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DEPARTMENT OF HEALTH POLICY MANAGEMENT AND ECONOMICS

FACTORS ASSOCIATED WITH THE UTILIZATION OF THE SERVICES OF TRADITIONAL BONESETTERS IN NORTHERN REGION OF GHANA

BY

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NOVEMBER, 2019

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DECLARATION

I hereby declare that with exception of the references made to other people's" work which have been duly acknowledged, this work is the result of my own research work done under supervision and that this thesis has neither in whole nor in part been presented to the University or elsewhere for another degree.

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ABSTRACT

Since 1978, the WHO has been promoting cooperation between modern and Traditional medicine. However traditional medicine as well as traditional bone setting had received poor recognition in Ghana formal health system. In spite of this, traditional bonesetters in the Northern region still enjoyed strong community influence, popularity and a high degree of confidence and abound in almost every part of the region. The main objective of this study was to investigate factors associated with the utilization of the services of traditional bonesetters in Northern region of Ghana.

The study adopted mixed qualitative and quantitative method, with In-depth interviews conducted to twenty- eight (28) traditional bone setters, (64) bonesetter clients and 3 Focus groups.

The main reasons included mostly cheaper fees, 66 (26.29%); cultural beliefs, 45 (17.93%) and others while 22 (34.3%) out of 64 of the clients preferred orthodox treatment of bone injury and the main reasons cited included: the availability of X-ray facility, 42 (27.27%); Proper pain management, 39 (25.32%).

Majority of TBS reported that their practice is family-based, and a gift from God handed over from one generation to another within the family.

It is important for Health policy makers to consider training and retraining of TBS to minimize poor outcome of fracture treatment and also encourage collaborative understanding between orthodox practitioner and TBS in Ghana.

DEDICATION

This thesis is dedicated to the Almighty God who has been my source of strength, wisdom and perseverance. To my dear wife EDITH and my children thank you for being there for me throughout my postgraduate study.

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LIST OF ABBREVIATIONS

FGD	–	Focus group discussion
TBS	–	Traditional bonesetter
WHO	–	World Health Organization

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Extremity injuries such as fractures are a major cause of disability globally, especially in low- and middle-income countries. Much of the disability caused by fractures could be averted by improvements in orthopaedic care and rehabilitation (March *et al*, 2013; Mock *et al* 2009). In many African countries, fracture care is provided not only by the formal / orthodox medical sector, but also by traditional bonesetters (TBSs). Given the high patronage of TBSs in many low- and middle-income countries, addressing TBS care could be an important component of overall efforts to lower the burden of disability from extremity injuries.

The limited research done in Ghana shows that planning for the health care for the people especially the greater population in the rural communities has always been met with challenges (Arie *et al*, 2007) and especially with bone setting which is one of the old age traditional medical practice in most developing countries including Ghana (Kuubiere et al, 2015).

Traditionally, bone setting is practiced in our societies and is more familial, implying, it is passed on from one generation to the other within the family and therefore accompanied by high social status, educational level and religious affiliations although this practice is often associated with several failures and complications with infections (Dada *et al*, 2009; OlaOlorun et al, 2001).

Bone injuries are very common and indispensable in the health care system of Ghana **(**Kuubiere et al, 2015). These injuries often result from diverse cause; however, in Ghana accidents remain one of the most common causes of bone-related injuries. (Kudebong et al, 2011). These injuries require immediate interventions to avoid

complication, which often results in fatalities from these conditions. In a developing country such as Ghana, there are generally shortages of orthopaedic surgeons to manage bone-related injuries. Nonetheless even in place where such orthopaedic services are available in the formal biomedical system, many people still utilize the services of traditional bonesetters (TBS). In Nigeria, 85% of patients with bone injury were said to have used the services of bonesetters (Nwachukwu et al, 2011; Omololu et al, 2008). In Ghana an earlier study found that people use the services of Bonesetters even in places with biomedical personnel equipped to manage such bone related injuries (Ariës et al, 2007; Kuubiere et al, 2015). However, these bonesetters may sometimes be ill- equipped to manage these injuries with many reporting to biomedical health service with complications that impede successful management. Although there is paucity of data on the utilization of these bonesetters, review of records available at the Tamale Teaching Hospital (TTH) shows that many patients first report these injuries to non-orthodox service providers (bonesetters). The objective of this study is to investigate factors associated with the utilization of services of bonesetters in Northern Ghana.

1.2 Problem statement

Increase in population and rapid urbanization has resulted in alarming road traffic accidents especially from motorcycles, tricycles, and vehicles. As a result, musculoskeletal trauma is automatically increasing. Due to the varied belief systems, be it cultural or religious, the traditional methods of treatment greatly impact on the choices of clients of bone injuries to first seek treatment from the traditional bonesetter.

Various surveys show that most of the victims report back to the orthodox orthopaedic treatment in a very bad state.To minimize the complications the Ministry of Health and or Ghana Health Service as a regulator has an obligation of formulating policies that will ensure sanity and help incorporate the activities of traditional bonesetters, in the orthodox medical system. For example, taking them through basic infection prevention

and control practices, hygienic practices for the safety of the clients. And also ensure proper monitoring and supervision. It is strongly believed that the above problem can only be possible after proper scientific enquiry into the activities of the traditional bonesetters and the determinants of clients‟ choices.

1.3 Main Objective

The study is designed to investigate the factors affecting the utilization of the services of traditional bonesetters in Northern Region of Ghana and the possible policy direction

1.4 Specific Objectives

1. To determine the reasons whether clients of bone injuries use both services of bonesetters and orthodox services
2. To assess the level of knowledge of the bonesetters on bone injuries
3. To find out the attitude and practices regarding various forms of bone injuries by traditional bonesetters
4. To ascertain perceptions on the orthodox practices versus TBS in the community regarding bone injuries?

1.5 Research Questions

1. Do clients of bone injuries use both services of bonesetters and orthodox services?
2. What is the traditional bonesetters level of knowledge and practices regarding various forms of bone injuries?
3. What is the perception on the orthodox practices versus TBS in the community regarding bone injuries?

1.6 Justification

This study is designed to identify factors responsible for the utilization of the services of these traditional bonesetters to help develop strategies and policies to improve management of bone-related injuries in the region. Generally, the decision to employ

effective interventions by policy and decision-makers to reduce the burden of bone related injuries in a country depends on the availability of resources and existing supporting scientific evidence. The availability of scientific evidence is extra vital in ensuring the judicious use of limited resources most especially in resource-constrained settings such as Ghana. This study will therefore provide the scientific evidence required to develop interventions and policies to help address this important area that has received little attention in both health policy planning and management and clinical practice.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Background Information

The treatment of fractures and joint manipulation actually dates back to ancient times and can be traced to having roots in most countries.

Edwin Smith papyrus of 1552 BC, describes the Ancient Egyptian treatment of bonerelated injuries. These early bonesetters would treat fractures with wooden splints wrapped in bandages or make a cast around the injury out of plaster-like mixture. These skills were then passed on from generation to generation, created families of bonesetters.

With the advancement of modern medicine beginning in the 18th century, bonesetters began to fall into a new category. At the time there were the practitioners who were considered legitimate and then the self-taught healers who were considered to be "quacks".

In tribal cultures a bonesetter is the practitioner who educates himself or herself from tradition and takes up the practice of healing without having any formal training in the accepted medical procedures whereas in advanced cultures, the best-trained healer for fracture is the orthopaedic surgeon

In Africa especially in Ghana, traditional bonesetters‟ centers were only point of call for treatment and manipulation of any form of bone injuries. According to (Hoff , 1997) the traditional bonesetters have been in existence long before the orthopaedics was introduce to less developed countries.

Advances in technology and medical research have greatly evolved modern day healthcare. Despite the availability of orthopaedic services, traditional bonesetters has continued as an alternative‟ health service. In developing countries such as Africa in general and in particular with less developed healthcare resources and few orthopaedics surgeons, these bonesetters still play an important role in providing primary „medical‟ support.

2.2 Reasons for patronizing both bonesetters and orthodox service

In many developing countries, illness is often as a result of wrath or punishment of a supreme being, deity, gods and to some extent people with special powers like a witch to individuals, groups or community for moral and spiritual failings. If someone has violated a social norm or breached a religious taboo, he or she may invoke the wrath of a deity and their sickness is explained as a form of divine punishment. Based on these beliefs the treatment of any disease or illness is best handled by traditional healers than orthodox services.

According to (Ampofo, 1994); recourse to Traditional Medicine in Ghana is usually instigated by the belief that certain diseases can only be treated by traditional methods. That is why many people prefer using traditional bone healers for the treatment of all forms of fractures because it is believed that fractures are best healed by traditional medicine. Patients believe that bonesetters offer more extensive treatment; besides applying a kind of plaster of Paris (P.o.P) or splints, they also add medicinal herbs.

A Cochrane review relating to the advantages of traditional bonesetters disclosed that its global acceptability is mainly as a result of it affordability, allegedly faster healing methods, and easy access to services (Panda *et al,* 2011).

The fear of amputation, anxiety of heavy P.O.P bandages, long periods of immobilization and surgery are other reasons for choosing traditional healers instead of the conventional ones.

In other situations, indifferent attitudes of orthodox hospitals or cajoling by relatives, neighbors and TBS canvassers led clients to TBS. (Omololu *et al,* 2002;Agarwal *et al,* 2010*).*

Traditional bone setting relies fully on practical experience and observations handed down from generation to generation whether verbally or in writing that why most of the traditional bonesetters continue to lives and practice in their communities.

According to (Nwachukwu *et al*, 2011 ; Oyebola,1980) traditional bone setters are viewed in their community as „experts" for fractures, easily reachable, comforting and giving home treatment. For these reasons, bonesetters have enjoyed strong regional influence, popularity and a high degree of confidence.

Several researchers have found that advice of relatives and friends, sociocultural belief, easy accessibility, fear of amputation, and fear of operation are the most common factors that influence the decision to patronize the TBS. Study conducted by (Ndubuisi *et al*, 2015) reveal that advice of relatives and friends had the highest percentage (29.2%), and fear of operation had the lowest percentage (8.3%).

In many African societies especially in Ghana the views of families and friends plays a significant role because of the prevailing social and extended family system. The cost of

treatment of injuries and ailments are often shared among families and friends, hence their influence in such decisions.

The ultimate decision is not solely on doctor's advice. Once a fracture is diagnosed in the hospital or in the community, more often than not their families decide on what to do next. Often they leave orthodox center believing that bonesetters are more specialized in the treatment fractures. The decision to leave is mostly influenced by previous information and the experience of relatives on similar cases such as a successful treated by bonesetters without recourse to the type of bone injury that was treated previously.

The cost of fracture treatment by orthopaedic services is an important factor influencing the choice of patient patronizing TBS. This is supported by (Aderibigbe *et al*, 2013) study.

It is believed that the majority of patients with bone injuries are young with their income fluctuating. This was highlighted in the study conducted by (Onuminya, 2004); where the majority of the patients (78.1%) were low-income earners.

Traditional beliefs in many African societies have added to the popularity of TBS practice. The deep-rooted beliefs that the TBS was more effective in the treatment of fractures has been accounted for 14.2% increase in TBS patronage in these societies (Ndubuisi O.C *et al*, 2015). It is also good to note that socio-demographic factors such as age, marital status, level of educational and occupation, had no significant contribution to TBS practice and outcome of their treatment (Ndubuisi *et al*, 2015).

With increase awareness of orthopaedics services in the country, people are beginning to know that amputation is not the only choice for the treatment of fractures in the hospitals.

There is a great need to continue to educate the populace about contemporary orthopaedic services in order to extinct these negative perceptions. These days‟ patients patronize

both bonesetters and orthodox services for diverse reasons. Study conducted by (Ndubuisi *et al,* 2015) found that 60 patients representing (50%) left TBS because they developed complications while 48(40%) abandoned treatment because they were unsatisfied.

Most patients initially report to hospitals before they eventually take discharge against medical advice to the bonesetters. They do so mostly because they need to be diagnosed exclusively and to receive certain emergency treatment with regard to taking care of bleeding, managing the pain and handling wounds (Ariës,.*et al,* 2007).

Studies conducted by (Solagberu-Solagberu,2005; OlaOlorun *et al,* 2001, Dada *et al* ,2009), found incidence to be 40%, 42%, and 43%, respectively. Probably these patients had multisystem injuries, open fractures, or hemodynamic instability. Regardless most of these patients only visit the hospital for resuscitation and stabilization before heading to the TBS.

Sometime advice from hospital or clinic personnel‟s, fear of pop and metals are being found to be other reasons why patients leave the hospital. (Ariës et al, 2007) found out that six of the returners received treatment from bonesetters following an advice from health clinic with reasons that they lack fracture treatment specialist. Some proposed methods like plaster of paris (POP) and internal (metal) fixation triggered fear in 3 leavers and 6 returners. Some respondents confessed to the investigator, that they *fear the fact that doctors will conduct an operation and put metal inside their legs, which might cause amputation* in the long run. Some patients are also scared of surgical ward for the reason that metal placed outside the limbs of their skin (external fixation) and the leg of patients lead to a hanging weight (traction therapy).

The believe among patient that there is an equal that comes from treatment from bonesetter treatment from the hospital yet differ in convenience with regards to proximity

between the home town and the hospital, reception at the hospital and hospital bureaucracy care (Ariës et al, 2007)

2.3 Knowledge, Attitude, skills and practices of traditional bonesetters

Traditional bone setting is a known procedure among Africans in general and Ghanaians in particular. A Bonesetter is the practitioner who educates himself or herself from tradition and takes up the mantle of healing without having any recognized training in the accepted medical procedures. In the eyes of orthodox practitioners, a traditional bonesetter is a lay, unqualified bone and joint manipulation practitioner (Garissa Hospital Records, 2009). The management and treatment of fractures and the kinds of bandages and slings used reflect interesting fact among ancient ayuvedic classics. The termed Bhagna indicate the science of bone setting in ayuveda (Bali, 2012).

Following advances in technology and medical research, modern day health care has greatly evolved. In spite of this revolution, traditional bone setting has enjoyed success over the years.

Although not widely acknowledged by orthodox practitioners, bone setting has roots in most countries though the name; art and practice may vary from place to place. However, accurate statistics about traditional bonesetters, distribution or numbers are unavailable in most countries.

