production of herbs and herbal medicine; analysis of herbal products; training of herbalists, 'client assessment', herbal medicine treatment decisions and adjuvant therapy. It was realized that there were difficulties acquiring sustainable raw materials for herbal medicine production. Quality aspects include the input of research institutions and regulatory bodies to ensure that safe herbal products are used, and the formal training of herbalists. Patients at the study locations are assessed using orthodox means and may be treated with adjuvant therapies as well as herbal medicine. The themes raised provide insight into the issues and possibilities of integrating herbal medicine into a wider healthcare system.

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## 1. Introduction

The use of herbal medicine for treating various ailments has received a lot of attention in recent times. There is evidence that herbal medicine is used in many countries with some level of integration into the traditional health care system (Allam et al., 2014; Bensoussan et al., 2004; Hu and Chung, 2015; Tabuti et al., 2003b). The increased use of herbal medicine has seen a proliferation of herbal medicine producers and vendors (Quiroz et al., 2014). Some of these producers and vendors do not have equal knowledge and skills, creating concerns about the safety of herbal medicines (Cooke et al., 2012). In view of this, many countries have regulatory bodies that regulate the practice of herbal medicine (Govindaraghavan and Sucher, 2015; Moss et al., 2007; Zöllner and Schwarz, 2013). Research institutions mandated to investigate herbal medicines have over the years supported confidence in herbal medicine through rigorous scientific research

into various aspects of herbal medicine. These studies have identified the active ingredients in various parts of plants and also investigated the toxic effects and safe dosages of herbal medicine. Most of these studies were carried out using animals (Flower et al., 2012; Thomas, 2011).

In order to make the production of herbal medicines sustainable, the raw materials must be readily available. But there are reports that certain medicinal plant species are becoming extinct because of over harvesting, which depletes natural habitats (Yao et al., 2013). Forest degradation and effect of bush fires have also negatively impacted on the availability of the raw materials of herbal medicine. Furthermore, since certain plants thrive better under specific geographic or climatic conditions, changes in rainfall patterns and vegetation can threaten their survival. Another problem of herbal medicine production is contamination caused by the use of unhygienic water for irrigation during cultivation (Zhang et al., 2012).

Contemporary herbal medicine production may involve a series of steps in the processing of the raw materials to obtain a desired product (Van Wyk, 2011; Zhang et al., 2012). Some production processes involve the extraction of active ingredients which are then packaged as desired. The packages are labeled and these are sold to clients according to need (Govindaraghavan and Sucher,

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2015; Othman et al., 2015; Soares et al., 2014). However, some herbal medicines are used in their raw state in homes, while others may be boiled, dried or added to alcohol based drinks for use (Cano and Volpato, 2004; Ndhala et al., 2011; Neamsuvan et al., 2012; Tan and Freathy, 2011). The large scale production of herbal medicine requires stringent measures to ensure that the products have the desired efficacy and safety (Zhang et al., 2012). The safe use of herbal medicine demands that herbal medicine producers/herbalists are all formally trained, as some of them have previously learned the profession informally from other herbalists. Also, some herbalists with no formal education have a further challenge in calculating dosages and labelling locally prepared herbal products (Harman, 2007; Okanlawon et al., 2011).

The use of herbal medicine at the clinic in contemporary times involves thorough case history taking and laboratory and radiological examinations to guide treatment decisions (Amoah et al., 2014; Guangyi et al., 2009). These developments, coupled with improved packaging of herbal medicine, have contributed to its increased use. Some modern herbal clinics have facilities for adjuvant therapies such as massaging (Dodds et al., 2014; Gore-Felton et al., 2003), which seems to enhance attendance at herbal clinics. It is therefore not surprising that some countries have integrated herbal medicine into their national health system (Chang et al., 2016; Lao and Ning, 2015).

