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Practice of Traditional Bonesetters (TBS) and People's Decisions to Seek Treatment for Fractures from TBS Among the Frafras of Northern Ghana

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Practice of Traditional Bonesetters (TBS) and People's Decisions to Seek Treatment for
Fractures from TBS Among the Frafras of Northern Ghana

by

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A THESIS

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Abstract

Using traditional and biomedical systems in times of fractures is a common phenomenon in contemporary Ghana. This paper documents the practices of Traditional Bonesetters (TBS) and the decisions people make to use TBS services to treat fractures in the ethnomedical context. Drawing from interviews with and observations of ten TBS, and interviews with 20 non-practitioners, this study provides a descriptive account of traditional bone-setting. Results indicate that traditional bone-setting is based on knowledge that practitioners learn and pass on through word of mouth and apprenticeship training from one generation to another. Treatment methods involve manual manipulation to achieve anatomical alignment, massaging, immobilisation, and applying certain substances that have bone healing powers. These methods are similar to those that biomedical practitioners use to treat patients with fractures. However, in exceptional cases, TBS use symbolic rituals to deal with supernatural forces that play a role in causing injury. People subscribe to TBS because practitioners are easily accessible and hence provide prompt service. They also patronise TBS because of cheaper costs and their trust and belief in the efficacy of TBS methods. Although Ghanaians have already mentally integrated traditional bone-setting and biomedical practice, the two (health care) systems are yet to be formally combined. This research can be the meeting point for possible biomedical training for TBS and vice versa and facilitate the integration of traditional bone-setting with biomedicine in the trajectory of the health care system.

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Dedication

I dedicate this work to my wife, Ayishetu Salifu and my children, Lois Ayaniboya, Nehemiah Ateriyire, Lyra Ayinogma, and Michele Yinmiba.

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CHAPTER 1.

INTRODUCTION

1.1 INTRODUCTION

In many developing nations, traditional and scientific medicines exist side by side and patients patronize both forms of healthcare (Twumasi 1975; Fosu 1981; Warren et al. 1982). In an attempt to cope with their health problems, people move between these medical services. The question that guides this research is: What accounts for the differential use of the existing medical care services in the case of musculoskeletal injuries (e.g., fractures)? The ethnographic focus of this study is the people who live on the Frafra Tribal lands of the Upper East Region of Ghana, West Africa. With my experience as a nurse in the ward where patients diagnosed with fractures left for treatment in Traditional Bonesetters (TBS) settings, and with readings on works of medical anthropologists on ethnomedicine and traditional healers as background, this thesis research seeks to explore the practices of Traditional Bonesetters (TBS) and people's decisions to seek treatment for fractures and other musculoskeletal (MSK) injuries from TBS among the Frafra of Northern Ghana. This thesis seeks to understand and document the practices of Traditional Bonesetters as traditional healers in Frafra ethnomedicine and people's decisions to use TBS healing practices as a way to reduce disabilities resulting from fractures and other MSK injuries among rural Ghana's population.

Musculoskeletal injuries have different causes. Social, economic, and spiritual factors account for where people go for the treatment of musculoskeletal injuries. The objectives of this study are to find out:

1. How traditional bonesetters acquire the knowledge and skills of their trade as a form of traditional healing and/or ethnomedical practice.
2. The methods TBS use to diagnose and treat fractures and other musculoskeletal injuries.

3. The folk models that underlay the utilization of TBS for fractures and other musculoskeletal injuries.

The Frafra area of the Upper East Region has three centres of scientific healthcare administration consisting of two district hospitals and one regional hospital. These health facilities lack orthopaedic (bone) doctors to manage fractures and other musculoskeletal injuries. There is only one Orthopedic Centre in the Upper East Region situated within Bawku Presbyterian Hospital and a few others in Southern Ghana. Clients and their relatives use Traditional Bonesetters as the first point of call for the management of musculoskeletal injuries in Frafra communities. Accessibility, or the physical proximity and cheaper cost of TBS is a major influence in peoples' decisions in times of healthcare seeking for fracture and other musculoskeletal injuries. Other influential factors include the experience of friends and relatives, trust, beliefs, or knowledge related to causation of health problems, diagnostic criteria, and treatment strategies. Ethnographers have over the years studied the Frafra (Rattray 1931:232-273; Hilton 1960; Hart 1971; Fortes 1945). However, evidence is scarce on what traditional bone setting practice entails in the context of traditional medicine, and people's decisions for the continuous usage of its service in Frafra communities in the era of medical pluralism.

During ethnographic fieldwork, I interacted with practitioners of traditional bone-setting among the Frafra tribal groups of the Upper East Region. I talked with TBS about their healing practices and observed treatment sessions to understand the practitioners' social behaviour and healing strategies. I also interviewed individuals about the decisions people make when they break a bone or sustain a musculoskeletal injury.

The thesis draws from the above data sources to understand the practices of Traditional Bonesetters and the decisions people make to seek their (TBS) services for the management of

fractures and other musculoskeletal injuries in Frafraland. I sought to understand these two interesting areas concerning cultures' medical systems, paying special attention to the theory of health utilization behaviour. Brown (1998) notes that all cultures have medical systems comprising both cognitive and behavioural components. The cognitive component of a medical system focuses on theories of aetiology, or causation, of ill health. It involves a nomenclature of disease categories grouped by a causal agent. The study of cultural knowledge about illness and its linkages to differential diagnosis and curative (and/or healing) actions is ethnomedicine (George M. Foster 1976; Brown 1998:108).

According to a dichotomy present in many ethnomedical systems or folk models of health, there is a segregation of natural from supernatural causation (Foster 1976; Kleinman 2017). Thus, the use of traditional or scientific healthcare services may turn on whether a health problem is of natural cause or supernatural cause. The behavioural component of medical systems pertains to the social interactions of healers (practitioners) and their clients in a cultural and economic context. Social mechanisms through which healers obtain training, division of labour among healers, and organization of institutions through which members of the populace receive medical services are all parts of medical systems (Brown 1998:108).

An essential component of any medical system is making a diagnosis of the health problem patients present. In the ethnomedical system, diagnoses can be derived from the causation of the health problem and the symptoms/signs people present to the health care provider or practitioner. According to George M. Foster and Anderson (1978), if people believe the causes of an illness are spiritual entities such as deities, gods, ghosts, ancestors, or demons, or spells and black magic, diagnoses often involve oracles or spiritual sessions involving ritual specialists and healers. In

cases where people attribute the cause of illness to the material world, such as injuries, the diagnosis adheres more to the visible and observable universe.

Foster (1976) distinguishes between two types of etiological systems, personalistic and naturalistic. A personalistic etiological system explains disease as a result of the active, purposeful intervention of an agent, who may be human (a witch or sorcerer), nonhuman (a ghost, an ancestor, an evil spirit), or supernatural (a deity or other very powerful being). The sick person is a victim, the object of hostility or damnation the agent directs explicitly against him. Personalistic causality creates little room for accident or chance, all health problems and death emanate from the acts of the agent. Naturalistic systems explain illness in impersonal, systemic terms. Disease stems, not from the machinations of an angry being, but rather from such natural forces or conditions as cold, heat, wind, dampness, and, above all, by an upset in the balance of the basic body elements.

Theories of disease causation provide the rationale for the treatment of illness and disease in a medical system. People may classify therapies, for instance, according to body-system disorders and/or the symptoms against which they are indicated, the mode of application, the philosophical-therapeutical frame, organoleptic properties, mode of preparation, availability, and more (Staub et al 2015). Healers in all medical systems believe in the power to heal, as do the people they treat. After determination of the "who" and "why", in personalistic systems treatment for the instantaneous cause may be administered by the same person, or the task may be turned over to a lesser curer, such as an herbalist. Naturalistic etiological systems, with single levels of causation, require a different type of curer, a 'doctor', a specialist in symptomatic treatment who knows the appropriate herbs, food restrictions, and other forms of treatment such as cupping, massage, poultices, and enemas (Foster 1976).

Finally, the accessibility of a medical system is an essential element. This is in two forms: geographical and financial. Medical systems provide an organizational system for caring for the sick, which normally includes special places that people go when they are sick, rules for interacting with healers, and defined roles for both patient and healer. There is a structure for paying the healer for his or her services. Payment can be either monetary or in-kind (for example, exchange of goods and services). Familiarity with and trust in practitioners and their use of community-based or local materials and methods are also of essence. By understanding the cognitive and behavioural as well as the other components of traditional bone setting practice as a kind of traditional healing in ethnomedical systems, a researcher can make meaning in people's use of Traditional Bonesetters for the treatment of fractures in particular and musculoskeletal injuries in general. This thesis thus serves as an attempt to meet this broad objective.

The study is divided into six chapters inclusive of this introduction. Chapter Two gives background information on the study area and a concise review of previous anthropological research. The chapter also presents literature on the acquisition of knowledge and skills (technique) of traditional bone-setting practice and methods employed by Traditional Bonesetters in the management of fractures and other musculoskeletal (MSK) injuries. Finally, the chapter will pinpoint and elaborate on folk models and utilization of traditional healers in times of fractures and MSK injuries in Africa and other parts of the world.

The third chapter recounts the field element of the study, the setting for the research, and the methods used. It provides a rationale for the research participants selection procedures and the content of oral interviews and field notes-taking during participant observation. It describes how field data is handled and data analysis techniques.

In Chapter Four, my focus is organizing and analysing field data. I will present the results in the form of emerging themes, and I will debate that Frafra's traditional medical practice existed from time immemorial and has a pedigree of genealogical underpinnings. Following this, the chapter examines the healing strategies I observed and recorded traditional bonesetters employing during fieldwork. Thereafter, I will explore factors that impact people's decision-making in times of healthcare seeking for fractures and/or other MSK injuries.