According to (Agarwal *et al*, 2010) about 10 to 40% of fractured and dislocated patients globally are treated by unorthodox practitioners.

The traditional bonesetters had enjoyed success over the years more than any traditional health service provider, and their clients cuts across all walks of life (Thanni et al, 2000).

African traditional medicine consists of ancient knowledge passed down through generations, including recent knowledge that may arise as a result of deliberate experimentation and observation (WHO, 2000). This knowledge is not documented, not researched and it is pasted on anecdotal. Traditional medicine is very essential among people in Africa. It is a first point of call before "western" or orthodox medicine and a last resort when all orthodox efforts fail (Jamison, 2006). In traditional medicine patients are not only seen as a physical been but also as a body with soul and spirit hence its holistic nature in approach (Kafaru ,1990). The traditional healer seeks to strike some sort of equilibrium amongst these three states of man. Herbs can bring about this equilibrium because herbs are natural and the patient"s body, which is only momentarily in disequilibrium, is natural (Kafaru 1990). Following this view, only nature can restore nature. Bone setting is a specialized aspect of African traditional medicine (Kimani V.N, 1995).

Many bonesetters are specialists whose only medical interest revolves around orthopaedics even though it may be true that some traditional healers dealt in all aspects of cure.

The successes achieved in the area of orthopaedics by traditional healers have been so amazing that even the western orthodox medical practitioners have had to acknowledge the fact that traditional bone setters have a part to play in the management of these patients (Oginni, 1982). However, loss of limbs, live long deformities and sometime death is as a result of their interventions (Omolulu, 2008). The Ijaw people of Nigeria (who perhaps started bone-setting) have excelled in this area (Nkele, 2000). The process of training and acquiring skills in traditional bone setting is perhaps the most shortfall of the practice of TBS. The trainings are unstructured, informal, undocumented and not controlled. That is why there is unceasing deterioration in informed knowledge and hording of information. Further the practice is passed on by oral tradition and there is no

peer review and criticism among colleague. Therefore, quality is not assured and complications are likely to arise. This is contrary to orthodox services where the trainings are regulated monitored and subject to regular review on the basis of new evidences (Dada, 2011). At this time of unemployment and hardship in most African countries it is not rare to come across the self- taught healers (quacks) moving from the rural to the urban areas with the sole purpose to enrich themselves. They are in business because most Africans, Ghanaians in particular somehow have faith and confidence in traditional bonesetters. Another problem associated with African traditional medicine is mystical and spiritual explanations for the causation of ill-health and complications.

These beliefs make it extremely difficult to provide explanations and evidence in accordance to basic epistemology for the cure of ailment even when the therapy is effective. For instance, in Ghana everyone perceives that traditional bone healers better manage orthopaedic cases, but the connection between the broken leg of a chicken and the eventual treatment of a patient with broken bone is extremely difficult to explain.

Based on this, traditional bonesetters in Africa need to change the way of training as it is done somewhere in China and Turkey. According to (Garba, 1998; Dada, 2011) Chinese-style doctors are trained in the management of diseases including pain control, fracture and sprains management and to refer difficult cases. The activities are regulated and practitioners undertake structured trainings resulting to minimal complications.

Health care can no longer be carried out under the cloak of darkness. In recent years, some traditional knowledge revealed through codification (that is, formalization in written form), wide use, or through collection and publication by anthropologists, historians, botanists or other researchers and observers (Koning et al, 1998). Revelation of traditional medical knowledge still remains a challenge in Africa especially knowledge held by bonesetters. Access is limited to certain groups of people (Nkele, 2000). Often times, the efficacy of a procedure is not sufficient, the side effects and other issues equally

come to the fore. Otherwise, health resources, which are usually limited, would be merely spent without corresponding improvement in health care generally.

The methods and procedures of the trial of new drug or treatment before its application on humans in African traditional medicine are weak. That the bark of a particular tree is effective in animals is not enough and sufficient reason that the same bark would be effective in treating similar ailments in humans (Koning *et al*, 1998). African ethics is based on the consideration for human welfare and is founded on justice and concern for others. (Downess, 1977) summed up the idea of African ethics as doing good to others and not evil.

Based on African ethics, it is wrong to use subjects for experimentation without their consent, especially well informed and knowledgeable consent.

Traditional bone setting is a well-known tradition among African communities and has existed since the time of Adam. Its procedures for the treatment of bone injuries are often connected with mythology and superstitions. At large, splints and bamboo stick or rattan cane or palm leaf axis with cotton thread or old cloth are often used for treatment (Onuminya *et al*, 2000; Udosen *et al*, 2006). This is wrapped tightly on the injured part and left in place for the first 2-3 days before intermittent release and possible treatment with herbs and massage (Bali, 2012, Thanni *et al*, 2000).

Another method used in treatment of fractures is massage and manual traction solely or together with the use of local splint and herbs.

Fractures that fail to heal with routine treatment of splinting and massaging may be given further local treatment by way of scarification, sacrifices and incantations (Dada, 2011).

According to study done by (Dada, 2011) the difficulty in treatment is attributed to the method being applied. Where splints have been applied, compartment syndrome,

extremity gangrene and Volkmann ischemia are known and frequently occurring complications and where massaging and pulling are the preferred treatment option, they usually lead to heterotrophic ossification, non-union and scarification have been known to lead to chronic osteomyelitis, tetanus and sepsis.

(Ariës *et al*, 2007) indicated in their study that all patients are aware of the bonesetter kind of fracture treatment. The study also shows that patients have impression that diagnoses and treatment of all fractures by bonesetters is less general and the same method for everyone. According to the study, half the number of patients stated that, bonesetters also studied their X-rays at the A&E, to get additional information about the fracture.

During treatment, bonesetters begin by thoroughly examining the area that is affected before proceeding to pulling and reposition the body part that is affected. They use Shea butter to massage the affected area to improve the flow of blood then proceed with applying dried herbs according to him. The bandage used is made either with small wooden sticky mat or with the leaves of plantain. Irrespective of the fracture the limbs are preferably bandaged in an extended position. A *bonesetter* in that study indicated that, *"contrary to the lower leg that contain two bones, the upper leg contains one bone, in case it is only one bone that is broken, there is no need for a splint for a fracture of upper leg. However there is always the need for stabilization in the lower leg".*

In West Africa especially in Ghana, bonesetters deliberately break the leg of the fowl to predict the healing of the patient's fracture. If the fowl's leg heals, the patient's prognosis is alleged to be favorable. Treatment takes several weeks to months; and every 3 days, on an average, the fracture is inspected, mainly to replenish the medications.

Yaw Mahama, located at a cottage between Moseaso and Anyinam in the Eastern Region has been practicing bone setting since infancy. In the course of his treatment, he breaks

a chicken‟s wing and applies the herbal medicine to both the chicken‟s and the patient‟s fractured parts whiles reciting Islamic prayers asserting that both the chicken‟s and the patient‟s bones will be healed in fifteen days. It is believed that spiritually what happens to the chicken also happens to the patient within this period. He then puts pieces of wood around the fractured part and ties it in place with a cloth to support the bone as it heals. There are no fixed charges after treatment (Oppong, 1989).

In his therapeutic treatment, Aweh a traditional bonesetter of Adisadel Village, Cape Coast in Ghana smears the Kyoweto (mixture of herbs and Shea butter) in three strokes lengthwise and prays artistically over it. After that, narrow pieces of wood are placed on the injured bone and are held in place with a rope or a string and a piece of cloth to prevent the bone from shifting. The pieces of wood and the strips of cloth are artistically shaped to fit the fractured portion to ensure that they do not allow shifting of the bone. There are no formal charges in treatment. It is believed that the medicine came from the ground as such patients drop whatever amount he wishes to donate as a sign of appreciation on the ground for the bonesetter to pick.

Gumrana Mohamadu Issahaku is the traditional bonesetter at Loagre Number Two Village in the West Mamprushie District in Ghana. He is an expert and a specialist in compound fractures. He explained, medicines such as gentian violet (GV) are used at the clinic for the treatment of wounds and sores. They provide crutches to aid patients to walk. They use herbs and spiritual means to heal their patients, but do not reveal how this is done (Daily Graphic, 28th June, 2005).

Patients are advised to fully use and carry weight after 3 to 4 weeks, on the body part, irrespective of the fracture and the pain feel.

According to(Ariës *et al*,2007),the bonesetter occasionally advice patients to take another X-ray after some time to check the healing of the fracture.

Result from three returners of the second X-ray gives a reason to seek treatment from hospital.

There has always been an attempt by the bonesetters sometimes tries to introduce analgesics as a form of pain relief; however, it is well known that the application of such medication without proper reduction and immobilization of fractures is not effective.

Studies done have shown that most bonesetters are semi-illiterate in formal education and it is t a male dominant occupation. Majority of the practitioners‟ belief that the occupation is inherent, and do not see the essence to collaborate with or make recommendations to orthodox practitioners (Udosen *et al*, 2006).

2.4 Perceptions on the orthodox versus TBS practices in the community regarding bone injuries

The result of a study conducted in Nigeria by (Omolulu, 2008) showed that, overwhelming majority (85%) of patients with bone injuries prefer TBS as first point of service. This revelation, inconsistent with other findings from different studies conducted across the globe proves that, traditional bone setting cannot be ignored and the need to elucidate their practices. Cochrane review had shown that, TBS existed long before the introduction of orthodox medicine to less developed countries, and it‟s often kept as a family secret. Skill and knowledge are passed down from one generation to another as an ancestral heritage (Dada, 2011). Traditional healthcare is popular in Ghanaian settings. It is a product of social and cultural institutions that have progressed over many centuries to enhance health.

Traditional medicine endeavors to meet health needs in the historical, environmental and social context in which it is placed (Oginni, 1982). Traditional medicine remains a rich

cultural heritage. Because of ideological, political and technological constraints it potential is not always fully known and utilized.

Majority of Africans belief that, diseases and accidents are sometimes associated with the spiritual world, hence it could only be tackled traditionally by means of the use of incantations and concoctions (Thanni *et al*, 2000).

According to (Dada, 2011), perceived cheaper fees associated with TBS services are the major drivers of the high patronage of TBS across the globe. Also, the habit of acceptance of multiple little payments in other material items such as animals,cloths rather than solely monetary play arole.

2.5 Issues of policy regarding orthopaedics and bonesetters

There is wide contrast within health facilities available in the country Ghana. At one end there are well equipped corporate hospitals in metropolitan cities, performing the state-of-the-art surgeries, on the other end often there is complete absence of orthopaedic care facilities at the regional and district level. While there are orthopaedic surgeons in the teaching hospitals, in the context of the lack of infrastructure, their role as specialists remains limited. Thus, both public and private formal health care sectors fail to cater to the basic orthopaedic care needs and hence a rural patient has no option, but to approach the traditional bonesetters.

Patients resort to hospital in case a bone cannot a fracture or the fracture is not healing for some time; this most at times frustrate doctors. In central Ghana, bonesetters and patient selectively use orthodox and bonesetter treatment due to their knowledge of the advantages of the two according to (Ariës *et al*, 2007). This applies to all patients.there are several concern with regards to whether doctors are willing to allow or leave some fractures treatment to bonesetters and whether bonesetters in the future will regulate their practices and act within certain limitations.

The belief that treatment from bonesetters is less expensive,yet faster and effective as compared to hospital treatment of fractures is widespread,hence,there is the need on the part of practitoners of biomedical to take bonesetters seriously. Ghanaians patients mostly rely on bonesetters‟ services; thus , the dislike of bonesetters by professional on the part of hospital personnel cannot stop patients from going for the services of bonesetters.the advantages and limitations of medical tradition have received outspoken ideas among the Ghanaian populates, thus cannot not let them-selves to be discouraged (Warren,1974, Ventevogel,1996).

Constraints such lack of qualified expertise, lack of facilities and expensive treatment cost still post a major challenge for patients to opt for hospital treatment in the near future.

In developing countries, the services of TBS are what most patients can afford (Green,1999). According to (Shrestha et al,1980), up to 14–17% households in urban areas resort to traditional medicine at the expense of modern. In Ghana the „Cash and Carry‟ health financing system is subsequently being replaced by the National Health Insurance Scheme‟ (NHIS) which will have minimized the financial dependency of family and peers and improve the autonomy of patients. Nonetheless issues regarding, orthopaedic aids and surgery is still under deliberation as to whether it is covered or not.

Social and cultural obstacles also delay rural health insurance in Ghana. Therefore, decision-making in fracture treatment may not be much influenced by this policy change in the near future (Arnhinful, 2003)

The WHO received several criticisms for promoting cooperation between modern and Traditional Medicine Since 1978. The complications of fracture treatment by bonesetters according to several researchers are alarming and there is a need to find a way of integrating them into the normal stream of healthcare delivery. Before that they need to be taught signs and symptoms of compartment syndrome and other

complications.

According to (Warren et al,1982) in the year 1979, traditional healers were trained in Techiman under the Primary Health Training for Indigenous Healers Project (PRHETIH) for the purposes of widening their skills. After the evaluation of the project in ten years later to determine the impact of it, disappointingly, it was observed that the PRHETIH barely influenced the traditional healers‟ methods of treatment, thus there was negligence concerning how it influence the healthcare system (Ventevogel, 1996).

There is a need for a major step forward by forming formal cooperation between bonesetters and the orthodox doctors, this will give families and patients a fair information and idea as to the kind of fractures that can be treated by the bone setter and the hospital. The hospital can concentrate on more complex and complicated cases whereas bonesetters could specialize on conservative treatment and receives the needed recognition.

Selection of cases that needs the attention of a bonesetter or hospital can be done at the emergency room as several patients visit the hospital. Further methods that should be considered standard such as conservative methods (like POP or Steinmann pin for traction) can be available options for financially available fractures in the hospital.

In additional, much education on simple new methods such as external fixator must be encouraged, this will decrease morbidity and improve outcome, especially in open fractures (Museru et al, 2002).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Research Design

The study was conducted in the Northern Region of Ghana using a mixed method that combined both qualitative and quantitative approaches.

It employed in-depth interview of people who have used both services of traditional bonesetter and biomedical system for the bone injuries to identify the factors accounting for decision-making.