There is a paucity of studies on herbal medicine that give an in-depth description of the safety and usage of herbal medicine within the contemporary health system. This report focuses on the safety and use of herbal medicine in Ghana. It forms part of a wider study that also investigated herbal medicine users' perspectives on facilitators and inhibitors of herbal medicine use in Ghana.

## 2. Methods

### 2.1. Design and setting

This study adopted a descriptive qualitative design to investigate the safety processes and clinical use of herbal medicine in a national research centre (Centre for Scientific Research into Plant Medicine, Mampong, located in the Eastern Region of Ghana) and a private herbal clinic (Top Herbal Clinic, Agbogba, Accra). These two settings provided in-depth understanding into the phenomenon under investigation. The national centre for research into plant medicine was established in 1975 to basically conduct scientific research and development of herbal medicine. The centre is a Government establishment which is an agency of the Ministry of Health. The centre is mandated to ensure the efficacy, quality and safety of herbal medicine. The private herbal clinic was established in 1996. The clinic has its own herbal production unit where only herbal products are prescribed. Both the private clinic and the research centre run a herbal clinic on out-patient basis for clients from various parts of Ghana.

### 2.2. Sampling and data collection procedure

A purposive sampling technique was used to identify key informants and clients who use herbal medicine. Permission was obtained from the leadership of the two organizations. The first author, who is experienced in qualitative data collection, conducted all the interviews. Open ended questions were used to generate detailed descriptions on the safety and clinical use of herbal medicine. Individual face-to-face interviews were conducted and lasted between 20 and 30 min each. All the key informant interviews were conducted in English and the patient interviews were conducted in English and Twi (an Akan language most commonly used in the southern two-thirds of Ghana). The interviews were recorded with a digital audio-recorder. The

interviews conducted in English were transcribed verbatim and those in Twi were translated into English. The interviews were conducted at the convenience of the participants.

### 2.3. Data analysis

Data were analyzed following the processes of content analysis to identify themes and sub-themes that describe the phenomenon under study. The transcripts were read until a full understanding was achieved. They were then coded and similar codes were grouped to form themes and sub-themes that fully described the safety and clinical use of herbal medicine. The data was managed with the NVivo software version 10.

### 2.4. Trustworthiness of the study

Trustworthiness of the study was achieved through the maintenance of detailed field notes which enabled follow-up on gaps in the data. Member checking and follow-up on description of processes achieved in-depth description of safety and clinical use of herbal medicine. An audit trail was kept that enhanced the verification of findings from this study. Many descriptions of findings are provided to provide the necessary context for application of findings in other similar contexts.

### 2.5. Ethical considerations

Ethical approval was obtained from the Institutional Review Board of the Noguchi Memorial Institute of Medical Research for a wider ongoing research of the first author. Permissions were obtained from the two study sites. All participants gave their informed consent to participate in the study. The right to withdraw, confidentiality and anonymity were emphasized. Identification codes, such as TMK11 to TMK113, were used to present verbatim quotes.

## 3. Findings

### 3.1. Characteristics of study participants

This study involved 13 key informants: 6 patients, 3 herbal medicine practitioners, 2 herbal scientists and 2 herbal sales representatives. Two herbal medicine practitioners were from a private herbal clinic, Top Herbal Clinic, Agbogba, Accra and 2 herbal scientists and a herbal medicine practitioner were from the Centre for Scientific Research into Plant Medicine, Mampong. The two herbal medicine sales representatives worked with the private herbal clinic. All the participants were adults aged 18 years and above.

Two major themes were generated in this study: The first theme was production and processing of herbal medicine, and its sub-themes were production of herbs and herbal medicine, analysis of herbal products and training of herbalists. The second theme was usage of herbal medicine and its sub-themes were client assessment, herbal medicine treatment decisions and adjuvant therapy.

### 3.2. Production and processing of herbal medicine

This theme describes safety issues in the production and processing of herbal medicine including the role of regulatory authorities and training of herbalist to ensure that herbal medicine products are safe. The challenges of herbal medicine production are described. The sub-themes related to these dimensions of herbal medicine are described.

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