Chapter Five looks at similarities and dissimilarities between the findings of this study and research from other parts of the globe. It discusses similar practices and utilization of TBS services in other parts of the African continent. The chapter brings to bear what is involved in the Frafra Traditional Bone Setting endeavour and the reasons people continue to resort to TBS for the treatment of fractures and other MSK injuries.

Chapter Six brings the study to a conclusion, gives a summary of the thesis, and offers recommendations for areas requiring further inquiry by future researchers.

CHAPTER 2.

BACKGROUND TO STUDY AREA

2.1 INTRODUCTION

An essential characteristic of primates concerning survival in their environment is mobility. Mobility is vital in two ways: 1) searching for prey for food and 2) escaping predators in defence. An intact body structural frame – the musculoskeletal (MSK) system – is required for performance of this vital function of movement of the whole body or parts of it. However, the components of the MSK system (muscle and bone) can be injured through mobility and even exposure to other mechanical forces. Humans may be the most mobile among primates in meeting their survival needs. The human MSK system is well-structured for movement. All its components (bones, muscles, and joints) perform important functions for the body. Bones provide the framework for the body's construction and protect and support internal organs. Bones also help the body move because they serve as muscle pivots. The inner core of bones is composed of hemopoietic tissue (red bone marrow) which manufactures blood cells whereas the outer parts of bone store minerals necessary for growth such as calcium and phosphorus. "Skeleton" is a Greek word meaning "dried up body" or "Mummy" – the name reflects the fact that bones cannot extend and recoil when we subject them to mechanical force. Despite being the hardest part of the human body, bones can fracture – a break in the structural continuity of a bone. But bone has a self-repairing ability that becomes pronounced when we are injured.

Aside from these physiological functions of bones, a common belief in West African Traditional Religion is that if a bone of the dead body breaks or amputation of a limb occurs before burial, the deceased soul is not able to rise from the grave or to join ancestors in the "next world". This is similar to God's command to Moses to cut only the flesh but not to break any bone of the

symbolic "Sacrificial Lamb" that saved the sons of Israel in the story of the Passover (Ex. 12:46). The Lord's command was to ensure that the "Messiah" (Jesus Christ), the "Lamb of God" will rise from the grave on the third day of his death.

Bones have significant value and prompt action is requisite whenever an individual breaks a bone. As people navigate between the scientific and ethnomedical systems in search of treatment for a broken bone, an understanding of the fundamental physiological processes involved in bone healing is essential for practitioners to create the optimal conditions for repair of the bone and to eliminate complications (Mirhadi et al 2013; Calmar and Vinci 2002). In scientific medicine, Orthopedists are physicians who treat (surgically and medically) bone and joint conditions (fracture and dislocation). In ethnomedicine, Traditional Bonesetters (TBS) handle cases of fracture and dislocations in their communities.

This chapter will review prior anthropological research on the Frafra Tribal Groups and look at literature dealing with Traditional Medicine (TM), specifically traditional bone-setting practice in other cultures of Northern Ghana as well as other parts of the world. It also looks at factors influencing people's decisions to use TBS when they break a bone or dislocate a joint.

2.2 ETHNOGRAPHIC REVIEW

Earlier anthropological research on the Northern Territories of the Gold Coast was under the watch of the colonial masters for administrative purposes. This is evident in the works of A. C. Duncan-Johnstone, R. S. Rattray, J. Eyre-Smith, J. Guinness, D. Westerman, and M. Fortes (Lentz 1999; Rattray 1932; Fortes 1945). Northern Ghana lies completely within the Sudanese Zone: bounded on the south by Ashanti; on the west by Ivory Coast; and on the north by the Sahara. This boundary runs roughly along the 11th parallel N. latitude; and on the east by Togoland.

Scholars have differently represented the area as 'parkland', 'savannah', or 'orchard bush' country, concepts which depict the sparse and uniform forestation typical of the zone. In comparison to Ashanti with its typical rain forests, the part of Ghana once known as the Northern Territories consist of the most open orchard country or treeless plains where sporadic baobab-tree discontinues the otherwise flat monotony. The climate is hotter and less humid than the coastal area. It exhibits two well-defined seasons, a dry season lasting about half the year (October to March) and a wet season lasting the remaining six or seven months (April to October). Fluctuations occur in the rainfall pattern from year to year in the same area. A typical feature of the dry season is the harmattan, a hot scorching wind burdened with fine dust that blows from the Sahara. These vegetation and climate conditions essentially influence the economy and the social life of the inhabitants. The inhabitants were for the most part farmers and hunters.

Linguistically, the languages of the northern part of Ghana belong to the ancient Gur (Goor) group of Western Sudanic languages. Gur is an appropriate label for the group because this syllable occurs in the names of several of the languages belonging to the group. The Gur group consists of these sub-groups: Mosi-Dogomba (Mole-Dagbane) sub-group, Grusi sub-group, Gurma sub-group, and Tem sub-group. Other branches are Kiliŋa and Bargu in Dahomé (Senegal), Bargu reaching into the north-western corner of Nigeria; and the Senufo or Siéna group in the Ivory Coast. The first three sub-groups are those from which languages (dialects) of the northern half of Ghana originate.

Mole-Dagbane - Dagomba, Mamprusi, Nanumba, Kusasi, Nabdam, Talansi,
Nakanni, Builsa, Dagati, Wala, Lobi
Grusi ('Kasen-Isal') - Kasem, Vagale, Tampoem', and Isala
Gurma - Gonja, Kratchi, and Nchumuru

(Rattray, 1932: viii, ix).

The languages of the Gur group form a categorical linguistic unit, they reveal strong closeness in vocabulary as well as grammatical structure. Every sub-group and every individual language indeed has its peculiar characteristics, but as Dr. Rattray (1932:122) noted long ago it is possible 'to regard the Northern Territories of the Gold Coast as a more homogenous cultural and – to a lesser extent – linguistic area, rather than a mosaic comprising a welter of tongues and divergent customs'. This fact explains the easiness with which Natives acquire a second language in their group and the natural way in which the more important of the languages, are spreading.

This research is concerned with the population of a part of the Upper East Region, a part of the region drained by the Volta River system. It is in the northeastern corner of Ghana between longitude 00 and 10 West and latitudes 10° 30' N and 11°N. It shares geographical borders with Burkina Faso in the North, the Republic of Togo in the East, Isala district in the Upper West in the West, and West Mamprusi in the Northern Region in the South. The principal inhabitants of this area are the Frafra ethnic group. The people that constitute the Frafra ethnic group are the *Nankanse (Gurense)*, the *Namnam (Nabdam)*, and the *Talense (Tallensi)*.

The Nankanse (*Gurense* by which they prefer to call themselves) constitute the majority of the Frafra tribal groups in the Upper East Region of Ghana. They occupy Bolgatanga, the region's capital town, Bongo, most parts of Navrongo, and Zuarungu. Their language is *Gureŋe*. *Gurense (English Grunshi)* is somewhat the equivalent of the word 'Kaffir' – unbeliever, eater of dog – as conferred by the Mohammedans on those who do not follow the Prophet. The name *Nankareŋa* (pl. *Namkanse*) is what the Kasenas (a neighbouring group) call the Gurense, who in turn call the Kasenas Yulse (singular Yulega). Europeans popularly know the Gurense as 'Fra Fra' – from the supposed sound of the word which they use as a salutation or in thanks, i.e., *fura fura*. The members of this group speak *Nankanni*, *Guurene* or *Frafra*, and *Booni*. They are divided into

totemic clans (*bure* plural *bural*) which is one of the ways of inquiring of a man his kindred or lineage (Rattray, 1932:232-233).

The Namnam (*English Nabdams*) occupy the triangular strip of the Frafra enclave bounded on the east by the Red Volta; the Tallensi lie to the south, and the Nankanse on the west. The Namnam are the smallest among the Frafra tribal groups. The people call themselves Namnam (*sing. Nabt*), the language *Nabte*, and their town Nabrug. They call the Kasen, *Yule*, and the Nankanse, *Gurse*; the Kanjagas, Bulse, and the Mampruse and Dagomba, *Dagbwan*. They share boundary with the Kusase country, where they first settled and later moved to their present town Nabrug. They are related to the Mampruse as their ancestors were full brothers at *Neleruk* (Naleregu, near Gambaga) (*ibid* p. 366).

The Talense (*Tallensi*) occupy Taleland, which embraces most of the southern half of the district between the two Voltas (Black and Red) and the western boundary. On the north, it is bounded by Zuarungu due east of the river. A unique section of the district is the Tong Hills. The section houses the densest and oldest settlements of Taleland. The total area of Taleland is about 300 square miles, making it second to that of the Nankanse area. They also place second to the Nankanse in terms of population density. The people of Taleland speak a Dagbane dialect.

There is a cultural uniformity among these three tribal groups of the Frafra ethnic group in forms of social and economic organization, in custom, belief, and material culture. Among the Voltaic peoples, the Mossi, the Dagomba, and the Mamprusi have centralized forms of political organization of the type throughout West Africa (Fortes, 1945:6). Between these centralized states stretches a group of tribes that have no political unity. The tribes of the Frafra ethnic groups originally had no *Na* (Territorial Chief). They have the *Ten'danas* (Priest-King; *lit* town or settlement owner) as heads. The Ten'dana is he who is in charge of and responsible for the *teḥa* –

the settlement of the clan. He performs sacrifices to the land gods, purifies the land when defiled by blood or other violations, allocates land to a stranger, and sits with Elders, to settle important disputes. The Colonial European Administrative Authority introduced the current system of chieftaincy seen among these tribes as an instrument for 'Indirect Rule'. These 'Titular Chiefs' as Rattray (1932:237) referred to them, now oversee the town and settlements of various tribal groups.