In-depth interview was conducted with traditional bonesetters on their knowledge and practices regarding various forms of bone injuries.

Focus group discussion was held among community members to elicit information on the orthodox practices versus TBS in the community regarding bone injuries

3.2 Study Area

The study took place in the Northern Region of Ghana, located between latitude 8 30" S and 10 30" N. It was once the largest of the then ten regions with a total land area of about 70,384 sq. km, until December, 2018 when the Savannah and North-East regions were created. It has Togo and La Cote D'Ivoire to the East and West respectively, as its international neighbors. The region is divided into 16 districts, with Tamale been the capital town.

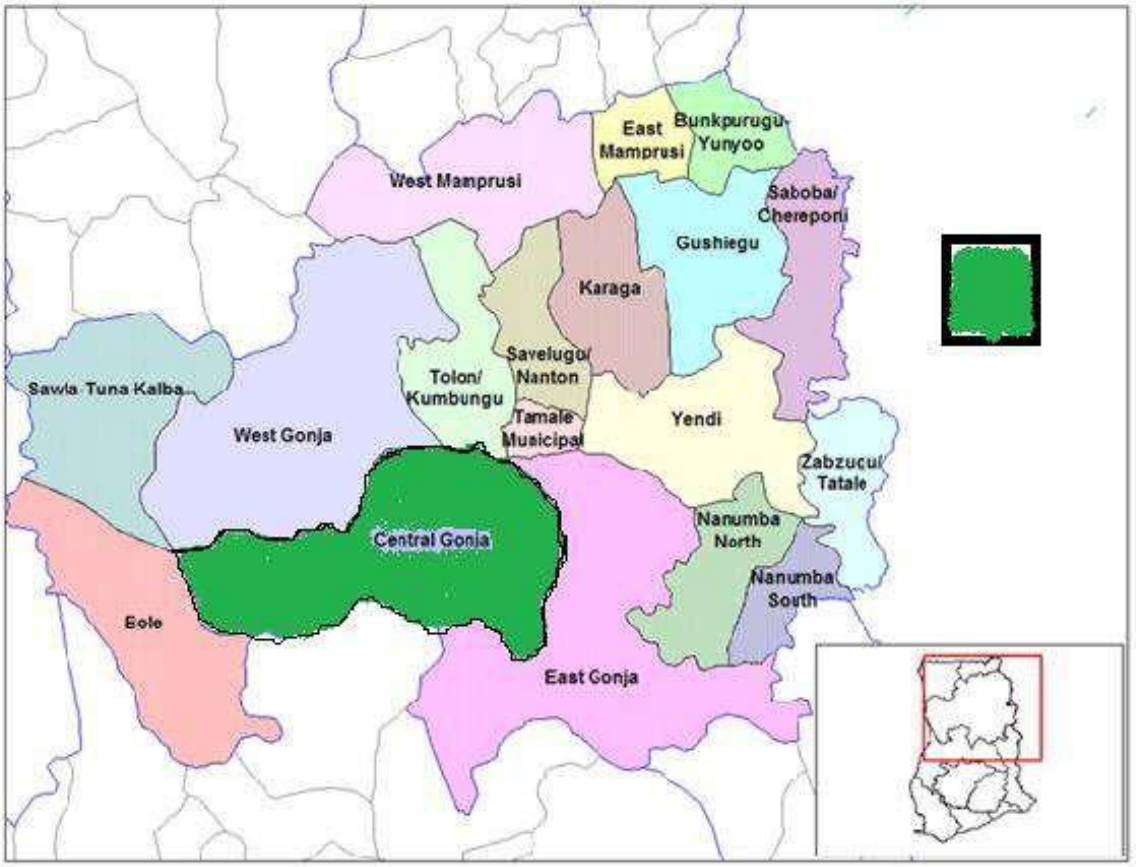

Figure 3.1: Map of the Northern region and its districts

3.2.1. Health Profile

The Maternal Mortality Ratio for Northern region in 2014 was 531 per 100,000 (Ghana Statistical Service, 2014). Under the health division, the metropolis is demarcated into twenty two (22) sub-districts; each sub-district has a management team that forms the Sub-district Health Management Team (SDHMT).

The SDHMTs are responsible for programme planning and implementation of health activities in their various sub-districts. These health activities include conducting integrated static and outreach activities, immunization, reproductive health, disease control, growth monitoring, health education and promotion, clinical care, training and supervision of community-based health such as Traditional Birth Attendants (TBA),

Traditional Bonesetters (TBS), Community-based Surveillance (CBS) and Volunteers and Village health committees.

3.2.2. Health Facilities

The metropolis has eighty-eight (88) health facilities and one teaching hospital. The breakdown is as follows:

Table 3.1: Health Facilities in Northern region.

	Hospitals	Health Centers	Clinics	Maternity Homes	Rehabilitation Centers	CHPS (Functional)	Total
Gov"t	7	15	7	0	1	34	64
Private	10	0	4	5	0	0	19
CHAG	5	0	0	0	0	0	5
Total	22	15	11	5	1	34	88

Source: Regional Health Directorate, 2017

3.2.3 Population Characteristics

The 2010 census report puts the population of the region at 2,479,461 with more females (1,249,574) than males (1,229,887). The population of the region increased by 36.2 percent between 2000 and 2010, making it the fastest growing region in the country after the Central (38.1 %) and Greater Accra (38.0 %) regions.

This population is characteristically distributed in small settlements with populations of 200 - 500 people. There are over 5,000 settlements in the Region, out of which 54.4% have population less than 200 people. The distances between settlements are far apart. This peculiar pattern of distribution of population in the Region has adverse implication for service delivery, as SDHTs going on out-reach travel long distances only to reach a small proportion of their target population.

3.2.4 Religion and ethnicity

The region consists of diverse ethnic groups with mole Dagbon been the predominant (52.7%) ethnic group in the region. Gurma (27.3%), Dagaabas (15.2%) Frafras (13.6%) and Hausa (12.8%). Islam is the most practicing religion in the region accounting for

60% followed by Christianity (Catholics dominated), 21% and lastly traditionalist which constitute 16%.

3.3 Sampling method

Since the research was qualitative and considering the participants who were clients of bone injuries, bonesetters and community members, the researcher, considering all other things used snowballing as one of the procedures for getting the participants. Also, the selection of participants was also purposive from the communities. For the focus group discussions, opinion leaders and women leaders were involved in identifying the participants which was purely voluntary

3.4 Research Instrument

An interview guide was designed taking into cognizance the following thematic areas:

-Interview guide for participants who use both services of bonesetters and orthodox services,

-Interview guide for traditional bonesetters on their knowledge and practices regarding various forms of bone injuries,

-Focus group discussion guide for community members to elicit information on the orthodox practices versus TBS in the community regarding bone injuries

3.4.1. Case narratives

Some of TBS clients were identified and encouraged to record/narrate their stories in detail.

3.5 Inclusion Criteria

All consenting clients of bone injuries, bonesetters, and community members were included.

3.6 Exclusion Criteria

All clients who refuse to take part in the study after explanation given to them that it was purely voluntarily.

3.7 Dissemination of Results

The results were analyzed for submission to the Kwame Nkrumah University of Science and Technology School of Public Health and through Publications.

3.8 Ethical Issues

A written informed consent from minors, parents and guardians was obtained before the interviews were started. Participation in the study was voluntary and they were informed of their right to withdrawal from participation at any time during the interview. As a measure of ensuring confidentiality and anonymity of participants, codes was used to identify research participants and not their names in both interviews and focus group discussions. Also, the exact community where participants were recruited was not reported in the manuscript to further ensure anonymity. Data collected was kept safe and secured from any person that was not directly concern with the data management. After the thesis all recorded information and transcripts will be destroyed**.** The study was also submitted and approved by the Research and Ethical Review Committee of the Kwame Nkrumah University of Science and Technology.

3.9 Data processing and Analysis

Data collection and analysis were intertwined and interactive. Stata version 14.0 was used for the analysis of the quantitative data. Content analysis of the qualitative data was done manually after interview results have been transcribed. Each interview was scrutinized carefully to identify main categories and leading concepts. Themes and emerging ideas were explored in subsequent interviews. In the results below, quantitative data are presented when available, supplemented by themes that emerged from the interviews

Three focus group discussions (FGD) were conducted in English with a total of 30 participants in groups of 10 members. The participants were informed about the study by the principal investigator and informed consent sought before the interview could proceed. The focus group discussions were used to obtain insights into target audience knowledge, attitude, practice beliefs, perceptions on traditional bone setting and reasons for choosing TBS for treatment.

There were three FGD; two for males and one for females.

Members of the community and patients with fractures formed the different focus groups. All information was audio taped and videos using a digital recorder, and complemented with written interview notes.

The principal investigator for completeness and accuracy, the recorded data was transcribed on a daily basis and crosschecked. Thematic Content analysis of the data was done manually based on emerging themes and sub-themes in line with the study objectives.

3.10. Limitations of the study

The findings from this study cannot be generalized to the whole country since the data was only collected in the Northern region, which cannot be a true representation of the situation in the entire country. Also the sample size was small which could be a source of bias and confounders. Differences in culture and the unique attributes of the community even in the same region vary. Inability to communicate in local languages and therefore relying on interpreters and the element of bias, great or small, was always there.

3.11 Minimization of errors and biases

Even though the questionnaires were written in English, the research assistants could speak Dagbani helping principal investigator who does understand very minimal Dagbani

and other language in the northern region, there were issues on translation, observation and sharing knowledge about local customs and practices.

To overcome this, the principal investigator interviewed all the bonesetters, majority of bonesetter clients and participated in all focus group discussions.

The quality control was ensured by adequate training of the research assistants, pretesting of the questionnaires, assuring the respondents of the confidentiality of their information, adequate supervision during data collection and cleaning the data before entering it into the computer

CHAPTER FOUR

4.0 RESULTS

4.1 Socio-demographic characteristics of the participant

The socio-demographic information of the TBS and TBS clients identified and analyzed include: gender, age, educational qualification, occupation, religion, and ethnicity.

The motive for selecting and analysis these socio-demographic variables were to provide a background picture of the nature of the sampled participants.

This initial information provides ideas about possible health-seeking behavior patterns and lifestyle expected from the participants. The analyses of the socio-demographic variables can be seen below.

4.1.1. Bonesetters

Twenty-eight bonesetters involved in our study were all males and age range was 19 to above 60 years. All the bonesetters interviewed, in addition to bone setting practices were involved in farming activity. Majority of TBS were of the Dagomba tribe 67.9% (19/28) while Mamprusi, Dagaati, Gonja and Busanga constituted 14.3%, 3.6%, 10.7% and 3.6% respectively. Muslims (89.3%) dominated the study, Christian TBS

accounted for 7.1% and only one (3.6%) traditional believer participated in the study. The educational qualification of the TBS was such that 19(67.9%) had no formal

education, while 9(32.1 %) had educational level ranging from primary to tertiary. The socio-demographic characteristic of TBS is summarized below.

Table 4.1: Socio-demographic characteristics of Traditional Bonesetters

Variables	Responses	Frequency	Percentage
Gender	Male	28	100
	Female	0	0
Age (years)	19-39	3	10.7
	40-59	16	57.1
	60 and above	9	32.1
Ethnicity	Dagomba	19	67.9
	Gonja	3	10.7
	Dagaati	1	3.6
	Mamprusi	4	14.3
	Busanga	1	3.6
Religion	Christianity	2	7.1
	Islam	25	89.3
	Traditional Believer	1	3.6
Education Qualification	No formal education	19	67.9
	Primary/Junior high school	6	21.4
	Senior high school	0	0
	Post-secondary	2	7.1
	Tertiary	1	3.6

4.1.2. Bonesetters clients

A total of sixty-four bonesetters clients were recruited into the study. One out of two (24/40) of the clients were female. The modal age group of clients was 19-39 years.

The majority of TBS client were Muslims representing 42 (65.6%) followed by Christians 20 (31.3%). Half (50%) of the clients were Dagomba tribes followed by other ethnic group (37.5%). The educational status of the clients was as follows: no formal education17 (26.6%), primary/junior secondary education 25(39.1%), tertiary education

8(12.5%).The study found that nineteen (29.7%) of the participants were traders, 13(20.3% were farmers, 16(25%)were unemployed while civil servant contributed only 18.8%. This is shown on table 4.2.

Table 4.2: Socio-demographic characteristics of bonesetters clients

Variable	**Responses**	**Frequency**	**Percentage (%)**
Gender	Male	40	62.5
	Female	24	37.5
Ethnicity	Dagomba	32	50.0
	Gonja	3	4.7
	Dagaati	1	1.6
	Mamprusi	4	6.3
	Others	24	37.5
Educational Qualification	No School (Formal Education)	17	26.6
	Primary/Junior Secondary School	25	39.1
	Tertiary	8	12.5
	Post-Secondary	3	4.7
	Senior Secondary School	11	17.2
Age	0-18	12	18.8
	19-39	32	50.0
	40-49	17	26.6
	60 and above	3	4.7
Religion	Christianity	20	31.3
	Islam	42	65.6
	Traditional Believer	2	3.1
Occupation	Civil Servant	12	18.8
	Trader	19	29.7
	Farmer	13	20.3
	Unemployment	16	25.0
	Others	4	6.3

4.2 Reasons for Utilizing Traditional Bonesetters or Orthodox Services

Of the 64 clients that were interviewed, forty-two (65.7%) of the clients preferred the services of the TBS for the treatment of their fracture. The main reasons for utilizing traditional bonesetters included; Easy accessibility,35 (13.94%); Cheaper Fees, 66 (26.29%); Cultural beliefs, 45 (17.93%); Quick Service, 40 (15.94%); Pressure from Family and Friends, 29 (11.55%); Fear of cutting my limbs, 10 (3.98%); Quick Healing, 10 (3.98%), use of incantation 3(1.6%), ability to treat physical and spiritual 7(3.7%) among others (see Fig 4.1).

Perceived quality of services, unconcerned attitude of health workers, delay in hospitals due to bureaucracy and TBS canvassers, advise from hospital or clinic personnel‟s, are being found in this study to be other reasons why patients leave the hospital to TBS.

'One of them said I never knew that bone injuries can be treated in the hospital. I thought they treat only malaria and others but not bone injury'

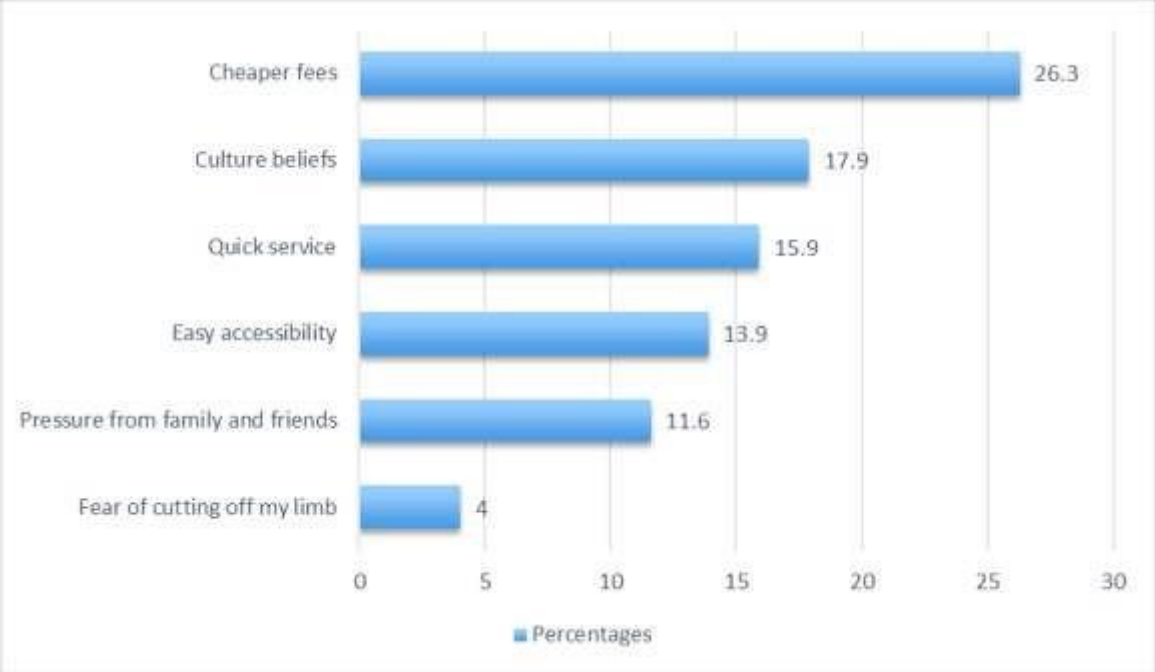

Figure 4.1 Reasons for Utilizing TBS Treatment

Source: Field findings, 2018

Only 22 (34.3%) out of 64 of the clients interviewed, preferred to go to the orthodox for the treatment of bone injury. Some of the main reasons cited for the preference for orthodox treatment included: the availability of X-ray facility, 42 (27.27%); Adequate wards to admit patients, 20 (12.99%); Proper pain management, 39 (25.32%); Proper wounds management, 38 (24.68%) and Resuscitation, 15 (9.74%).

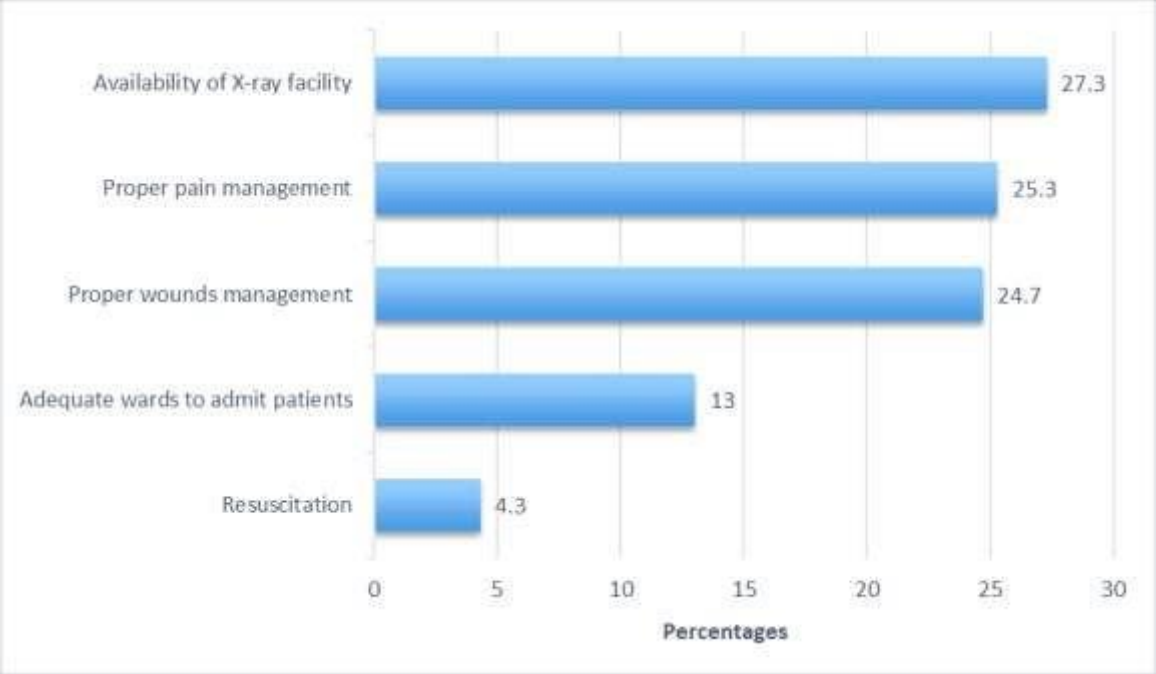

Figure 4.2: Reasons for Utilizing Orthodox Treatment

Source: Field Findings, 2018

Multiple choices allowed

4.3 Knowledge and practices of traditional bonesetters regarding various forms of bone injuries.

The knowledge and practices of these practitioners was assessed using questionnaires, which enquired on how they become a professional Bonesetter, how long it takes to be trained, the types of bone injuries they know, the steps they mostly follow in the treatment of broken bones, problems they encounter and how they solved them, are they using leaves and if yes for what purpose, kinds of strategies used in the reduction process,

whether they refer some of the patients to the hospital if yes what are those patients, do they perceived there are advantages of TBS over orthodox care or vice versa and if yes mention them, would they be interested If the ministry of health (or other group in orthodox medicine) were to develop training courses for TBS and what topics would they like to be included in such courses, Whether they have any suggestions on how linkages between orthopedic surgeons and TBS can be made. The study revealed that majority of TBS reported that their practice is family-based, and a gift from God handed over from one generation to another within the family. To be chosen in the family, certain personal characteristics are needed including honesty, responsibility, ability to keep family secret, empathetic and an interest in helping others. One of them said "*to become a bonesetter, you need to have the desire to help others as you will be working with people who greatly need help. It is important to be honest because patients need to be able to trust you with their care*".

A chosen family member can become a bonesetter by learning from a father or grandfather at the tender age. He will take over the practices after the death of the father hence the duration of training is not specified even though majority of TBS quoted 15years and above. Two out of twenty-eight TBS got their practice through apprenticeship. One of them explained: *"I happened to have had a fracture twice and treated by the same bone setter. This made me to interact with him. He observed me and found out that I am somebody who is interested in helping others. He then decided to show me the medicine he uses so that I can go back and also help my community".* All of twenty-eight TBS agreed that a bonesetter has to have knowledge of natural remedies for healing as well as the ability to manipulate the body with the hands. If you are good at working with your hands and have a sense of symmetry, you could become a good bonesetter.

On the whole, all the bonesetters were able to describe different types of bone injury. They knew different bones and numbers like collar bone, thigh bone, hip and fore- arm

bones, leg bones, hip bone, patella, ribs, jaw bone, foot and hand. *"one said, x-ray is very important for them because it enhanced their knowledge in number of bone in the pelvis"*

The Traditional bonesetters recognize the difficulty in dealing with some fractures, especially patella, clavicle, chest, pelvic, spine, skull and fracture with soft tissue interposition. " *one said skull fracture with expose brain tissue is not for TBS and should be refer to the hospital immediately*".

Unanimously they all agreed that the most difficult fracture to treat is displaced patella fracture. One of them said, *"no bone setter can treat complete crack in the knee cap"*

The TBS were able to diagnose a fracture or dislocation. Pain, swelling, deformity, abnormal movement, crepitus, loss of function and presence of a gap on the affected site were identified as the cardinal signs of a fracture.

The criteria they used to define a healed fracture were the absence of a gap between the broken fragments, minimal deformity and the return of painless function of the affected part.

They recognize swelling as part of healing process and identify complications when they notice increasing swelling of the affected part associated with blisters, maceration and change of skin color, fever and foul smelling discharge. However, despite recognizing these complications, they rarely refer the patients because some of bonesetters attribute complications as spiritual and should be treated as such. One said: *"Some of the bone-injuries are as a result of offences committed against the gods or afflictions by evil powers so we need to pacify the gods and fight against evil powers through certain rituals to be able to treat.*

Often it is the patient himself or the relatives who when not satisfied with the treatment seek for second opinion elsewhere and most likely will go to orthodox hospital for the second opinion or more renown TBS in the community or in the region.

All the bonesetters were not trained in record keeping so they were not able to quantify the number of patients they have seen or see a day. One of them said: *"I see a lot of patients on a daily basis, many of them are admitted but I cannot tell you the exact number"*. Surprisingly one of them had a record of pictures of the cases he has treated. The Ministry of health does not supervise any of the bonesetters. Loagre and Nanton are considered the senior most practitioners in their community.

The items requested by the TBS were mostly non-financial and similar among all of them, except three who requested for money ranging from 6.66 Ghc to 88ghc. All of them ask for fowl of any color but not white. "*One of them said white color symbolizes peace and person coming to you is not in peace so you cannot use a white fowl to treat him or her".* For male patients they requested a cock and hen for the female.

Few other items were requested such as cola, cowries, calabash and clay bowl depending on the family belief of the bonesetter. The rest of the items were provided by the TBS such as black medicine, red medicine and Shea butter. The composition of medicine differs from one TBS to another but all of them agreed using leaves, plants, bark of trees and roots. All of them were using black medicine except one who combined black and red medicine. According to him the red medicine is applied first to melt the clots then followed by black medicine to facilitate healing.

The reason for the request of the bowl or calabash is to put the medicine. The cowries were used to reduce pain and to massage the injured part.

> "*One of the TBS said the composition of the medicine can not be revealed to any one out of the family because it is a family secret and a TBS is chosen because he can keep the secret".*

To stabilize the fracture after reduction, mats, wooden splints, bamboo boards are used. All these are provided by the TBS. one of them used only bandage for stabilization of the fracture with two stones put side by side.

The study revealed that all the TBS use conventional medical approaches to manage the broken bone. They start by taking a history to ascertain the cause of injury, followed by palpation and feeling with the fingers of the affected part to identify a gap and number of fragments to ascertain the nature and severity of the fracture.

Some of them said the availability of an x-ray make the diagnosis very easy because it helps to ascertain the nature and anatomical site of fracture. One of them said „*I preferred patient go to the hospital for first aid and x-ray before coming to me'*. After the diagnosis is ascertained, with the aid of assistant they pull the affected part despite the resistance from the patients, because of pain followed by massage and palpation to reduce the fracture. Five out of twenty-eight use incantations during the process because they believe that healing power is from their ancestors and god. Hot water was used by five TBS and rationale behind is to dissolve clot so that healing can take place. Once they are sure about the reduction of the fracture, black medicine is applied to aid in healing process. It was only one bonesetter who applied red medicine to drain blood before black medicine. One of them uses herbal cream in place of black medicine to aid in the healing process. Two TBS applied black medicine after scarification and the reason is to accelerate the penetration of medicine to the fracture site.

To stabilize the fracture after reduction cotton wool or bandage is applied first to avoid injury to skin, followed by mat or bamboo board or wood and then tie. A sling made up of a piece of cloth or bandage is fixed around the neck if it is an upper limb fracture.

Sixteen out of twenty-eight use mat to stabilize the fracture, one use bamboo board and anther use only crepe bandage. None of them reported using leaves for bandaging.

All twenty-eight TBS requested for fowl but only four of them will break the fowl leg if the fracture is on the lower limb and the wing if it is on the upper limb. The fowl is observed and the day the fowl start walking they will ask the patient to walk because they believe healing has taken place. Patients are reviewed every three days and bandage / splint are released to apply the black medicine or herbal cream. This process is continued till the fracture heals. One TBS said he reviews the patient after three days, on the fifth day, eight day and finally on the twenty- fifth day when he expects the fracture to heal. TBS involved in the study have an idea of bone healing. According to them old age is one of conditions that affect bone healing because of the low vitality and less regenerative power. They recognized that in early age the healing of a fracture takes one months or less whereas it takes about two months in middle age and three months in old age.

In case there is an infection, six (21.4%) of the TBS said they will refer the patient to the hospital, seven (25%) said they will treat with antibiotics, and five (17.8%) of them said they will treat with black medicine different from the one used for fracture treatment.

Majority of TBS recognized the difficulty of treating open fracture and will prefer to refer to hospital for wound management before coming back for fracture treatment. Few of them said they do not refer and treat all kind of open fracture using black medicine different from the one use for fracture treatment or Shea butter. Some said they use antibiotics prescribed by a nurse in their community.

All of them were willing to collaborate with the ministry of health. They will welcome any training course that will be developed by the ministry of health improve their knowledge and skills in management of bone injuries. They suggested topics that will be included in the training such as management of pain, open fracture, infection, tendon injury and fracture around the joint. They were equally interested in collaborating with orthopedic surgeons through exchanging of contact, regular meetings, and training sessions.

4.4 Perceptions on the orthodox practices versus TBS in the community regarding bone injuries

The study revealed that the perceive strength of TBS in Northern region lies on the confidence their communities have in them for years. They are widely accepted by Northern communities particularly by the rural poor. According to the community members traditional bone setting is acceptable in Northern region because it is effective in the treatment of various type of bone injuries; because it is cheap, and because of lack of modern health services.

In most Northern community there are no clinics or hospitals nearby therefore accessibility is a problem, but TBS are there with them in the community, and people consult them as neighbors and identify with them culturally.