The Frafras are engaged in economic activities among which farming is predominant. Hunting was a mainstay in the past but has largely faded as a result of desertification and mining. They are known for their artistic works of basketry, pottery, leatherwork, and blacksmithing. They are also butchers and sell meat mostly across the country. The common material culture includes farm tools such as holes and cutlass, ploughs; and similar styles of compounds built with mud and roofed with elephant grass (Gabrilopoulos, Mather, and Apentiik 2002). They share common food prepared mostly from grains like millet (*Pennisetum glaucum*), maize (*Zea mays*), rice (*Oryza sativa*), sorghum (*sorghum bicolor*), and legumes such as groundnuts.

Traditionally, Frafra tribal groups featured patrilineal descent, exogamy, polygyny, and patrilocal postmarital residence. Inheritance occurred within and across patrilineages depending upon the property in consideration. Sons inherit their fathers' property that is usually not movable like land, and cattle and daughters inherit their mothers' property that is movable like clothing and cooking utensils. However, married daughters do not inherit property in their natal patrilineage. The Frafra mark their identity with tribal marks that run from the bridge of the nose across the cheeks to the lower jaw. These marks can either be on both cheeks or one, depending on the clan of origin of the individual. Frafra also have tattoos that decorate their faces and bodies which is commonly seen among women. The Frafras also believe in paganism and animism. Most

compounds house shrines of ancestral origin and those for individual ancestors, and spirits. Each clan places taboos on its totemic animals or objects as a sign of respect for these spiritual beings in natural forms.

2.3 FRAFRA ETHNOMEDICINE

Since their origin, humans have tried to survive harsh environments, diseases, and illness with healing practices that involve the use of plants and herbs. Around the world, Indigenous peoples identify different plants with medicinal properties and use them for curing and healing. Herbs are a basic part of the medical systems of Hippocrates and Galen, Ayurvedic medicine of the Indian subcontinent, Traditional Chinese Medicine (TCM), and Unani, along with many other cultural traditions that were hybrids of the various systems of medicines (Debprasad 2019).

Ethnomedicine is the domain of anthropology that examines conceptions of health and illness in different ethnic communities, including how people conceive of and act when it comes to well-being and healing (Quinlan 2016). Like language, politics, music, and dance, medicine is a subspace of locally situated culture. Every community has its medical style or medical culture. Beliefs about the body and illness causation, in addition to societal norms about when, why, and from whom to seek medical help comprise one's "culture of medicine" or "ethnomedicine" (Quinlan 2016). Ethnomedicine deals with knowledge about multiple areas including health, the body, illness causes, prevention, diagnosis, and treatment. As is characteristic with fields with the "ethno" prefix, ethnomedicine seeks out primarily an "emic" anthropological view. A researcher who meets medical issues with an outsider's or "etic" point of view can recognize and inquire about cognitive and behavioural models that a native of the culture may take for granted or not notice.

As with most indigenous societies, Frafra ethnomedicine relies on practical experience and observations that each generation hands down to the next (Ampomah et al. 2023). In Frafraland, people recognize ethnomedical practitioners as efficient healthcare providers in their communities. These practitioners normally use herbs, animal, and mineral substances to treat sickness. They employ techniques related to the knowledge that comprises ethnomedicine (Lam and Pacific 2000), and they serve as the first line of healthcare in times of illnesses and accidents.

Among other specialists, Frafra ethnomedicine includes Traditional Birth Attendants (TBAs), diviners/soothsayers (*burgkolgo daana*), herbalists (*yeyga daana*), and traditional healers (*tiiba*). TBAs are usually older women who practice traditional midwifery in their communities. People call upon them whenever a pregnant woman is in labour. TBAs acquire their skills by observing relatives who have delivered for women in their communities.

Diviners/Soothsayers use divination to determine causes of illness or misfortune. They provide treatment when causes are related to conditions for which their herbs and medicinal substances are effective. If the cause of the health problem falls outside their healing powers, they may refer the victim to another specialist. Diviners/Soothsayers provide their service in their own homes but can move to different locations to attend to their clients when the need arises. One of the chief methods in their practice is the performance of healing rituals. The majority of diviners/soothsayers are males.

Herbalists in Frafraland usually rely on the use of plant parts (herbs) to treat illnesses. Plant parts include leaves, flowers, seeds, the bark of the tree, and roots. Depending on the type and severity of the illness, herbalists will use these medicinal components singly or in combination. Herbal treatments are prepared in the form of food, powder, concoctions, butter and oils, and medicine water for bathing. Practitioners may burn a collection of plant parts and instruct the client

to inhale the smoke or boil the plant parts and instruct the client to inhale the vapour. Both men and women can be herbalists. Herbalists' knowledge extends to plants that cure or heal animals which they will also use with their human patients.

Frafraland Traditional Healers control shrine medicines. These specialists are usually few in number, and clients will travel from other communities and different parts of the country to seek the care of well-known healers. The healers' practice includes consultation with diviners and offering sacrifices to their shrines to appease the supernatural forces they have determined to be at the root of their client's problems. After offerings have appeased the supernatural forces, attention shifts to the client. Bonesetters perform rites for clients to provide some form of spiritual protection to avoid future occurrence of attacks by the spirits. This marks the termination phase of the healing process but not the healer-client social relationship. They may give the client a talisman, bracelet, bangle, hat, or necklace as a source of spiritual protection.

Traditional Bonesetters (TBS) (*Kooh-tebiriba*) in Frafraland handle injuries of the muscles, joints, and bones. They treat clients with sprains, strains, dislocations, and fractures. Their healing method is based on shrines and traditional knowledge that they have inherited from their ancestors. Clients access their service by either going to them or sending for them to come to the client's home. TBS use medicines made from plants and animals for their treatments. They are expert in local systems of the human body and rely on their anatomical knowledge to address injuries to muscles and bones.

In conclusion, Frafra ethnomedicine has been with the natives since time immemorial. People do not usually pay for practitioners' services immediately after treatment but wait until after they have been healed. Payment normally is in kind as the client can carry out services for the healer or pay a token (for example a fowl or goat with few pesewas). Ethnomedicine is an

important contributor to the health systems of the Frafra. Community members use it side by side with the biomedical system.

2.4 THEORETICAL LITERATURE REVIEW

This section features a theoretical review in three main domains. These domains were developed in a semi-structured interview guide as part of the research data collection instrument.

2.4.1 Traditional Bone-Setting Knowledge and Healing Skill Acquisition

Traditional medicine is one of the major elements that provided the foundation on which the world's ancient civilizations were built, along with technology, food production, and language/literary communication (Anquandah 1997). Traditional medicine is the main, and sometimes the only, source of medical care for a great proportion of the population of the developing world. Systems of traditional medicine are normally rooted in long-standing cultural traditions, take a holistic approach to health, and are community-based (Romero-Daza 2002). As Foster and Anderson (1978:2) emphasise, traditional or ethnomedicine:

"Comprise those beliefs and practices relating to disease which are the products of indigenous cultural development and are not explicitly derived from the conceptual framework of modern medicine".

Other writers openly argue that, African traditional medicine does not constitute an entity but that it is just:

“a collection of individually evolved practices developed in different families over generations and passed on to a limited number of people by apprenticeship; that the practices are varied and dissimilar as there are practitioners and also as different in form as there are ethnic groups in a country”

(Evans-Anfom 1986:26).

Acquandah, (1997) identified three main classes of traditional healers in Africa. The first class is a group of herbalists who possess in-depth knowledge of plant medicine. They make and dispense products made from plant parts and other natural sources. Second is a group of herbalists who engage in supernatural mystical practice in addition to pure herbal practice. The third class comprises shrine/cult priests who also have herbal knowledge but operate primarily as media or agents of deities from whom they receive direction concerning disease diagnosis and cure. Traditional Bonesetters (TBS) usually belong to the third category of traditional healers in Africa.

According to Eze (1991:23), a “bonesetter is a practitioner of joint manipulation. Before the coming into being of chiropractors, osteopaths, and physical therapists, bonesetters were the primary providers of musculoskeletal injury treatment. Traditional bonesetters would also perform reduction of joint dislocations and re-set bone fractures; another aspect of bone alignment procedure is spinal adjustment, which is a different procedure now referred to as “spinal manipulation”. Regarding the continuity of traditional bonesetters, Green (1999) and Onuminya and colleagues (1999), in their studies among TBS in Nigeria, state that traditional bonesetters acquire their knowledge, skills, and healing powers for fractures and musculoskeletal injuries through informal training from family members as a part of ancestral heritage. Green (1999) further supports this when he writes that “bone-setting was absorbed into orthopaedic surgery approximately 120 years ago when Hugh Owen Thomas, a medical doctor specializing in pediatric deformities, assumed his father’s nonmedical bone-setting practice”. Other researchers among different ethnic groups in Nigeria reported similar findings by stating that bone setting skills in traditional medical practice are acquired from parents or grandparents of the practitioners (who were themselves traditional bonesetters) and more often than not, these practices are reminiscent of Hippocratic techniques of managing fractures as traditional bone-setting has been practised for

centuries; especially in countries within the WHO African sub-region (Oyebola 1980; Eze 1999; 2012). As presented in several studies in West Africa, the majority of these traditional bonesetters claimed ancestral/supernatural inheritance of the trade and did not want to disclose any secrets about their practice (Alegbeleye 2019; Udosen et al 2006).