They share the same cultural beliefs, live in the same community with the patients making accessibility easy and they have access to quick service. TBS are the first point of call for many people in this study. This presupposed that most of the rural poor entirely rely on the TBS for almost all their health care need no matter the severity of their injuries.

Community members recognized that majority of traditional bone setters do not require x- rays, laboratory investigation and no documentation are needed in their practice that make it quick, low treatment cost compare to orthodox services where you go through the process before treatment is given.

Community members consider TBS services as benevolent and therefore economical since the patients are sometimes being accommodated and fed by them compared to orthodox that render expensive services and are most often located in the urban area.

Unavailability and awareness of orthopaedics services in the community were some of reasons in our study why patient seek the services of traditional bonesetters.

Our study also revealed that the patronage of bonesetters by community members is as a result of the belief that some of the bone injuries are caused by super natural powers

and treatment should be both spiritual and physical and this can only be done by TBS. Most bonesetters clients in our study believe that traditional bonesetters are skillful than orthodox practitioners even though their practices have no scientific basis. They believe that since TBS use natural plants, animal parts and Shea butter their medicines yield better results. They also consider TBS services to be advantageous to the orthodox treatment because they can successfully treat without doing surgery and there is quick healing and no persistent pain after healing. Majority of patient prefer TBS because they are afraid to undergo surgery and will accept some deformity to avoid surgery. Some respondents confessed to the investigator that the idea of the doctor putting metals inside their legs during operation, which might eventually lead to amputation post some fear in them. *"One of the respondent said, my friend has an accident and fracture the thigh bone. He went to hospital and was operated and metal put inside the thigh. After the healing of the fracture he was always complaining about the implant feeling cold during cold/rainy weather and have to go back and request for removal of metals".*

The TBS clients equally recognized that orthodox hospitals have X-ray facility 42 (27.27%); Adequate wards to admit patients, 20 (12.99%); Proper pain management, 39 (25.32%); Proper wounds management, 38 (24.68%) and Resuscitation, 15 (9.74%). Majority of clients recognized that TBS were also limited in management of complicated bone injuries such as multi-fragmented fractures, patella fractures, fractures with soft tissue interposition and head injuries. One of the TBS said *" if you have a car accident where your bone is fractured into pieces I will just send you to the hospital because it is difficult for me to treat*".

4.5 Focus Group Discussion

The qualitative method of focus group discussions (FGDs) was applied in this study to assist in the collection of essential data. This technique was used for raising views and opinions of respondents on certain issues concerning TBS and orthodox fracture

treatment, for example, knowledge, attitude, practice beliefs, perceptions on traditional bone setting and reasons for choosing TBS for treatment. Three focus group discussions (FGD) were conducted in English with a total of 30 participants in groups of 10 members

The responses and the discussion in the focus groups generated the following categories with elaboration below.

Responses to the question " Why do they choose Traditional Bonesetters (TBS) over Orthodox management?"

All participants were of the same opinion that traditional bone setting is the first point of call because bonesetters live in the community and their practices existed years back before introduction of the orthodox practice. Even those who would not prefer TBS as a form of treatment, agreed to get first aid from the Traditional bonesetters before seeking orthodox treatment. This was complemented by a statement from the FGD: Traditional bone setting is highly patronized because of the belief that it is cheap compared to hospital where you will spend not less than six thousand (6000) Ghana cedis for fracture treatment. The TBS are specific, blessed and talented people in the community who have been set aside by „god" and if they treat you, you get healed very fast. They inherited their practices from their forefathers and are benevolent because you can be treated and feed for free.

The participants also believe that TBS render quick services, treat both spiritual and physical not like the hospital where doctors treat only physical and care is also delayed because of bureaucracy. Another belief is that the hospital treatment is amputation and because of that patients with bone injury fear hospital treatment reason why they resort to TBS. One of participant said "*I fear seeking treatment from the hospital because I knew I will go through bureaucracy; later doctors will apply pop and few days later they*

will tell you that your limb is dead so you need amputation. It is very sad but that is what they do for patient with bone injury."

Response to the question: "What are the perceived advantages of TBS over hospital treatment?"

They agreed that TBS spend enough time with patient, not like hospital doctors who do not have time for the patients sometime ignores them. Participants believe that TBS treatment heal faster and better than the hospital because they give much attention, apply black medicine and also treat spiritual aspect of the fracture. One of them said" *When your leg breaks and the TBS treat it, it is better. Sometimes your leg can break to the extent that they put metal in it when you take it to the hospital, but TBS just treat it because it is spiritual. Sometimes, someone will go for hospital treatment, come back and you yourself will see that, the person is not treated well. So sometimes unless we go for the TBS to do it well for him, just to make him fit"*.

Another respondent said" *I fell from a horse and had trauma to my waist, they took me to the hospital where they ask me to do x-rays but my father refused and took me to the TBS where I got well by three days following treatment. When my father took me there the TBS made me lie on a prayer matt and bathe me with herbs and black medicine used to make a cross on my waist. The TBS help me to stand on my feet and walk some few meters, he repeated the procedure on the second day and I was able to walk alone by the third day. I never felt anything since then but they would have operated me for nothing in the hospital."*

Response to the question: "How does the treatment start at the TBS place?"

All participants especially bonesetters clients were able to describe the steps used by TBS in the treatment of fracture. A statement from the FGD corroborated this.

The TBS is visited and given some cola (optional). He then listens to the history after accepting the cola. The affected limbs are examined by palpating to detect the gap and site of tenderness to ascertain the diagnosis. He then request for fowl, money, cowries, calabash and clay bawl as a component of the treatment. The items requested are dependent of TBS except white fowl that is not accepted by all TBS. The rest of item is provided by the TBS. One of participants said: "*The red fowl is used because, the incident is perceived to be bad and a threat to human life. Using a white fowl will signify that you are happy with your condition"* After the items are provided with aid of assistant, the affected limb is straightened and pulled while massaging to align the fragments. Matt or board is applied and tie to the affected part after making scarification marks and applying some black powder medicine at the site. Where there is an open fracture or wound, the site is padded with cotton or a piece of clothes and then rapped with matt. The leg of the fowl is broken and the treatment is started concurrently. It is believed that when the leg of the fowl heals, the patient"s leg will also heal by then.

Participants have an idea on duration of bone healing. They said the healing of bone depends on the injury; if it is old, it takes longer time to heal compare to fresh injuries. They also know that fracture of the arm takes about 3months to heal and the lower limb about 6months. If it is a crack in the bone, it takes longer time especially when neglected.

Majority of participants are very satisfied with the services of the TBS even though it is very painful during the procedure.

Response to the question: "How did they become professional bonesetter?"

The participants of the 3 FGD recognize that the profession of bonesetter is an inheritance from their forefathers. They are specific people and blessed with it because you do not just sleep and wake up with the ability. One of them said:" *Only specific families can do it, just like royals; if you are not from the royal family, can you become a chief? Even if*

others try, they cannot heal like those from the family, because it is physical and spiritual and the training start from infancy until the person is mature to be able to treat."

Participants also believe that TBS know the different bones in the body as well as the number.

Response to the question: "Do they have complications during treatment (i.e: infections) and how do they manage it"?

Majority of respondents agreed that TBS record infection as confirmed by their response "*Yes they do record infections*". Some of the fractures are from spiritual attacks, so the witches can continue to prevent from healing. The TBS put some medicine in the wound to heal it. They also give some black medicine to be used to prepare soup for eating by the patient to help in the healing. They do not give antibiotics and do not refer to the hospital. They do not cover the wound with leaves, that is a thing of the past. Now they only cover with a clean rag/ piece of cloth, after cleaning the wound with hot water (hot enough not to burn the treating hand). A clean rag is used; you put it in the hot water squeeze and apply it to the wound. The hot water is to melt the blood clots in the wound. There is variation in the use of the water for cleaning the wound. Some families do not use hot water, every family and their way of treating infection.

Response to question: "Do you think hospital treatment has some advantages over TBS?"

No advantage over TBS, doctors only charge high. The only advantage the hospital has is the provision of wards for admission and intravenous fluids for resuscitation and adequate pain management.

If the TBS can also do x-rays, it will improve their services. We will like it if a workshop could be organized with the TBS and we will be happy if accommodation could be built for the TBS to aid admissions like we have in Nbanaayili and Logiri.

However, everything in our TBS work is local.

Response to question: "Which aspect of management will you want orthodox doctors to help the TBS?"

Majority of participants said they would want orthodox doctors to help TBS with pain management because it is really very painful during the procedure.

They also want doctors to help TBS in the management of open fractures and wounds resulting from the incident and how to read the x-ray. Even though some of the fractures are from spiritual attacks, they would want orthodox doctors to train TBS on complications of fracture and how to go about it.

Response to question: Assuming a family member has a fracture, can he decide to go for hospital treatment?

Participants came out strongly that the persons with fracture have very little role to play when it comes on deciding on the choice of treatment. Relatives, family and friends make the decision. The statement of the FGD confirmed this:

If the patient proposes to go to the hospital, the parents or relatives will not allow because they think they will spend more money. If patient refuses traditional treatment and goes to the hospital, he will be responsible for the consequences. One said: *If you refuse TBS treatment and they cut your leg in the hospital, that is what you want.*

Nobody will sympathize with you in the community."

4.6 Case narratives

The first narration was from 50year old man civil servant who was involved in a road traffic accident as a motor rider and sustained open fracture of right tibia and fibula. He had the following narration: I had motor accident and sustained pain and bleeding from wound. Broken bone was exposed and I was not able to walk. I saw my leg dangling and my foot twisted. People at the scene of accident took me to Tamale Teaching Hospital. Doctors on duty attended to me immediately. I was treated immediately with painkillers, antibiotics and intravenous infusions. I was taken to theatre where my wound was cleaned and dressed and my leg straightened and held with plaster of paris at the back.

I was taken back to the ward. I wanted to know what would be done next but the doctors at Accident& Emergency Department were not forthcoming with the next treatment modality. This gap of communication between doctors and I created a suspicion. Family and friends took advantage of the situation by putting fear and panic in me. They said once Doctors are not telling you the next step it because they want to put pop and later, they will amputate or they want to charge you a huge amount for definitive treatment. One of my friends told me that it would cost me not less than Twenty thousand Ghana cedis (GHC20000) and above. I was frightened and decided to leave the hospital to the bonesetter. I‟m telling you if management of the hospitals can bring down the cost of hospital treatment, most of us will prefer hospital treatment to TBS. If the cost was around Ghc 3000, Ghc4000 or even Ghc 5000, yes, we can manage. Even if my salary is not up to the amount, I can go in for a loan. I could deposit something small at the hospital, while getting treatment and pay the balance in 1-2month.

However, sometimes, it is even way above GH 25000 and as accidents happen within a twinkle of an eye, we cannot get that amount of money required for hospital treatment.

For instance, I am getting to 9 months since I got here (TBS) but I cannot see any improvement.

We know the hospital treatment is quick. For the hospital, when they treat you at least two weeks, you are gone home but for the TBS, sometimes, 5months, 10months or even 1 year and the patient is still not well. Please I am appealing to you and hospital management to consider the cost of treatment, especially we from low-income country.

The second narrative was from a 30year old lady. She said "I am a frafra by tribe from Bolgatanga but I stay in Kumasi and I m a trader. I was involved in car accident and when this happened, they took me to the hospital for first aid then they refer me to Komfo Anokye Teaching Hospital (KATH). But the amount they charged for ambulance, my brother said he could not get that amount so someone directed us here. The old man (TBS) who is treating us has really done very well. This is my first time of getting an accident like this, and comparing the treatment I got from the hospital and the treatment I am getting here, I have really seen a lot of difference. Initially, I could not walk. They use to carry me; I could not go to toilet or go to urinate. I did everything in the room for my mother to dispose of, but now I can go myself. The Old man has really done well and I will recommend anybody with fracture to come here for treatment".

CHAPTER FIVE

5.0 DISCUSSION

5.1 Socio demographic of bonesetters

5.1.1 Bonesetters

The major disadvantage found in this study among the TBS in the Northern region was an illiteracy in 67.9% of them. The highest educational level attained by one of them was tertiary education (teacher training college). The study showed that all the TBS were male. The twenty-eight TBS couple their practice with farming activities. All of them operate in a domestic compound located in a community.

They are indigenous to the area they practice and the community identifies with them. This is different from a study done in Calabar, Nigeria where some traditional bonesetters who were not properly trained were noted to have moved from the rural to the urban areas with the sole purpose of enriching themselves (Udosen et al, 2006). Nineteen out of twenty-eight was of Dagomba tribes, the predominant ethnic group in the northern region where the study took place. The study suggested that the practice of TBS is popular among Dagomba tribe; this may be due to their socio-cultural heritage or due to the fact that the study was in areas were they were predominant ethnic group. This is in tandem with the study done by (Oyebola *et al*, 1980) which confirmed that the practice of TBS was common among Yorubas, the predominant ethnic group among the respondents. Muslims (89.3%) dominated the study; this may be because

TBS practice is inherently interwoven with the culture of the TBS.

5.1.2 Bonesetters' clients

Majority of clients were male (62.5%) in this study, as in most trauma series. This may be due to the fact that male is adventurous and engage in injury-prone activities. The modal age group was 19–39 years; this shows that young adult clients mostly patronize the bonesetters because they are either financially dependent, low-income earners or unemployed. This finding raises the issue that poverty not only excludes people from the benefits of health care system but also restricts them from participating in decisions that affect their health. This age group constitutes the workforce in any society and

implies that economic productivity may be adversely affected by TBS practice with attendant socioeconomic consequences. They spend months or years with TBS and sometime no solution at the end of the treatment but rather ending up with complications and gross loss of man-hours with resultant reduction in productivity for family and country as a whole. This finding is similar to studies that have equally shown higher percentage of males as compared to females and modal age group of 3140 years (Ndubuisi et al, 2014, Olaolorun et al, 2001, Dada et al, 2009).

Half (50%) of the clients were Dagomba tribes followed by another ethnic group (37.5%). The predominance of Dagomba tribes may be due to the concentration of these people in the Northern region where they formed the majority ethnic group and, where the research was carried out. There was higher proportion of Muslims compared to their Christian counterparts as about 65.6% (42) of the participants were Muslims. This finding may be due to the predominance Muslim community in the Northern region. Furthermore, majority of clients (29.7%) were traders while about 18.8% were civil servants. This confirmed a previous study carried out in the local government where it was reported that majority of the population are traders and artisans (Owumi *et al*, 2013). The majority of the clients in our study 47 (73%) were those who attended school ranging from Primary/Junior Secondary School to Tertiary levels which affirms the fact that educational attainment has not really changed the cultural beliefs that the

TBS are better in the management of any bone injury. No School (Formal Education) constituted 17(26.6%) this was different from the study by other authors and that of (Udosen *et al*, 2006) where there was up to 50% illiterate motorcycle riders forming the bulk of those who patronized the TBS (Udosen *et al*, 2006 ;Thanni *et al* 2000; Onuminya,1999).

5.2 Reason of Patronizing Bone Setters

Before the introduction of orthodox medicine, traditional bonesetters were the only practitioner available in the community and have survived through generations helping community members with fractures within its socio-cultural and religious context. With introduction of orthodox medicine patients with bone fracture in the northern region now shuttle between orthodox services and Traditional bonesetters in search of treatment. According to this study, participants unanimously admitted that the TBS have enjoyed strong community influence, popularity and a high degree of confidence that is why any community member with bone injury would prefer TBS as a first point of call for treatment. According to them, TBS are reassuring and also offering home treatment and spend more time with them and follow them up until the fracture is healed not like hospital doctor who takes a longer time to attend to his/her patient and can be change at any time. This finding corroborates the findings by (Nwachukwu *et al*, 2011, ;Oyebola *et al*. 1980).

Our study revealed that 65.62% of the people prefer using traditional bonesetters as the first point of call for the treatment of all forms of fractures because it is believed that fractures are best healed by traditional medicine. This is similar to the study by Ampofo, 1994); who found that recourse to Traditional Medicine in Ghana is usually instigated by the belief that certain diseases can only be treated by traditional methods.

Twenty-two (34.3%) of patients would initially report to hospitals before they eventually take discharge against medical advice to the bonesetters. They do so because of diagnostic reasons and emergency care, such as wound toileting and suturing, controlling of bleedings and pain also to have assurance from doctor that their life is not in any life-threatening condition. Many other authors have documented these findings (Aries *et al*, 2007). Studies conducted by (Solagberu-Solagberu BA. 2005, OlaOlorun *et al*, 2001, Dada *et al* ,2009), found incidence to be 40%, 42%, and 43%, respectively

Poverty and cultural beliefs were important reasons for the choice of TBS care over the orthodox as observed in this study.

The most important factor for preference of the TBS was perceived cheaper fee representing 40(21%) of participants, which underscores the issue of poverty and the dependence on family and friends for treatment no matter where it is obtained. This is comparable to the study by (Thanni LO, 2000) who pointed out that TBS services are cheaper that attract many patients.

The items requested by the TBS in our study were mostly non-financial and similar among all of them, except three out of twenty-eight who requested for money ranging from 6.66 Ghc to 88Ghc.Whether this is real or apparent is yet to be studied in detail, but (Onuminya, 2004) noted that the TBS has no prescribed fees. It was revealed in this study that the no charge by TBS was rooted from their ancestors and non-compliance to this will lead to powerless of the black medicine and also punishment from ancestors because in some instances they invoke the spirit of the ancestors for divine intervention and healing during treatment. This finding buttress the study done by (Chris, 2011) where the reason for the cheaper fees being charged by the bonesetters is because of a strong conviction and belief that the spirits will desert the treatment centers and make the medicine powerless, and in some cases, make the practitioners go mad or die when monetary rewards become the primary driver.

Probably due to cultural beliefs, ignorance and poverty; it was also found that larger part of participant believe that TBS know more about bone disorders than orthodox practitioners. Thirty (15.8%) of those who visited the TBS did so because of sociocultural beliefs. They believe that natural resources used during treatment such as plant, herb and animal part have active therapeutic principles that heal, occult supernatural power forces to change active principles, which can be manipulated by TBS who know how to produce positive result. Many other authors have documented this finding (Thanni LO, 2000, Onuminya JE *et al*, 1999).

'One of them said I never knew that bone injuries can be treated in the hospital. I thought they treat only malaria and others but not bone injury'

It was found that the decision to engage with a particular medical service is not only influenced by cheaper fee and cultural beliefs but a variety of other factors, such as fear of amputation, fear of operation, easy accessibility, quick services, use of incantation, quick healing, ability to treat physical and spiritual.

A number of research works relating to the advantages of traditional bonesetters reveal that, it worldwide acceptability is mainly due to the cheapness, allegedly faster healing methods, and easy access to services (Panda *et al*, 2011).

Our study showed that 25(13.2%) of patients preferred TBS for fracture treatment because they are readily accessible and everywhere available, 28(14.7%) were of the view that TBS render quick services and 12(6.3%) believe that TBS treatment heal quickly than the orthodox medical care. Almost similar results have been found by study conducted by others (Thanni IOA, 2000, Onuminya JE, 2005).

„*One of them said: easy accessibility and quick service rendered by the TBS are the reasons why I'm patronizing them. In the hospitals there are protocols and queues before patients can be seen'.*

Family and friends are influential in deciding where a patient will go for treatment because of the existing social system in community where they will normally contribute towards cost of treatment. Our study showed that one of the reasons for patronizing the TBS was pressure from family and friends 8.1%(21) and this was the lowest percentage, which is different with studies conducted by (SolagberuBA.2005, Dada *et al*, 2009) where they found 75% and 25%, respectively. Study conducted by (Ndubuisi O.C *et al*, 2015) also revealed that advice of relatives and friends had the highest percentage (29.2%).

Our current study also found that the fear of amputation (3.98%) was the least in their reasons for patronage of TBS, which is different from reasons documented by some authors who had fear of amputation as one of the significant reasons for visiting the TBS (Udosen *et al,* 2006, Ogunlusi *et al*, 2007). It is unfortunate to note that patients still erroneously believe that operation is the only available option for treatment of fractures in hospital. The belief that the application of Plaster of Paris (POP) usually results in atrophy and gangrene of the affected limbs that will lead to amputation was also identified by our study. The fear of operation in the hospitals was responsible for 10(3.9%) of TBS patronage.

Other factors that we found influencing the patient‟s decision to engage TBS include use of incantation 3(1.6%), ability to treat physical and spiritual 7(3.7%). Apathetic attitude of health workers, delay in hospitals due to bureaucracy and TBS canvassers, advise from hospital or clinic personnel, have been found to be other reasons why patients leave the hospital. These findings have been documented by (Omololu *et al,* 2002, Agarwal *et al,* 2010).

The current situation of healthcare delivery and medical education in the developing world especially in the northern region of Ghana indirectly sustained the practice of traditional bonesetters. Northern region in particular faces the challenges of a predominance of a rural population, low per capita income, inadequate transportation capabilities, illiteracy, inadequate resources, lack of supporting services such as orthopaedic surgeons, unstructured referral practice. Modern orthopaedic services and training are most often directed toward the urban population and currently only Tamale Teaching Hospital renders effective orthopaedics services in the whole northern region since 2015. Orthopaedics services such as operations require a technically up-to-date infrastructure and costly implants and these are practically out of reach for the common man. National health insurance only covers the procedure but not implants. In rural

community and districts, the condition is even worse as primary health centres and hospital are practically devoid of any orthopaedic services. This situation is supported by(Ariës *et al,* 2007) who found out that due to unavailabilty of specialised fracture treatment in the area, health clinics advise six of the returners to seek treatment from a bonsetter.

5.3 Knowledge and practices of traditional bonesetters regarding various forms of bone injuries.

Traditional bone setting is a known procedure among Africans in general and Ghanaians in particular. Bonesetter is the practitioner who educates himself or herself from tradition and takes up the practice of healing without having any formal training in the accepted medical procedures. According to (Agarwal and Agarwal,2010), traditional bonesetter is a lay practitioner of joint manipulation. He or She is the unqualified practitioner (in the western training) who takes up the practice of the healing without having any formal training in the accepted medical procedures.

The study revealed that twenty-six out of twenty-eight of them claimed that the profession of bonesetter is an inheritance from their forefathers and only two got their practice through apprenticeship. All the bonesetters were not trained in record keeping so they were not able to quantify the number of patients they have seen or see a day and number of patient with complication hence the knowledge is not documented not researched and it is pasted on anecdotal. According to (Dada AA, 2011) virtually all reviewed literature on TBS agree that this service has existed for decades and tribes practice it and practitioners keep it as a family secret. The training is passed from one generation to another through skills and experience acquired as part of an ancestral heritage. This indicates that knowledge is mainly transmitted through word of mouth from TBS to their successors. This form of information transmission will lead to

distortion of original knowledge or even bring about the total extinction of the practice hence it is urgent for TBS to start thinking about documentation.

The duration of training is not specified even though majority of TBS quoted 15years and above in this study. Prospective bonesetter is chosen in the family based on certain personal characteristics including honesty, responsibility, ability to keep family secret, empathetic and an interest in helping people. The training is not structured, not formal, undocumented and uncontrolled. That is why there is continuous decline in imparted knowledge and hording of information. The process of training and acquiring skills in bone setting is one of the most important weaknesses of the practise of TBS in developing country such as Ghana. Further the practise is passed on by oral tradition and there is no regulation, review and even peer-criticism. Therefore, quality is not assured and complications are likely to be high. This is contrary to orthodox training, which is regulated, open and subject to regular review on the basis of new evidences (Dada, 2011). According to (WHO, 2000), African traditional medicine consists of knowledge received from the past and handed down from generation to generation as well as recent knowledge that may be the product of deliberate experimentation and observation.

Another problem associated with TBS in this study is mystical and spiritual explanations for the causation of ill-health and complications.

These beliefs make it extremely difficult to provide explanations and evidence in accordance to basic epistemology for the cure of fracture even when the therapy is effective. For instance, majority of clients in this study perceives that traditional bonesetter manage better bone injury, but the connection between the broken leg or wing of a chicken and the eventual treatment of a patient with broken bone is extremely difficult to explain.

Even though one of personal characteristics of TBS is the ability to keep family secret, all of them in this study cooperated and ready to partner with the principal investigator.

On the whole, all the bonesetters were able to describe different types of bone injury. They mentioned different bones and their numbers like collar bone, thigh bone, fore- arm bones, leg bones, hip bone, patella, ribs, jaw bones, foot and hand bones. According to Susrutha (Bali Y, 2012) this is a high level of knowledge on traditional bone setting. The findings agreed with study conducted by (Ashok Kumar Panda, 2011) where the bonesetters are known to cure the fractures and dislocations of almost any part of the body including backbone, skull, patella, ribs, clavicle and nose.

The Traditional bonesetters interviewed recognize the difficulty in dealing with some fractures especially patella, clavicle, chest, pelvic, spine, skull and fracture with soft tissue interposition. " *one said skull fracture with expose brain tissue is not for TBS and should be refer to the hospital immediately*".

The study revealed that all the TBS interviewed use conventional medical approaches to manage the broken bone. They start by taking a history to ascertain the cause of injury, followed by palpation and feeling with the fingers of the affected part to identify a gap and number of fragment to ascertain the nature and severity of the fracture. Some of them recognized the usefulness of the x-ray in diagnosing the nature and anatomical site of fracture. An earlier study by (Sofowura,2006) also reported that TBS diagnose or use their palms and fingers to feel and access the type and extent of damage to broken bones without x-ray.

After the diagnosis is ascertained, with the aid of assistant they pull the affected part despite the resistance from the patients, because of pain followed by massage and palpation to reduce the fracture. Hot water was used by five TBS and rationale behind is to dissolve clot so that healing can take place. Once they are sure about the reduction of

the fracture, black medicine is applied to aid in healing process then cotton wool or bandage is applied first to avoid injury to skin. Mat or bamboo board or wood are then wrapped tightly on the injured part and left in place for the first 3 days before intermittent release and possible treatment with herbs or herbal cream and massage. None of them reported using leaves for bandaging. A sling made up of a piece of cloth or bandage is fixed around the neck if it is an upper limb fracture. Two TBS applied black medicine after scarification and the reason is to accelerate the penetration of medicine to the fracture site. These findings are similar to that of (Ekere *et al*,2011) where TBS treatment procedure involved the use of splint, made of wood, bamboo or rattan cane which are usually bandage around the fracture to immobilize the site, herbal dressing, hot fomentation is applied. Massage, herbal creams with or without scarification are applied and repeated at irregular interval until the fracture healed.

It was revealed in this study that all TBS do not utilize anaesthesia in their treatment procedure and therefore do not relax the patient adequately to set dislocated joint or fracture this agreed with study done by (Onuminye, 2004).

In some instances, incantations are made on the affected area as a way of invoking the spirit of the ancestors for divine intervention and healing (Chris, 2011), this agreed with our findings where five out of twenty-eight use incantations during the process because they believe that healing power is from their ancestors and god. (Dada *et al*, 2009) also observed that sometimes the practitioners chant incantations to evoke the spirits to guide the procedure.

In Northern region the use of a chicken and herbs for the treatment of fractures cuts across all societies, but the method depends on the bonesetter. For example, all twentyeight TBS in this study requested for fowl but only four out of twenty -eight will break the fowl leg if the fracture is on the lower limb and the wing if it is on the upper limb. The fowl is observed and the day the fowl start walking they will ask the patient to walk because they

believe healing has taken place this is in tandem with early study done by (Sofowora, 2006) who states that Traditional bone setters in some parts of Nigeria, fracture the leg of a chicken and give it the same treatment as the patient.

Majority of TBS appreciate the danger associated with open fractures and will prefer to refer to hospital for wound management before coming back for fracture treatment since they lack the basic principles of infection control in wound management, but five (17.8%) out of twenty-eight said they do not refer and claim that they have knowledge of herbs that can be used to heal the wound. In this study some of TBS attributed the complications that occur to spiritual explanations, so they need to pacify the gods and fight against evil powers through certain rituals to be able to treat successfully. This corroborates with the findings of (Sofowara, 1982) where the Ijaw of Nigeria is cited to attribute complications of fractures to mystical forces. These findings were not supported by study conducted in Kenya by (Agwata, 2015) where TBS in Iftin did not attribute the complications that occur to spiritual explanations.