In another study on practices and perspectives of traditional bone setters in Northern Tanzania by Elizabeth Card et al (2020), knowledge acquisition occurred through paternal inter-generational passage and through an apprenticeship with male neighbours. The researchers found out that a traditional bonesetter had been setting bones in livestock for 10 years before establishing himself as a bonesetter for humans. In the words of Johnson Alegbeleye (2019:52) on his work in Cameroon, the practice of traditional medicine “has since been passed from one generation to another through training and apprenticeship. There are theoretical and practical training methods required for the grooming of trainees”. This apprenticeship program significantly assists the trainees in the basic understanding of:

“diseases, diagnostic procedures, medicinal resources, and preparation of the necessary prescription and administration of the appropriate medications. The preparation of African traditional medicine practices involves training and promotional aspects; which invariably turn the trainees to become responsible, accommodating, hardworking, good listeners, as well as having a sense of pride of themselves and their tradition and culture – otherwise referred to as the *ubuntu* (“humanity”) philosophy” (Alegbeleye, 2019).

However, a field study in the Ashanti Region of Ghana (Edusei et al 2015) discovered TBS practice is family-based, and a gift from God (Nyame) handed over from one generation to another within the family. This study did not recognize the apprenticeship role. Many ethnographic studies have shown that formal training can also be a source of knowledge acquisition for traditional bonesetters. The studies by Konadu-Yeboah (2023) and his colleagues and Onyemaechi (2020) are

good examples. They argue that a formal traditional bonesetter (TBS) educational training by orthopaedic surgeons can increase their knowledge and improve the quality of services and outcomes of TBS treatment. Onuminya (2006:320) earlier pointed out that “the trained traditional bone setter can provide essential and culturally relevant health services to their communities in developing countries, if adequately trained in the basics of orthopaedic care”. These sources point to the fact that practitioners acquire and increase TBS knowledge and skills through formal training.

2.4.2 Diagnosis and Treatment Procedures of Traditional Bonesetters

Like hospital-based medical practice, traditional bone-setting includes conventional diagnostic procedures before the commencement of treatment. Notwithstanding, different scholars have drawn attention to the handicaps that the traditional healer has in the area of diagnosis on account of his (illiteracy) lack of knowledge in anatomy, physiology, pathology, etc. and his inability to conduct a systematic physical examination and assessment and if necessary, support this with laboratory and other diagnostic tests. Because of the difficulty of making correct diagnoses, the practitioner tends readily to ascribe supernatural causes to diseases that present problems. To him, the root cause of any problem is in the supernatural (Evans-Anfom 1986:30-31). Sources in the literature indicate that for treatments practitioners focus on the bodily frame, shallow interiors, and surfaces: the bones, muscles, and nerves; they may include interventions to reduce fractures, alleviate pain, reset dislocations, manage sprains and swellings, attempt to regrow bone, restore cartilage, and deal with spinal and nerve-system problems, among other ‘musculoskeletal’ (MSK) ailments (Attewell 2016; Onuminya 2004).

Traditional bonesetters begin their diagnostic procedures by enquiring into the cause of the injury with verbal questioning and sometimes through incantations and spiritual consultation through divination. They touch and feel (palpation) with the fingers to ascertain the nature and severity of the fracture, and obtain radiographs to ascertain the presence, nature and anatomical site of the fracture (Edusei et al 2015; Card et al 2020). Hinojosa (2002) reported that Guatemalan Maya bonesetters prioritize manual treatment modalities, using their hands to address problems in clients' bodies. For bonesetters, the hands achieve direct knowledge of the suffering body, enabling them to work and secure the trust of those they treat (Hinojosa 2002). This is a skill bonesetters possess as with palpation and percussion in physical examination by scientific health professionals like doctors. It is a type of investigation that goes on internally by using other senses. Other studies also reported the use of X-ray and radiography by traditional bonesetters in diagnosing fractures and MSK ailments (Attewell 2016; Hinojosa 2004). The TBS usually refers such clients to the scientific medical system for X-ray and radiography or the clients may come with already taken X-ray films for practitioners to aid in diagnosis. Scholars have reported that musculoskeletal injuries of the body's extremities (limbs) are the most common body parts the traditional bone setters treat, but research has documented practitioners treating a variety of bones, including vertebrae, clavicles (collar bones), and hip bones. Studies have documented that traditional bonesetters treat closed fractures, open fractures, and malunion, and some treated dislocations, chronic pain, joint issues, ligament and tendon injuries, and congenital malformations (Edusei et al 2015; Card et al 2020).

Traditional bonesetters use materials scholars believe to have therapeutic effects in treating client injuries. Ethnomedicine or traditional medicine varies across different societies and cultures within the African continent. The traditional healer is concerned with alleviating physical

symptoms and with restoring the balance of the body – mentally, physically, and spiritually. African traditional healers have a stock of remedies. Healers employ plant, animal, and mineral materials to produce preparations for treating different diseases and ailments (Anqaundah 1997). A practice common to bonesetters in Ghana is the use of a chicken as a symbolic connection between the patient and the wider environment. The TBS asks the families to supply a chicken. The TBS will then break either the wing or leg of the chicken, depending on whether their patient has a lower or upper extremity fracture. The practitioner will keep watch on the chicken and the day it starts walking the practitioner will ask the patient to walk (Yempabe et al 2020; Agyeyomah and Langdon 2009). As Agyeyomah and Langdon (2009) document, when the bonesetter realized the patient in question is depleted – i.e., had anaemia – instead of breaking the chicken bone to become a symbolic twin to the patient’s compound fracture, the bonesetter added the chicken to a medical soup that fortified the patient for the procedure to come. Like this latter technique, Boakye et al (2019) have reported practitioners treating rheumatism, headache, bedwetting, and diabetes, and using the brain, claw, beak, bones, and feathers of a vulture to provide patients protection from witchcraft. In related research on the ethnomedicinal use of pythons Boakye and his colleagues (2021) reported the use of python body parts (head, bones, skin, fat, and eggs) for the treatment of human ailments. Python fat had the highest use value.

Historically, people have used shea butter, a fat they produce from the kernels of the shea tree, as a therapy in Sub-Saharan Africa. Shea butter has been a treatment for dermatological conditions (dermatoses), to promote wound healing (traditional bonesetters use it in open fractures), and umbilical cord care (Ugwu-Dike and Nambudiri 2022). Edusei and his counterparts (2015) also reported that traditional bonesetters in the Ashanti Region of Ghana used a

combination of burnt tortoiseshell ground into powder and shea butter in ointment form to apply to injured body parts for massaging.

The first step in the traditional bonesetter treatment procedure is to identify whether a fracture is open or closed; the bonesetters refer open fractures to a local clinic for wound care and closure. Upon the patients' return, the bonesetters manipulate the limb and treat it as a closed fracture. For closed fractures, the bonesetters identify the fracture site using palpation and clinical signs such as shortening of the limb (Nwachukwu et al 2011; Card et al 2020). Once they have identified the fracture site, the bonesetters attempt to reduce the fracture to its anatomical position. Following reduction, the bonesetters apply a herbal cream (known as "*Ufie*") to the affected limb while delivering an incantation. Some TBS fix bones by tying animal hide or pieces of wood around the affected body part and using clothing, pieces of discarded mattress, or pharmacy supplies as padding against the patient's skin (Card et al 2020). According to Agarwal and Agarwal (2010), after reduction and embalming, the bonesetters splint the affected limb to prevent limb movement. Splinting materials include cloths, hard cardboard and plywood. Some ethnographic studies (Nwachukwu et al 2011; Yempabe et al 2020), indicate that once the bonesetter splints a limb, the patient begins a standard care pathway, which involves 51 days of complete limb immobilization followed by 51 days of rehabilitation and return to function. During the immobilization period, the bonesetter changes the splinting materials every four days, during which he will reapply the herbal cream and massage the limb. According to Nwachukwu et al (2011), for patients with lower extremity fractures, during the immobilization period, the bonesetter gives the patient a personal mat on which family members or support staff can carry the patient. This immobilization procedure is similar to the application of Plaster of Paris (POP) in the case of the scientific medical system. However, in the TBS method during the second 51 days,

bonesetters encourage the patient to practice gradual immobilization and continue to massage and embalm the limb weekly while also counselling the individual on gait training (Alegbeleye 2019). The steps in care during the final 51 days are at the discretion of the bonesetter based on the signs and symptoms he reads in the patient.

TBS provide continuous and daily treatment until the injured patient is healed. However, Edusei et al (2015) reported that few TBS would offer treatment four times, morning and evening for four days for women, and only two days for men. To these TBS, the difference in the treatment period for women and men is due to the belief that increased activity and the softer tissues on the part of the woman may disturb the bandaged parts, thus requiring more frequent attention.

Some traditional bonesetters occasionally prepare “medicine water” (boiled water with herbs) and give it to their patients to drink before every treatment session. The TBS believe that the plants from which they have taken these have the spiritual potency to drive away bad spirits associated with the cause of the fracture and could hinder the healing of such fractures (Adamtey, Oduro, and Ocloo 2014). Traditional bonesetters also believe that many bone injuries are a result of offences patients or their kin have committed against the gods and other spirits and thus the practitioners need to ritually pacify the gods prior to treating the patients (Adamtey et al 2014). The traditional bonesetters and their patients make sacrifices and perform rituals in honour of the ancestors to hasten the healing of the bone (an example is the intentional breaking of a fowl’s leg or wing to predict the healing of the patient’s fracture) (Yempabe et al 2021; Agyeyomah et al 2010).