All of them reported that they don‟t have any collaboration with orthodox practitioner. Some of them contended that the orthodox practitioner look down on them and they have less interest on traditional bone setting. It has been observed that there is suspicions and mistrust between TBS and orthodox practitioner. In spite of this mistrust, twenty-eight of TBS interviewed were willing to collaborate with the ministry of health, equally interested in collaborating with orthopedic surgeons through exchanging of contact, regular meetings, and training session.

They went further to say they will welcome any training course that will be developed by the ministry of health to improve their knowledge and skills in management of bone injuries. They suggested topics that will be included in the training such as management of pain, open fracture, infection, tendon injury and fracture around the joint. This is contrary to the study conducted by (Udosen *et al*, 2006) where majority of the

practitioners‟ belief that the trade is hereditary, and do not see any need to collaborate with or make referrals to orthodox practitioners.

5.4 Perceptions on the orthodox practices versus TBS in the community regarding bone injuries

The study revealed that community members consider TBS services as benevolent and therefore economical since the patients are sometimes being accommodated and fed by them. They take whatever gift the patient offers them after treatment compared to orthodox that render expensive services and are most often located in the urban area. This finding agreed with (Amfom, 1999) who believed that the medicine came from the ground as such patients drop whatever amount he wishes to donate as a sign of appreciation on the ground for the bonesetter to pick. According to World Health Organization expects report committee on Traditional Medicine, traditional medical practitioners give free treatment for patients who cannot afford to pay. The mode of payment is more flexible it could be cash or in kind or could it be on credit. Unlike modern health care providers, traditional medical practitioners usually use outcomecontingent contract, pay when cure (WHO,1976). These above-mentioned findings agree with another study that was done in Nigeria (Thanni *et al*, 2000).

The results of the study indicate that positive testimonies regarding the outcome of services provided by TBS, experiences of friends, family members, easy accessibility, cheaper fees, fear of amputation, quick healing quick service, dislike for plaster of Paris (POP), perceived longer periods of recovery from the services provided at the orthodox health facilities, motivate people to seek the services of TBS. These results agreed with study conducted by (Edusei, *et al*, 2015)

The community members were also of the view that TBS communicate well with their patients and are able to explain bone injury signs and symptoms to their patient‟s satisfaction. According to them, TBS share the same cultural beliefs, live in the same

community with the patients. These findings support early study conducted by (Garba , 1988) where the reasons of patronizing TBS included geographic accessibility, convenient opening hours, and more favourable staff attitudes, as well as perceived better quality in terms of shorter waiting times, greater privacy, higher standards of diagnosis, perceived better treatment, and counselling.

Our study also revealed that the patronage of bonesetters by community members is as result of the belief that some of the bone injuries are caused by super natural powers and treatment should be both spiritual and physical and this can only be done by TBS. This above-mentioned finding agrees with another study that was done by (Owoseni *et al*, 2014) who observe that Africans believe that diseases and accidents have spiritual components that need to be addressed along with the treatment of the disease.

FGD especially bonesetters clients were able to describe the steps used by TBS in the treatment of fracture. With respect to the procedures and methods used, they affirmed what was said by the TBS during the interview. TBS begin with the initial diagnosis through history taken whilst feeling with their fingertips, with some of them using Xray photographs to ascertain the type and cause of injury. Once they were certain of the diagnosis, they would begin to offer services including, pulling and massaging to reduce the fracture. Some of TBS were reported to use water (few of them), Shea butter, black powdered substance (all of them), and wooden splints or small mats used as support before bandaging and thigh. All the TBS would review the client every three days for treatment until the injured is totally healed.

Participants in the FGD and most bonesetter clients pointed out that they were fully confident that they would receive total healing in much shorter time compared to orthodox medical treatment. They were psychologically comfortable with the use of the traditional medicine because they perceived the system to be embedded in their own socio-cultural roots. Participants also believe that TBS are specific, blessed and talented

people in the community who have been set aside by „god" and if they treat you, you get healed very fast. The community members believed that TBS render quick services, treat both spiritual and physical provide counselling services to the patients to ensure that they abide by the rules and regulations of the treatment to ensure speedy recovery not like the hospital where doctors treat only physical and care is also delayed because of bureaucracy.

One significant revelation from the study is that all the bonesetter clients reported experiencing significant improvement in their situation within few weeks of accessing the services of the TBS. This was confirmed by one of them: *The old man (TBS) who is treating us has really done very well. This is my first time of getting an accident like this, and comparing the treatment I got from the hospital and the treatment I am getting here, I have really seen a lot of difference. Initially, I could not walk. They use to carry me; I could not go to toilet or go to urinate. I did everything in the room for my mother to dispose off, but now I can go myself. The Old man has really done well and I will recommend anybody with fracture to come here for treatment".*

The believe that treatment of fracture from bonesetters are less expensive yet faster and effective as compared to treatment of fracture from the hospital is widespread, orthodox practitioners need to take bonesetters seriously. Patients rely more on the service of bonesetters hence, Condemnation of TBS by health workers cannot stop patients and families from resorting to bonesetter"s services.

The wrong believe that TBS have been set aside by „god" indicate that it may be difficult to stop traditional bone setting in our community but may be easy to stop the complications associated with this procedure. (Udosen *et al,* 2006) is convinced that initiation of community projects that would create awareness among TBS and patients would discourage these harmful practices.

Few of participants expressed concern about the hygiene situation in the environment in which they operate and suggested if government can help build a center for them. None of the participants reported anything positive about the orthodox services and they contended that there is no advantage over TBS. This was affirmed by one of them "*doctors only charge high".* Surprisingly at the same time they admit that the only advantage the hospital has is the provision of wards for admission and intravenous fluids for resuscitation and adequate pain management and x-ray facility. They conceded that the major challenges confronting the TBS in the discharge of their duties were the reported inadequate space to operate from, and to provide accommodation for their clients coming from far. Another reported challenge they point out are with respect to treatment of fracture with soft tissue interposition, clavicular fracture, opened fracture hip fracture. In their view if the TBS can also do x-rays, it will improve their services and went ahead to suggest workshop and training for TBS and building of accommodation for the TBS to aid admissions. These findings agreed with early study conducted in Ashanti region by (Edusei *et al*, 2015).

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

In the northern region most of TBS developed their skills and knowledge on traditional bone setting mainly from their forefathers or fathers. Only two practitioners acquired their knowledge through apprenticeship. The main factors that influence the choice of bonesetter for treatment were attitude of health workers, hospitals" bureaucracy, fear of amputation, exorbitant charges, easy accessibility, cultural beliefs, quick service,

pressure from family and friends, fear of cutting my limbs, quick healing, use of incantation, ability to treat physical and spiritual among others. Since majority of patients in this study would prefer using traditional bonesetters as the first point of call for the treatment of all forms of fractures, it has become obvious that the practice is deep-rooted in the culture and tradition of the people. It is an indication that TBS could be trained to improve their knowledge and skills.

All the TBS interviewed in this study donot keep records or documentation of their findings, success and practices, making it difficult to evaluate their work or get relevant information for informed decision making.

Therefore, Health policy makers should consider the training and retraining of TBS and encourage collaborative understanding between orthodox practitioner and TBS in Ghana especially in the northern region.

6.2 Recommendations

Based on the findings from the analysis of the available data, the study recommends the following:

1-Integration of the TBS with orthodox practitioner and if this is done would offer an exclusive opportunity for the two to relate more closely to each other. It is hoped that such a cordial working relationship would gradually replace professional antagonism and suspicion with mutual understanding and respect and ultimately improve patient care.

2-Training of the TBS in Ghana is urgently needed and the overarching goal of any TBS training program should be that the bone setters understand which fracture types to treat and which fracture types to refer to hospital. They also should be taken through basic infection prevention and control practices, hygienic practices for the safety of the clients

and also ensures proper monitoring and supervision. Under this model, the traditional bonesetter will continue to serve as the primary point of contact for many patients.

3-Training of more specialists in the area of orthopaedics and traumatology and provision of affordable and adequate basic equipment/implants in our hospitals may reduce the rate of discharge against medical advice and complications seen from TBS practice

REFERENCES

Aderibigbe, S.A., Agaja, S.R. and Bamidele, J.O., 2013. Determinants of utilization of traditional bone setters in Ilorin, north central Nigeria. *Journal of preventive medicine and hygiene*, *54*(1), p.35.

Agarwal, A. and Agarwal, R., 2010. The practice and tradition of bonesetting. *Education for Health*, *23*(1), p.225.

Agwata, d.j.r., 2015. knowledge, attitudes and practice of traditional bone setting in iftin division, garissa.

Arhinful, D.K., 2003. *The solidarity of self-interest: Social and cultural feasibility of rural health insurance in Ghana*. African Studies Centre, Leiden.

Ariës, M. J. H., Joosten, H., Wegdam, H. H. J. and Van Der Geest, S. (2007), Fracture treatment by bonesetters in central Ghana: patients explain their choices and experiences. Tropical Medicine & International Health, 12: 564–574. doi:10.1111/j.1365-3156.2007.01822.

Bali Y. (2012). Ayurveda and pharmacy. International Journal of Research in Ayurveda and Pharmacy, 3(2).

Chris, M., Kwaja, A. 2011. ―Setting the Bones of Traditional Bone Setting‖. Journal of West African Insight.

Dada, A., Giwa, S.O., Yinusa, W., Ugbeye, M. and Gbadegesin, S., 2009. Complications of treatment of musculoskeletal injuries by bone setters. *West African Journal of Medicine*, *28*(1).

Dada AA. (2011). Review of the practice of traditional bone setting in Nigeria. *Africa Health Sciences,* 2(2), 262-265

Dudhamal, T.S., Mahanta, V.D. and Gupta, S.K., 2012. Efficacy of Lakshadi Plaster and Laksha Guggulu in the Management of Bhagna (Stable Colle‟s

Fracture). *International Journal of Ayurvedic Medicine, 3*(2).

Downes, E.M., 1977. Late infection after total hip replacement.*Bone & Joint Journal*, *59*(1), pp.42-44.

De Koning, M., Antonelli, A., Bazant, M.Z., Kaxiras, E. and Justo, J.F., 1998. Finitetemperature molecular-dynamics study of unstable stacking fault free energies in silicon.*Physical Review B*, *58*(19), p.12555.

Edusei, A. K., Owusu-Ansah, F.E., Dogbe, J. A., Morgan, J., Sarpong, K., 2015, „Perspectives in musculoskeletal injury management by traditional bone setters in Ashanti, Ghana", *African Journal of Disability* 4(1), Art. #97, 8 pages. http://dx.doi. org/10.4102/ajod.v4i1.97

AU Ekere, RC Echem,2011 *Complications of Fracture and Dislocation Treatment By Traditional Bone Setters: A Private Practice Experience*

Garba, E.S. and Deshi, P.J., 1998. Traditional bone setting: a risk factor in limb amputation. *East African medical journal*,*75*(9), pp.553-555.

Green, S.A., 1999. Orthopaedic surgeons. Inheritors of tradition. *Clinical orthopaedics and related research*, (363), pp.258-263.

Girardet, H. and Robertson Winn, D., 1994. Profile of a traditional healer: Dr Oku Ampofo Herbalgram 31. 46-51, 58.*En potential, medicines, review, tropical_forests, active_principles, ethnobotany, deforestation (EBBD, 190205493).*

Hoff, W., 1997. Traditional health practitioners as primary health care workers. *Tropical Doctor*, *27*(1_suppl), pp.52-55.

Jamison DT. (2006). Priorities in Health.

(The international bank for reconstruction and development, Ed.). The World Bank

Kimani, V.N., 1995. African traditional health care: The place of indigenous resources in the delivery of primary health care in four Kenyan communities. *Unpublished Ph. D Thesis, Department of Community Health, University of Nairobi*.

Kafaru, E., 1990. "Herbalism: How it should be seen. *Nigerian Guardian, August, 10.*

Kuubiere, C.B., Abass, A. and Majeed, S.F., 2015. Patients preference for traditional bonesetters in Northern Ghana.*Religion*, *2*, pp.2-5

Kurup, P.N.V., Bannerman, R.H., Burton, J. and Ch"en, W.C., 1993. Traditional medicine and health care coverage. *Geneva, Switzerland: World Health Organization*.

Kudebong, M., Wurapa, F., Nonvignon, J., Norman, I., Awoonor-Williams, J.K. and Aikins, M., 2011. Economic burden of motorcycle accidents in Northern Ghana. *Ghana medical journal*, *45*(4).

March, L., Hoy, D., Smith, E., Buchbinder, R., Cross, M., Brooks, P., Vos, T., D. Woolf, A. D (2013) Global and Country Specific Burden of Musculoskeletal Disorders:

A Report from the Global Burden of Diseases Musculoskeletal Expert Group, Vol 87.

Mock, C., & Cherian, M. N. (2008). The global burden of musculoskeletal injuries: challenges and solutions. Clinical orthopaedics and related research, 466(10), 2306-16.

Museru, L. and Mcharo, C., 2002. The dilemma of fracture treatment in developing countries. *International orthopaedics*,*26*(6), pp.324-327.

Nkele CN. (2000). Pattern of occurrence, management and prevention of trauma in Nigerian Oil Industry. *Journal of Orthopaedics and Trauma,* 2, 97-100

Ndubuisi Onyemaechi, Okechukwu Onwuasoigwe, Nwankwo Okehukwu Emmanuel March 2014. Complications of Musculoskeletal Injuries Treated by Traditional Bonesetters in a Developing Country. Indian Journal of Applied Research 4(3): 313-316 DOI:10.15373/2249555X/MAR2014/93

Ndubuisi O.C, Onyemaechi, et al. "Patronage of traditional bonesetters in Makurdi, north-central Nigeria." Patient preference and adherence vol. 9 275-9. 9 Feb. 2015, doi:10.2147/PPA.S76877

Nwachukwu, B.U., Okwesili, I.C., Harris, M.B. and Katz, J.N., 2011. Traditional bonesetters and contemporary orthopaedic fracture care in a developing nation: historical aspects, contemporary status and future directions. *The open orthopaedics journal*, *5*, p.20.

Odero, W., Garner, P. and Zwi, A., 1997. Road traffic injuries in developing countries: a comprehensive review of epidemiological studies. *Tropical Medicine & International Health*, *2*(5), pp.445-460.