With regards to pain management, some TBS either leave pain untreated or treat it with either allopathic medicines like tramadol or oral and topical traditional medicines (Eshiet et al 2004; Card et al 2020). TBS also treated malunion by breaking the healed fracture site using either

their bare hands or a tool. There are different beliefs about how to prepare the site for the break. Some make the bone more breakable by first applying heat with fresh goat intestines or a hot machete while others believe the healed site is inherently more breakable and requires no preparation (Card et al 2020). Card et al (2020) report that during the breaking of malunion bones, practitioners address pain control with physical restraint or calling a medical doctor to administer local anaesthesia. Others did not rebreak healed fractures, and treated malunion by leaving the affected body part in a cast made of tree sap or animal skin (Yempabe et al 2020; Card et al 2020).

2.4.3 People's Decisions on Utilization of Traditional Bonesetters

Despite the growth and advancement of the scientific medical system across Africa, traditional medicines and medical practices continue to be essential and primary sources of healthcare for the majority of the population (Dada et al 2011; Abdullahi 2011; Agarwal and Agarwal 2010). Traditional medical practices encompass a broad range of specialities, including traditional bone settings for care of fractures and musculoskeletal injuries. Bone setting is one of the most widely recognized and used forms of traditional medical practice, with an estimated 10–40% of people using it worldwide (Busia et al 2010; Green 1999). Many anthropological studies have found that the general populace is confident in and happy to patronize TBS, and TBS enjoy more acceptance than other sorts of traditional medicine practitioners in terms of orthopaedic practice (Johnson 2020; Idris et al 2010; Thanni 2000). Certainly, the patronage of TBS services cuts across every class of the society, including the educated and the rich (Johnson 2020; Nkele 2003; Ruhinda 2020). Also despite documented common complications of TBS treatment including malunion and non-union, sepsis, deformities, and amputations as a result of limb gangrenes (Dada et al 2009; 2011; Omololu et al 2002), patients do not seem to be deterred from

patronizing the TBS rather than Modern Orthopaedic Service (MOS). Given the foregoing, researchers have tried over the years to study bone-setting patients to uncover reasons for the widespread use of bonesetters.

While studying factors influencing patronage of TBS, Thanni (2000) notes basic beliefs about TBS in particular and traditional healers (TH) in general are likely to be responsible for their continuing popularity. Another study on the determinants of utilization of traditional bone setters in Ilorin, north-central Nigeria (Aderibigbe et al 2013), reported a high percentage of participants knew of TBS practice as a way of getting treatment for bone injuries. About two-thirds of respondents who knew TBS practice as a form of treatment for bone injuries thought that TBS therapy is preferable to scientific medicine in handling bone injuries. The respondents' reasons for their choice of TBS service were that it was cheap, acceptable, and accessible (geographically). Family members and friends who had previously patronized TBS influence people's decisions to patronage TBS. The attitude of biomedical health workers, delays in hospitals, fear of amputation, and fear of operation in hospitals are also among others the prevailing factors that influence people's decision to utilize TBS treatment (Aderibigbe et al 2013).

Similarly, earlier studies elsewhere note that reasons for patients' preference for TBS treatment are beliefs that it is cheaper, natural and yields faster healing, and it is easy. Other factors include: accessibility, people fear amputation should they follow scientific medicine, and advice of relatives/ friends (Johnson 2020; Thanni 2000). Ariës et al (2007) also report from the Central Region of Ghana that the fear of implants and foreign objects including musculoskeletal traction devices, belief in the spiritual powers of the bonesetter, convenience, and flexibility of traditional care setting, and the prohibitive cost of orthopaedic care in a hospital setting contributed to clients' preference for traditional bonesetters. These authors also found that familiarity with bonesetter

culture and lack of familiarity with orthopaedic centers as well as hearing of positive testimonies regarding the outcome of services provided by TBS, experiences of friends, family members, and close acquaintances influence people's decisions for their choice of TBS. Other recent field studies in West Africa by Nwachukwu et al (2011) and Edusei et al (2015) include similar reasons for peoples' patronage of TBS service.

The belief that diseases and accidents have spiritual components (supernatural agents) that one must tackle alongside treatment is the most common reason for the continued patronage of TBS services (Kuubiere et al 2015; Dada et al 2011). Warren (1974) noticed in his ethnography of the Techiman-Bono of Ghana that there are diseases whose causes reside in nature *mogya mu vadee* on the one hand, and those whose causes are supernatural agents *sunsum mu vadee* on the other hand.

In a related study, Fosu (1981) reports that the people of Berekuso, a rural community in Ghana recognized diseases which are caused by natural agents. He states that they defined disease as a natural consequence of man's relationship with his physical and social environment (ibid 1981). Thus, the pathogens from the biomedical disease model are proximate causes and can be treated at the clinic or by herbal medicine. Other scholars report that the "African systems" trace ultimate causes of health problems to supernatural forces (Evans-Pritchard 1937; Field 1960). But these ultimate causes require actions more clearly based in ritual symbolism and the occult (supernatural) (Fosu 1981a).

In developing countries, people do not seek assistance from practitioners of scientific medicine for many diseases. According to a "folk" dichotomy, the belief system segregates natural from supernatural causes. Thus, the use of traditional or scientific medical care services depends

on whether people consider a disease to be of natural origin (in the realm of scientific medicine) or of supernatural origin (in the realm of traditional healers).

Though these examples of Traditional Bonesetters (TBS) practice and determinants that influence people's decisions to use TBS services for fracture and musculoskeletal injury treatment are by no means exhaustive, they show that different practices and reasons exist in different societies. They also indicate that detailed research of traditional healers including TBS is necessary if health planners are to benefit from such enterprises. In-depth studies will help us avoid making sweeping statements that were typical of earlier field observations. The Frafraland study is in this direction.

2.5 SUMMARY

In this chapter, I introduced the importance of the musculoskeletal system (MSK) to humans. I have provided key physiological functions of the MSK in contributing to the survival of humans and also the essence of the religious belief people attach to it concerning life after death. Next, I have made available background information on the study area. What I have offered here is not an exhaustive treatment of the anthropological literature. Instead, I have looked at areas and concepts that have direct connections to an understanding of an ethnomedical system with a specific emphasis on traditional bone-setting and management of MSK injuries (e.g., fractures) in Frafra land. Environmental (physical), social, cultural and economic factors impact people's decisions to practice and use traditional bone-setting, a recognised ancient branch of traditional medicine. In the next chapter, I will describe the methods that I used during the fieldwork component of this thesis.

CHAPTER 3.

METHODS

3.1 Research Design

Valerie Janesick (1994) says design is the *choreography* that establishes the *research dance*. The study employs an ethnographic design, which is an integration of first-hand empirical investigation with the comparative or theoretical interpretation of social organisation and culture (Hammersley and Atkinson 2019:1). Ethnographers engage in studying people's actions and accounts in an everyday context, rather than solely under conditions the researcher creates, as in the case with experiments. They refer to the point of view of the people they study as an "emic" or "insider" perspective (Morris et al 1999). As a methodological 'research design', researchers gather ethnographic data from a range of sources, but *participant observation and/or informal conversations are usually the main ones* (Hammersley & Atkinson 2019:3). The emic, etic (outsider/investigator) perspectives and observable representation form three centre pillars of ethnographic methods. Atkinson (2007) entreats ethnographers to analyze and interpret data from an emic and an etic perspective and take into consideration their personal transformation during the research. He argues that those researchers are also seen as research participants because their theoretical opinions and experiences can influence research findings.

Schutz's (1976) account of the experience of the stranger matches most obviously the work of anthropologists, who typically study societies very different from their home countries. However, it also applies even to those doing research within their own societies. According to the naturalist account, the value of ethnography as a social research method is founded upon the existence of variations in cultural patterns across and within societies, and their significance for understanding social processes. Ethnography explores the capacity that any social actor possesses

for learning new cultures, and the reflexive understanding to which this process can give rise. Even where he or she is researching a familiar group or setting, the participant observer is required to treat this as ‘anthropologically strange’, to make explicit the presuppositions that culture members take for granted. In this way, one can turn cultural phenomena into objects available for study. Naturalism proposes that through marginality, in social position and in perspective, the ethnographer can construct an account of these phenomena that both builds an understanding of them from within and captures them as external to, and independent of, the researcher- in other words as neutral phenomena.

As a native of the Frafra ethnic group in the Upper East Region and with a background in scientific medical care practice, I employed naturalism as a methodological philosophical position in this study on traditional bone-setting practice and its utilization for the treatment of fractures within my society. Taking this position gave me the capacity that any social actor has to learn new cultures and the reflexivity in comprehending this as anthropologically strange. Moreover, naturalism promotes ethnography as the central, if not the only legitimate, social research method (Hammersley & Atkinson 2019).

In meeting the goal of the above approach, the study adopted different field methods that produced data on both cognitive and behavioural components of Frafra traditional bone-setting practice as an element of ethnomedicine. Readers may use the findings to develop models for refining and integrating the positive aspects of traditional bone-setting practice in the health delivery system of the country as has occurred in other jurisdictions around the world.

This chapter outlines the field component of the thesis. The study adopted a divergent set of methods including:

1. Interviewing individual traditional bonesetter (TBS)
2. Participating and observing treatment sessions by TBS, and
3. Interviewing individual volunteers (potential users of TBS service)

I conventionally addressed several ethnographical concerns during the research. I regularly observed preparations TBS made before commencing treatment sessions, the interaction between TBS and their service users, and differences in handling new cases from old cases. In-depth interviewing on the origination and continuity of traditional bone-setting among practitioners shed light on the acquisition of knowledge and skill of bone setting. I also took notes on procedures the TBS employed to treat fractures. I interviewed potential users of TBS services who volunteered to participate in this study to obtain what constituted their preference for TBS service in times of broken bones and muscular/joint injury. Fieldwork took three months, a considerable length of time in dealing with a divergent set of methods, and a chance to authenticate and cross-check findings in the field through repeated observations of treatment sessions by TBS and talking to potential TBS service users who volunteered to participate in the study.

3.2 Field Work

Fieldwork started at the beginning of May 2023 and lasted until the end of July 2023. In the first month of fieldwork, I identified the geographical boundaries of the Frafra ethnic group within the Upper East Region which was formally part of the Northern Territories of the Gold Coast with Zuarungu as its administrative capital. The Frafra ethnic group occupies five distinctive areas within the Upper East Region as shown in the Map (page 89). Each section houses a slightly different Frafra Tribal Group whose members speak a distinct dialect. These dialects are ethnolinguistically similar per their origin from the Mole-Dagbane sub-group of the ancient Gur (*Goor*)

group of Western Sudanic languages. I mapped these five areas the Frafra tribes occupy as the sites for the study. They are Tallensi (language - *Talne*), Namnams (language – *Nabte*), Boonsi (language – Booni), Gurense (language – *Guurene*) and Nankanse (language – *Nankane*). Their corresponding settlements are located in Taleland to the south, Nabrug to the east, Bongo to the north, Bolgatanga in the central, and most of the eastern part of Navrongo to the west. I stayed in Bolgatanga, the region's administrative town, and commuted to the study sites daily for fieldwork.

I went out onto the field within this same month and made contact with the natives of these communities on my first visits. To ensure that I included certain types of individuals or persons displaying certain attributes in the study, I employed purposive (judgmental) sampling. I relied on the words of Bruce Berg (2001:32) that “when developing a purposive sample, researchers use their special knowledge or experience about some group to select subjects who represent this population”. Also, one may purposively sample individuals from groups who might not appear in sufficient numbers to be meaningful under more traditional random techniques (Glassner et al 1983; cf Berg, 2001:32).

With this at the back of my mind, I asked the people about the presence of traditional healers who attended to people with fractures in their communities. I approached the native people to whom others directed me as recognized traditional bonesetters in their communities and asked if they would participate in the study. I explained the research's purpose to them in the Frafra language. In each study site, I recruited two of the practitioners who met the inclusion criteria and consented to participate in the study yielding a total of ten TBS. Together with individual practitioners, I scheduled dates and times for interviews and participant observations at the convenience of the traditional bonesetters. I took the genealogy of the practitioners of traditional

bone-setting into consideration as a means of identifying other practitioners as participants for the study.

In getting the second category of participants for the study, volunteers who were potential users of TBS services, I used a research poster that requested people who were willing to volunteer and participate in the study. I requested the consent of each of the ten practitioners and pasted posters of my research at their homes where people mostly come for treatment. I also pasted the research poster on some social media platforms including WhatsApp to recruit voluntary participants.

3.2.1 Interviewing

The first round of data collection from fieldwork began in June and lasted for two weeks. I conducted interviews individually with each of the ten bonesetters in their homes. I audio-recorded these interviews and saved them using the area name of the bonesetter under each study site. At the end of an interview session, I replayed the audio recordings to ensure that I had covered the central topics in the study. In cases where I failed to capture vital information, I asked the practitioner for clarification. At the end of each day of interviews, I copied the recordings from the storage device of the audio recorder to a separate file in my laptop computer while keeping the original version in the storage device.

I conducted interviews using a semi-structured interview guide that I developed with open-ended questions on specific aspects of traditional bone-setting practice. However, as with any ethnographic study, the schedule allowed participants to talk about other things related to traditional medicine and their personal opinions. The interviews began usually after exchanging

greetings with the TBS. I gathered data for five demographic variables for each bonesetter I visited during this round of interviews:

- (1) Age of TBS
- (2) Gender identity
- (3) Marital status
- (4) Level of formal education
- (5) Form(s) of employment in addition to traditional bone setting

These were followed by specific items on traditional bone setting practice ensuring that the interviews covered the questions and materials that they were supposed to cover. I sat face-to-face with the TBS and asked these questions in the form of a conversation and audio recorded the responses. I interviewed eight practitioners in the Frafra native language (*Farefare*) and the remaining two in English. I translated the interview guide from English to *Farefare* before the start of fieldwork. The times of day for the interviews were morning or evening and each session ranged from 20 – 35 minutes. In the evenings after interviews, I listened to the audio recordings and then developed domains under which I transcribed recordings in the form of summarized field notes in my field diary.

The second category of interviews was with 20 voluntary potential users of the TBS service. It started in the first week of July 2023 to the fourth week. I did these in *Farefare* with a translated version of the semi-structured interview guide I designed for potential users of the TBS service who volunteered to participate in the study. I recruited these people using convenience sampling as they volunteered to participate in the study via the research subject recruitment poster. I contacted them individually at places and times that were convenient for them on different days. I explained the study's purpose to them and sought consent for their willingness to participate in the study before I interviewed them. I interviewed 20 individuals separately who consented to take part in the study after I recruited them through the research poster that I pasted at TBS settings

and social medical platforms. The semi-structured interview guide categorized five demographic variables for the voluntary potential users of the TBS service as follows:

- (1) Age of potential TBS service user
- (2) What gender user belong to?
- (3) What is the person's marital status?
- (4) What is their level of education?
- (5) What is the person's employment?

Next were questions eliciting people's health explanatory modules in times when a person breaks a bone in their communities. It also included what factors influence decisions people make to utilize TBS services for fracture treatment. During the close of fieldwork for each day of interviewing people, I encoded and summarized field notes by transcribing audio recordings and then revised the next task for the following day on the fieldwork plan or itinerary.

3.2.2 Participant Observation

To make meaning out of the social behaviour and cultural practice of a people in their natural setting, participant observation was the second method I utilized. I attended treatment sessions by the traditional bonesetters as a participant since my interest is in observing behaviours and meanings as they emerge in natural settings. Such observation serves as a natural ground for interaction with practitioners and people who come to them. Observation also engages the use of senses including sight and smell which provide important information that research participants may not voice during in-depth interviews. My presence was sometimes disruptive and suspicious, and this made me feel self-conscious. On several occasions, at TBS treatment settings, participants asked "What do you (a nurse) who works in the scientific medical setting have to do with traditional bone-setting?". In these situations, anonymous observation was out of the question. Situations of this nature underpin potential methodological problems in the fieldwork. My

presence was often abnormal or weird enough to affect people's behaviour and responses. To mitigate this problem, I employed naturalism as an ethnographic principle to study Frafra tradition bone-setting in its 'natural' state. I informed participants of my native identity, and let them know that I was well-versed in Frafra ethnic traditional customs and practices. I observed each bonesetter twice on separate days from mid-June to the end of July 2023. I documented: how the bonesetters interacted with new users and treated new cases separately from the old ones; the setting in which TBS provided treatment and the preparation they made before the commencement of treatment sessions; and the materials that traditional bonesetters (TBS) use to treat fractures (e.g., the medicines and appliances they employed). In the process of carrying out treatment, I observed how the bonesetters arrived at a diagnosis of the injury by using questioning and performing manual examination. I also noted the techniques they used to treat fractures and the length of time they took for new cases and old cases. Additionally, I observed the communication between practitioners and people who use their services as well as the people's physical reactions during treatment sessions. I also noted the strategies that the bonesetters employed to manage pain and discomfort in new and old clients.

3.3 Study Location

In the era of European Colonial rule, Frafraland belonged to the Northern Territories of the Gold Coast, an administrative and geographic entity that existed from 1902 to 1960. In 1960, the Northern Territory became part of Ghana and the first republic partitioned the territory into the Northern and Upper Regions. Then as time went on, a restructuring project in 1983 during the Provisional National Defense Council (PNDC) regime divided the Upper Region into the Upper East and Upper West Regions. The Upper East Region (UER) is in the northeastern corner of Ghana between longitudes 00 and 10 West and latitudes 10° 30' N and 11°N. It shares

geographical borders with Burkina Faso in the North, the Republic of Togo in the East, the Isala (*Sisala*) district in the Upper West Region (UWR) in the West, and West Mamprusi in the North East Region (NER) in the South.

The Frafras form part of the groups of people who reside in the Voltaic area, now Northern Ghana. They are the “...principal inhabitants of the Frafra local council area”, referred to formerly as the Zuarungu District of the Northern Territories, (Hill 1966:88 cf Hart 1971). As an ethnolinguistic group, they occupy most parts of Navrongo, Bolgatanga, Taleland, Nabdam, and Bongo (Adubofour 2019). Their principal towns are Zuarungu and Bolgatanga, with the former being the traditional capital and the latter the commercial and administrative capital of the Upper-East Region (Awedoba 2006). The name Frafra is an umbrella term for five dialect groups in Upper East Ghana. These groups share a common cultural heritage, with minimal linguistic differences. Awedoba (2006) reports that the name Frafra is derived from the phrase *fara-fara*, a greeting in the local language, which means “well done”. People usually use (sometimes with soft applause) the phrase in appreciation of others whom they have witnessed to be hard at work. The closeness of language, cultural practices, and above all ritual action (Atinga and Depoortere 2006), made these five sites appropriate for the study.S

3.4 Study Population

Farefare (the Frafra language), is related to Moore (a language of the Moshi ethnic group in Burkina Faso) (Barker, 1986). Linguistically, the Frafra people group has five dialects named after local towns and localities ... Grune, Booni, Nankani, Nabt, and Talni (Sow et al 2014; Adubofour 2019)... all intelligible to each other. Thomas Atta-Akosah (2010, cf Adubofour 2019), approximates the “mutual intelligibility is about 85% between them.” The Gurenshi and Nankansi ‘Frafra proper’ occasionally refer to themselves as ‘Nyetiya’ meaning “I said” (Hart 1971)

members of both groups characteristically use this phrase in re-emphasizing a point during communication. The Tallensi and Nabdams are, permitting for blurred boundaries of the kind Fortes (1945:6) reported, quite well-defined, but the Gurensi are more amorphous. Even though they have some cultural and linguistic means of differentiating themselves from their neighbours, historically they lacked any group identity beyond the clan settlement of an individual's birth (Hart 1971). During fieldwork for the study, interaction with the participants including interviews was done in *Farefare* (Frafra language) and English. There are, however, other minority groups residing in these areas including Kassena, Dagarti, Fulani, and Dagomba. In the 2010 population and housing census, the Ghana Statistical Service (GSS) reported that about 400,000 people inhabit the Frafra locales of the Upper East Region (GSS 2013). The Upper East Region is home to three main religious groupings: Christianity, Islam, and Traditional religion. According to the national census, 48.3% of the population practice Traditional religion, 29.1% are Christian, and 22.6% are Muslim.