OlaOlorun, D.A., Oladiran, I.O. and Adeniran, A., 2001. Complications of fracture treatment by traditional bonesetters in southwest Nigeria. *Family practice*, *18*(6), pp.635-637.

Omololu, A.B., Ogunlade, S.O. and Gopaldasani, V.K., 2008. The practice of traditional bonesetting: training algorithm. Clinical orthopaedics and related research, 466(10), p.2392.

Oppong,A.C.,1989. Healers in transition. *Social science & medicine*,*28*(6), pp.605-612.

Orjioke, C.J.G., 1995. Does traditional medicine have a place in Primary Health Care. *Orient Journal of Medicine*, *7*(1), pp.1-3.

Onyemaechi, N.O., Lasebikan, O.A., Elachi, I.C., Popoola, S.O. and Oluwadiya, K.S., 2015. Patronage of traditional bonesetters in Makurdi, north-central Nigeria. *Patient preference and adherence*, *9*, p.275.

Ogunlusi, J.D., Okem, I.C. and Oginni, L.M., 2007. Why patients patronize traditional bone setters. *Internet J Orthop Surg*, *4*(2), pp.1-7.

Onuminya, J.E., 2004. The role of the traditional bonesetter in primary fracture care in Nigeria. *South African Medical Journal*,*94*(8), pp.652-658.

Onuminya, J.E., Onabowale, B.O., Obekpa, P.O. and Ihezue, C.H., 1999. Traditional bone setter‟s gangrene. *International orthopaedics*, *23*(2), pp.111-112.

Oginni, L.M., 1982. The use of traditional fracture splint for bone setting. *Niger Med Pract*, *24*(3), pp.49-51.

Owumi BE, Patricia AT, Olorunnisola AS. Utilizationof traditional bone-setters in the treatment of bone fracture in Ibadan North Local Government. International J Humanities and SocSci In. 2013; 2 (5): 47-57.

Oyebola, D.D., 1980. Yoruba traditional bonesetters: the practice of orthopaedics in a primitive setting in Nigeria. *The Journal of trauma*, *20*(4), pp.312-322.

Onyemaechi, N.O., Lasebikan, O.A., Elachi, I.C., Popoola, S.O. and Oluwadiya, K.S., 2015. Patronage of traditional bonesetters in Makurdi, north-central Nigeria. *Patient preference and adherence*, *9*, p.275.

Omololu, B., Ogunlade, S.O. and Alonge, T.O., 2002. The complications seen from the treatment by traditional bonesetters. *West African journal of medicine*, *21*(4), pp.335-337.

Omololu, A.B., Ogunlade, S.O. and Gopaldasani, V.K., 2008. The practice of traditional bonesetting: training algorithm.*Clinical orthopaedics and related research*, *466*(10), p.2392.

OlaOlorun, D.A., Oladiran, I.O. and Adeniran, A., 2001. Complications of fracture treatment by traditional bonesetters in southwest Nigeria. *Family practice*, *18*(6), pp.635-637.

Owoseni, J. S., Taiwo, O. C. and Ayodele, I.M. (2014). Traditional Bone Setters and Fracture Care in Nigeria, *Merit Research Journals (ISSN: 2350-2358), 2* (6), 74-80

Panda, A.K. and Swain, K.C., 2011. Traditional uses and medicinal potential of Cordyceps sinensis of Sikkim. *Journal of Ayurveda and integrative medicine*, *2*(1), p.9.

Sofowora, A. 1982. ―Medical Plants and Traditional Medicine in Africa‖. Spectrum Books Limited in Association with John Wiley and Sons

Sofowora,A (2006). *Medicinal Plants and Traditional Medicine in Africa:* Ibadan,Nigeria Spectrum Books Ltd.

Solagberu, B.A., 2005. Long bone fractures treated by traditional bonesetters: a study of patients' behaviour. *Tropical doctor*, *35*(2), pp.106-106.

Summer C. (1983). *An Ethical Study of Ethiopian philosophy and cultures.* (Odera HO and Wasola DA, Ed.). Nariobi: Book wise Ltd.

Thanni, L.O., 2000. Factors influencing patronage of traditional bone setters. *West African journal of medicine*, *19*(3), pp.220-224.

Udosen, A.M., Otei, O.O. and Onuba, O., 2006. Role of traditional bone setters in Africa: experience in Calabar, Nigeria. *Annals of African Medicine*, *5*(4), pp.170-173.

Ventevogel, P., 1996. *Whiteman's things: training and detraining healers in Ghana*. Maklu.

World Health Organization (WHO). *Expects Report Committee on Traditional Medicine*. Geneva: World Health Organization; 1976.

World Health Organization, 2000. General guidelines for methodologies on research and evaluation of traditional medicine.

Warren, K.S., Mahmoud, A.A., Cummings, P., Murphy, D.J. and Houser, H.B., 1974. Schistosomiasis mansoni in Yemeni in California: duration of infection, presence of disease, therapeutic management. *The American journal of tropical medicine and hygiene*, *23*(5), pp.902-909.

APPENDICES

Appendix 1. INFORMED CONSENT FORM

(SCHOOL OF PUBLIC HEALTH- KNUST)

TITLE OF PROJECT: Factors associated with the utilization of the services of traditional bonesetters in northern region of Ghana

Principal investigator: DR TOLGOU YEMPABE

Other investigators: (names)

Participant's printed name:

Introductory paragraphs

We invite you to take part in a research study, factors affecting the utilization of the services of traditional bonesetters in northern region of Ghana at which we seek to

1. -to determine reasons for patronizing both bonesetters and orthodox services
2. to assess the knowledge, attitude, skills and practices of traditional bonesetters,
3. to ascertain the community members" perception on the orthodox practices in the community regarding bone injuries?

Taking part in this study is entirely voluntary. We urge you to discuss any questions about this study with our staff members. Talk to your family and friends about it and take your time to make your decision. If you decide to participate, you must sign this form to show that you want to take part.

Section1: Purpose of the research

You are being offered the opportunity to take part in this research study because you are a bone setter, living in the community or have used bone-setters services before.

This research study is being done to find out factors affecting the utilization of the services of traditional bonesetters in northern region of Ghana and the possible policy direction

Section 2: Procedures

The research is considering the participants who are clients of bone injuries, bonesetters and community members. Snowballing will be one of the procedures for getting the participants. Also the selection of participants would also be purposive from the communities. For the focus group discussions the assembly men, opinion leaders and women leaders would be involved in identifying the participants which would be purely voluntary. If you do not wish to continue, you have the right to withdraw from the study, without penalty, at any time**.**

Section: 3 Time duration of the procedures and study

If you agree to take part in this study, your involvement will last approximately 15 to 30minutes for individual and 2hours for FGD.

Section 4: Discomforts and risks

There are no know risks associated with the research if you agree to take part

Section 5:Potential benefits

The benefit of this research is that you will be helping us to identify factors affecting the utilization of the services of traditional bonesetters in northern region of Ghana. This information should help **us** develop strategies and policies to improve management of bone-related injuries in the region. There are no risks to you for participating in this study.

Section 6.:Statement of confidentiality

All information collected from this research will be kept confidential. The findings of this study may be reported at meetings or in medical journals; your name will not be used in the report.

i have read the foregoing information or it has been translated to me in a language i understand. I have had opportunity to ask questions about it and answers given me are to my satisfaction.

i consent voluntarily to participate in this study and understand that i have the right to withdraw from the study at any time without penalty.

Section 7:contact information for questions or concerns

You have the right to ask any questions you may have about this research. If you have questions, complaints or concerns to this research, contact (Dr TOLGOU YEMPABE) at (0204402766, Email:ytolgou@gmail.com). Signature and consent/permission to be in the research

Your signature below means that you have received this information, have asked the questions you currently have about the research, and have received answers to those questions. You will receive a copy of the signed and dated form to keep for future reference.

Participant: by signing this consent form, you indicate that you are voluntarily choosing to take part in this research.

_____ _____ _____ _____

Signature of participant date time printed name

Participant's legally authorized representative: by signing below, you indicate that you give permission for the participant to take part in this research.

_____ _____ _____ _____

Signature of participant"s legally authorized representative date time printed name

The signature of the participant‟s legally authorized representative is required for people unable to give consent for themselves.

Description of the legally authorized representative‟s authority to act for participant

Person explaining the research: your signature below means that you have explained the research to the participant or participant representative and have answered any questions about the research.

_____ _____ _____
_____

Signature of person who explained this research | date | time | printed name

Appendix 2. QUESTIONNAIRE

SECTION A: SOCIO- DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS.

1. **Gender**
    a. Male
    b. Female
2. **Age:**
    a. 0-18yrs
    b. 19-39yrs
    c. 40-59yrs
    d. 60 and above
3. **Ethnicity**
    a. Dagomba b. Gonja c. Dagaati d.Waala e.Mamprusi f. Others…….
4. **Religion**

1. Christianity
2. Islam
3. Traditional believer

5. **Occupation**
    a. Traditional Bonesetter b. Civil Servant

c. Client of Bonesetter d. Trader

e. Farmer f. Unemployement

g. Others…….

6. **Educational qualifications**
    a. No School (formal education) d. Post-Secondary
    b. Primary/Junior Secondary school e. Senior Secondary School
    c. Tertiary

SECTION B: REASONS FOR UTILIZING TRADITIONAL BONESETTERS OR ORTHODOX SERVICES.

1. Where will you prefer to go for your treatment if you have injury?

a. Orthodox

b. TBS

c. Orthodox first and later TBS

d. TBS first and later Orthodox

2. Give a reason for your answer in question 1B?. (multiple choice)

a. Easy accessibility

b. Cheaper fees

c. Cultural beliefs

d. Quick service

e. Use of incantations

f. Pressure from family and friends

g. Physical and spiritual

h. Fear of cutting my limb

i. Others …….....

3. How does the treatment started?

a. History taking before

b. No history

4. **What items where you ask to bring?**

.....
.....

5. **How was the treatment done?**

……
……

6. **How satisfied was the service rendered?**

a. Very satisfied

b. Satisfied

c. I don‟t know

d. Not satisfied

SECTION C: KNOWLEDGE AND PRACTICES OF TRADITIONAL BONESETTERS REGARDING VARIOUS FORMS OF BONE INJURIES.

1. **How do you become a professional Bonesetter?**

a. Family history

b. Divine calling

c. Apprenticeship

d. Others ……

2. **How long does it take you to become a professional bonesetter?**

3. **What are the types of bone injuries you know? (Multiple choice)**

a. Upper limb injury

b. Lower limb injury

c. Spine injury

d. Joint injury

e. Hand injury

f. Foot injury

g. Skull injury

4. **What are the steps you mostly followed in the treatment of broken bones?**

……
……

5. **Do you encounter problems with infection of the bones you treat?**

a. Yes

b. No

6. **If yes to question 5c, how do you control infections?**

a. Giving antibiotic

b. Black medicine

c. Concoctions

d. Others……..

7. Do you use leaves for treatment?

a. Yes

b. No

8. If yes to question 7c, why?

……
……

9. What kinds of strategies are used in the reduction process?

a. Pulling the affected part

b. Massaging the affected part

c. Apply rag soaked in the hot water to the affected part

d. Others ……

10. Do you refer some of the patients to the hospital?

a. Yes

b. No

11. If yes to question 10c why?

……
……
……
……

12. What do you perceive are the advantages of TBS over orthodox care?

a. Easy accessibility

b. Cheaper fees

c. Cultural beliefs

d. Quick service

e. Use of incantations

f. Treat both physical and spiritual

g. No amputations

h. Others …….....

13. Do you think that, there are any advantages of orthodox care over TBS?

a. Yes

b. No

14. If yes to question 13c, what are the advantages? (Multiple choice)

a. X-ray facility

b. Adequate wards to admit patients

c. Proper pain management

d. Proper wounds management

e. Others…….

15. If the ministry of health (or other group in orthodox medicine) were to develop training courses for TBSs, would that be of interest to you?

a. Yes

b. No

16. What topics would you like to see included in such courses? (Multiple Choice)

a. Pain Managements

b. Open fractures and wounds managements

c. Bone healing

d. Complication of fractures

e. Infection managements

f. Others…….
.

17. **Do you have any suggestions on how linkages between orthopedic surgeons and TBS can be made? (Multiple choice)**

    a. Exchange of contacts

    b. Regular meetings

    c. Training sessions

    d. Others……..

SECTION D: PERCEPTION ON THE ORTHODOX PRACTICES IN THE COMMUNITY REGARDING TRADITIONAL BONESETTERS. (FGD)

1. **How do you see the work of the traditional Bonesetters in your community?**

    a. Very satisfied

    b. Satisfied

    c. I don‟t know

    d. Not satisfied

2. **Are they able to solve the problems of people who come with broken legs or hands?**

a. Yes b. No

3. **What motivate you to go to the traditional Bonesetters? (Multiple Choice)**

a. Easy accessibility

b. Cheaper fees

c. Cultural beliefs

d. Quick service

e. Use of incantations

f. Pressure from family and friends

g. Physical and spiritual

h. Fear of cutting my limb

Others …….....

4. **How does the image of the traditional Bonesetters influence you in the community?**

a. Super natural
b. High esteem
c. Tolerant
d. Benevolent
e. Respectful
f. Others ……..

5. **How is the environment around the traditional Bonesetters in the community?**

Very clean b. Clean

Appendix 3. ETHICAL CLEARANCE

COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICAL SCIENCES / KOMFO ANOKYE TEACHING HOSPITAL

COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Ref: CHRPE/AP/223/18

23th April, 2018.

Dr. Tolgou Yempabe
Post Office Box 16 TML-TTH
TAMALE.

Dear Sir,

LETTER OF APPROVAL

Protocol Title: ***"Factors Affecting the Utilization of the Services of Traditional Bonesetters in Northern Region of Ghana."***

Proposed Site: ***Northern Region of Ghana.***

Sponsor: ***Principal Investigator.***

Your submission to the Committee on Human Research, Publications and Ethics on the above named protocol refers.

The Committee reviewed the following documents:

- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Questionnaire.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, beginning 23th April, 2018, 2018 to 22nd April, 2019 renewable thereafter. The Committee may however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Yours faithfully,

Osomfo Prof. Sir J. W. Acheampong MD, FWACP
Chairman

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