In 2013, the World Health Organization (WHO) affirmed that Traditional Medicine (TM) is one of the essential founts of healthcare. The report indicates the ratio of traditional healers to the population in Africa is 1:500 whereas the ratio of scientific doctors to the population is 1:40,000 (Qi 2013). Native healers therefore remain the healthcare providers for millions of people in rural areas. The non-availability of scientific health facilities and health workers, poverty, familiarity, and several other factors contribute to continuous reliance on native healers for healthcare in rural areas. TM surrounds a large scale of experts, such as Traditional Bonesetters (TBS) for the management of musculoskeletal injuries. TBS is the most widely known and utilized traditional medical practice, with a record of 10 – 40% of people globally using it (Green 1999;

Busia et al 2010). About 78% of Ghana's patients diagnosed with fractures use traditional bonesetters for treatment (Ariès et al 2007; Kuubiere et al 2015).

Traditional bone-setting practice is very familiar to residents of Northern Ghana. This is because it has been a traditional medical practice for generations - one that took care of casualties of war and hunter-gathering activities in the Northern Territories before the colonial age. The scientific medical healthcare system first appeared in the Northern Territories of Ghana during colonial rule in the form of three medical units (Twumasi 1975) and thus the practice of traditional bone setting remained prominent in these areas for the treatment of fractures and other musculoskeletal injuries. At present, traditional bonesetters remain a primary choice for those seeking care for fractures and musculoskeletal injuries.

With the use of motorized transportation, Northern Ghana records a high rate of Road Traffic Accidents (RTA) (Kudebong et al 2011). Severe musculoskeletal injuries often result from these accidents and patients resort to traditional bonesetters (TBS) for treatment rather than treatment in hospitals that suffer from a severe shortage of orthopaedic surgeons (Callistus and Abass 2013). Musculoskeletal (MSK) injuries encompass fractures of different types, joint dislocation, joint inflammation (arthritis), sprain (injury to a ligament), and strain (injury to the tendon). They also include muscle and nerve injuries. Musculoskeletal injuries occur from various causes, including physical trauma such as road traffic accidents, falls, crashes from workplace machinery, non-compliance with workplace safety precautions, poor nutrition, other disease conditions like tuberculosis of the bone, and poor posture. The incidence of MSK injuries is across all ages of the population and is common among young adults, children, and the aged.

3.5 Sampling Strategies

Janice Morse (1990) notes that the quality of research is contingent upon the appropriateness and adequacy of the sample, that is, from whom, how much, and what is the quality of data one obtains. The most essential and yet most involving step in ethnography is gaining access to the social setting. Yet, ethnographers have realized truly marvellous insights into human conditions by plunging themselves into a social setting for extended periods (for years sometimes) (Bryman and Bell 2016:179-180).

During my fieldwork, I stayed in Bolgatanga, the UER capital town, and commuted to each of these study sites. During my initial visits to the study communities, I met people on first contact and inquired with them about the presence of traditional bonesetters in their locales. My contacts showed me houses within these communities that residents knew housed people who treated fractures using traditional (ethnomedical) practices. I went to those houses and inquired about the people who perform traditional bone-setting. I interacted with these individuals in their homes and explained the research aims and procedures to them in Farefare for their agreement and willingness to participate. I recruited two traditional bonesetters each in these five chosen study sites who consented to participate. The bonesetters and I agreed to schedule dates and times for subsequent data collection. I used the first two weeks of fieldwork for this engagement with the 10 bonesetters who participated in the study.

To get volunteers to participate in the study concerning decisions people make when they break a bone, I utilized convenience sampling (also referred to as accidental or availability sampling) (Babbie and Mouton 2001). To meet the time component of a master's degree thesis research, I recruited those who were close at hand or easily accessible. I did not know these people and they did not know other research participants. These participants volunteered to participate in

the study after reading/seeing and responding to my request for research participants on the research poster. I met and built rapport with each of these people, explained the purpose of the study to them and requested their consent to participate. I interviewed these volunteers individually after their willingness and signed written or oral (recorded) consent to participate in the study. These 20 participants were all inhabitants of Frafra society and spoke either *Farafare* or English.

3.6 Sample and Sample Size

The 10 traditional bonesetters in the study have five or more years of practice in the Frafra locales of the Upper East Region. I contacted them by way of personal inquiry. Bonesetters agreed and consented verbally (recorded) to participate in the study. To allow for the socio-cultural difference among these five Frafra dialects speaking groups, I selected two bonesetters from each district to form part of the study group.

I recruited volunteers for the study after field observation days of the bonesetter's treatment sessions. I sought the consent of the traditional bonesetters and pasted the research poster at the settings to recruit voluntary people to participate in the study. I interviewed a total of 20 volunteers (potential users of bonesetters' services).

3.7 Data Collection Tools and Techniques

To describe traditional bonesetters, this research adopts Ezeanya-Esiobu's (2019:81) definition:

“A traditional bonesetter is a lay practitioner of bone manipulation, well versed - at least, according to the view of patrons and his community at large - in the medical art of restoring broken bones to full functionality.”

I followed Bronislaw Malinowski (1922:3) to arrive at a rationale to follow in this research:

“No one would dream of making an experimental contribution to physical or chemical science, without giving a detailed account of all the arrangements of the experiments; an exact description of the apparatus used; of how to guide the observations were conducted; of their number; of the length of time devoted to them, and of the degree of approximation with which each measurement was made.”

I interviewed 10 individual traditional bonesetters and observed their treatment sessions. I had face-to-face interviews with these bonesetters using a semi-structured interview guide. The guide covered specific areas of the phenomenon including knowledge and skills acquisition, how the specialist accepted clients, and what is involved in diagnosing and treating fractures or other musculoskeletal injuries.

Subsequently, I performed two sets of participant observation with each bonesetter during treatment sessions using an observation protocol I developed for the study. These observations allow for the researcher to witness and record field notes on the social and behavioural components of the phenomenon and provide an opportunity to see how bonesetters treat fractures. The interviews took 20 to 35 minutes and participant observations lasted as long as the treatment session by the bonesetter.

Using Michael Taussig's (2011) work, *I swear I saw This: Fieldwork Notebooks* as a blueprint, I recorded conversations on an audio recorder and wrote down field notes in a field notes diary during interviews and participant observations respectively. After having reviewed the audio recordings and field notes, I conducted follow-up talks with each bonesetter and had another round of participant observation on treatment sessions to enhance the consistency of the data.

I talked to the volunteers in the study using a semi-structured interview guide that sought to understand people's explanatory models in terms of causation (aetiology) of fractures, available

treatment modalities of the societal healthcare system(s), and what influences decisions people make to seek a cure or treatment when they break a bone. I audio-recorded interviews and subsequently transcribed them into field notes in a diary. Throughout fieldwork, interactions with all participants occurred on scheduled dates and at times that were convenient to them. I adhered to the socio-cultural norms of each Frafra tribal people and followed ethical protocols during the fieldwork component of the study. I explained to participants the data collecting formats and instruments I used before collecting data from them.

3.8 Data Analysis

After each day of fieldwork, I copied audio and text data onto a laptop computer in separate files. I labelled and identified traditional bonesetters as TBS with an upper-case alphabet starting from “A” and continued in the order they were interviewed to “J”. I interviewed the two TBS from one study site before moving to the next set of bonesetters from a different study site for easy identification and consistency in labelling. I labelled potential users of the bonesetters’ service who voluntarily participated in the study as VP1 to VP20. I transferred recordings of interviews with voluntary participants onto a laptop computer in separate files.

I translated audio data in *Farefare* into English and then uploaded coded audio data onto transcription software. To maintain emic meanings, I retained key *Farefare* terminologies and concepts in the transcription. I transferred the transcribed data into a word processor and uploaded it into NVivo version 11 for thematic analysis. I used MS Excel and SPSS software as tools to analyze and present the sociodemographic data of participants in two separate tables. I reviewed field notes and coded them under the main themes as in the semi-structured interview guide with that of the coded audio-recorded data for thematic analysis.

3.9 Ethics

The Faculty of Arts Research Ethics Board of the University of Calgary, Alberta granted ethical approval for the study and issued an Ethics Certificate for the conduct of the study. I adapted an existing consent form by the Research Ethics Board for participants to indicate their consent to participate in the study. In the field, I translated the consent form from English into *Farefare*. I read the form for non-literate participants who verbally consented. I recorded and coded oral consent from participants to ensure confidentiality and anonymity. I gave literate participants a copy of the form which they read through and signed as evidence of their consent.

As a native and an outsider at the same time, I follow the ethical and cultural protocols of Frafra tribal groups in the Upper East Region. As such, I observed these protocols and societal norms throughout my fieldwork for the study. I talked to participants about their rights to refuse to be part of the research or to withdraw from it at any time.

3.10 Study Limitations

One limitation of the research was the translation of audio-recorded data from *Farefare* to English. This can lead to a potential increase in losing some pertinent terms and information as a result of translation errors regarding some key *Farefare* terminologies and concepts not having equivalent English words in terms of meaning. Again, my position as an insider was a limitation since I may assume I already know some things and will not listen as intently to what respondents say or observe as intently what they do. It contributed to me missing things that an outsider would not have missed since I was investigating a phenomenon of a culture I belong to.

CHAPTER 4.

RESULTS

4.1 INTRODUCTION

Writing on data storage, retrieval, and analysis, Huberman and Miles (1994:10), Wolfe (1992), and Levine (1985) all assert that data management and data analysis are integrally connected. The chapter begins by displaying in tables the sociodemographic characteristics of the study participants. Subsequently, it looks at knowledge and skills acquisition in bone-setting among Frafra traditional bonesetters ranging from years of experience in practice to continuity of bone-setting in bonesetter's generations (lineage) when he (bonesetter) becomes incapacitated or passes on. It also presents methods Frafra bonesetters employ in the management of fractures. Finally, the chapter provides views of participants who resorted to traditional bonesetters with fractures over doctors in scientific medical settings such as clinics and hospitals. Their opinions are based on folk explanatory models of disease (health problems) causation and perceptions of traditional medicine (TM) using bone-setting as an example.

4.2 Findings

Ten traditional bonesetters (TBS) and 20 volunteers (members of the laity or larger population) familiar with (TBS) services participated in the study. The TBS and the volunteers come from the five Frafra Tribal groups of Ghana's Upper East Region (UER). All TBS had worked for one or more years and continued to practise bone-setting at their present locales. The 20 volunteers had knowledge of the experiences of clients who undergo fracture treatment at the clinics of TBS. Such knowledge came from first-hand experience or indirectly from the accounts of others to which they had familiarity.

The sociodemographic characteristics of the TBS population are seen in Table 4.1 (see page 86). Those of the volunteers are seen in Table 4.2 (page 87). Sixty per cent (60%) of TBS were in the 41 – 60 age range, entirely 100% by gender and most were married with families. Although some TBS had some degree of formal education, 60% did not go to school, and a majority of the participants were farmers. However, 20% had a profession as a teacher and a nurse. Almost all TBS had wives and children, and this indicates a likelihood of passing on the practice of bone-setting to descendants. All TBS were male and as these societies trace descent through the male line, sons inherit fathers' property including medicine shrines. However, a female could be a traditional bonesetter in cases where medicine shrines choose a woman to succeed in the practice or her father has no son. Yet a male relative will make ritual sacrifices on her behalf.

Turning to the members of the laity, participants were mostly in the 18 – 40 age domain representing society's productive and reproductive population. Equally divided by gender and marital status, most participants had some degree of formal education. The majority (45%) of participants engaged in small business/trading as a source of their livelihood and only 15% practised farming as an economic venture. The nature of their means of livelihood attests to why they were familiar with how to access TBS services as sustaining fractures and other MSK injuries are associated with use of motorbikes and tricycles for transportation in a developing economy like Ghana.

For each of the 10 TBS, I compiled data concerning acquisition of knowledge and skills in bone-setting. Several similar expressions and practices surfaced during interviews with and observation of TBS. Table 4.3 (page 88) presents themes concerning acquisition of knowledge and skills.

Responding to the question “How many years have you practiced traditional bone-setting?” 50% answered more than 20 years and 30% said one to ten years. Only 20% answered that they have been practicing bone-setting for 11 to 20 years.

The interviews showed that the predominant way of acquiring knowledge and skills in bone-setting among Frafraland TBS is through inheritance from a male relative who has the medicine shrine for bone-setting. In total, 70% of TBS referred to this form of skill and knowledge acquisition, and this speaks to the genealogical and familial aspects of traditional medicine among its practitioners in rural societies. The TBS learned bone-setting through apprenticeship with their father or grandfather. Only 20% of the TBS learned bone-setting by first practising with animals (livestock) and later progressing to humans as they advanced in age, knowledge, and skills in bone-setting. The remaining 50% of those who had inherited their practice, trained alongside their father or grandfather treating humans, but first with simple (minor injuries) cases before moving on to handle more complex cases.

During the interviews, one bonesetter aged 47 years described how he became a traditional bonesetter:

I had a broken right thigh some years ago and went to one TBS for treatment. After I was treated and healed, I was supposed to pay him (TBS) for the service by providing him with some items that he would use to appease his *baagre* (medicine shrine). But I could not afford to get him the things he required from me. So, I offered to stay with him and work for him as a service to take care of my debt which he agreed. As I supported him in treating people’s fractures I was also learning and at a point in time, he allowed me to handle fractures independently but under his watch. After some years, he gave me the *kɔɔba-teebigo baagre* (lit. bone-setting medicine shrine) to take back to my village so that I could do it as a trade. And that is how I have become a *kɔɔba-teeba* (bonesetter) now in my community.

When I asked the bonesetter why he accepted the *кочба-тебиго баагре* from his former healer he said:

Our *Nye-etiya* (lit. *I said* – Frafra ethnic group) medicine was created by our ancestors to help people in times of ill health. He has helped me, and so it is expected I also help others in my community far away from his. I will also pass it on to my son or grandson or another person to, continue helping people with fractures when I no longer have the strength to treat people. That is how people ‘*eat baaga*’ (acquire shrines) which could later on be inherited by their offspring here and elsewhere.

About the genealogical component of traditional bone-setting 60% of TBS acknowledged that for decades members of their lineage have practiced bone-setting. They said they had taken over the practice from the fathers who also inherited it from their (fathers) great-grandfathers down to their common ancestor. Response from a 47-year-old TBS who became a practitioner after being treated by a TBS and learning under him (his healer) is different from the bulk of cases. The man was the first member of his lineage to acquire the skills of a TBS, and he recognized that bone-setting will continue in his lineage when he is no longer alive.

Another unique case was that of a 35-year-old TBS who said his mother’s brother practised bone-setting in his maternal patrilineage. He learned bone-setting under his maternal uncle’s supervision when he was young and later became a TBS in his natal patriline after going through an initiation rite his maternal uncle officiated. Although inheritance among the Frafra almost always occurs within the patriline, in Frafra society a man can pass down property to a brother’s married sister’s son based on consanguineal ties including shrines and livestock (e.g., cattle). According to 30% of the TBS participants there were members in their lineages who migrated and settled in distant towns that also practised bone-setting. This means when sons of a lineage that possesses the bone medicine shrine grow up and relocate in different communities, they can move with a sample of the shrine and practice bone-setting in their new communities.

In every interview, the TBS said they had people who were learning informally under them (TBS) to ensure the continuity of bone-setting in their lineages or the communities. As seen in Table 4.3, 70% of the TBS reported that they were training their own or a brother's son(s) or a grandson who would continue the family practice when they (TBS) were incapacitated or deceased. Likewise, 30% of TBS participants reported training a friend or a previous client interested in bone-setting. Fieldwork observations of the seven TBS who claimed they were training lineage members from later generations confirmed training of son(s) or grandsons by TBS as assistants or aides. These TBS claimed that one could not just pick any people in one's lineage to train or to pass down the skills. The ancestors who work in harmony with the medicine shrine must guide the TBS to select and train the son who is spiritually connected to the shrine or gods. Observations revealed only one TBS to have had a friend as his trainee. In this case, the TBS said "My friend has shown interest in my work (bone-setting) and is willing to learn it. I am also ready to train him which is not a violation of the shrine's rules. I will perform some rituals and give my friend the *kɔɔba-teebigo baagre* when I see that he can practice independently."

Although all TBS treated fractures traditionally in their locales, their ways of diagnosis, treatment methods, and the materials they used varied as per interviews and observation. Table 4.4 (ref. page 88) presents the phases of what goes into the treatment of fractures and other musculoskeletal injuries by TBS.

All the TBS mentioned that their clients came through the recommendation of a friend or relative who had had a previous experience with fracture treatment by TBS. According to one of the TBS "sometimes health workers especially nurses in the hospital informally suggest to clients with simple fractures or dislocations to come to us since we can handle those cases confidently. Clients also leave the hospital on their own and come to us for treatment and get healed faster."

For diagnosing fractures and other musculoskeletal injuries, all TBS employed similar criteria and techniques. However, in addition to these techniques, three of the TBS stated that they sometimes use X-rays from hospitals to aid in diagnosing fractures and dislocations. Typically, clients bring with them an X-ray from the hospital. Depending on the socioeconomic status of the client, TBS may request the client acquire an x-ray: “If the client can afford the cost of an x-ray, then we can ask him/her to go and take an x-ray of the affected part and bring it to us. That makes the diagnosis easier for us because we also have some knowledge of the anatomy of bones and joints”. Participant observation documented the use of X-rays by each of these three bonesetters.

The methods and criteria for the treatment of fractures and other MSK injuries by bonesetters in Frafraland involve both physical and spiritual techniques. All TBS began treatment sessions by pulling and manipulating the fractured limb to align the broken bones. Six of the TBS either reported or displayed massaging with warm herbal medicine water as a way to reduce swelling and pain. Only one of the TBS dressed open wounds from fractures. Observations documented him as he cleaned the wounds with cotton wool soaked in salt solution, applied ointment, and then covered the wound with gauze before applying a splint. The rest of the TBS mentioned that in cases of open wounds, while they treated the fractured bone, they encouraged clients to go to the clinic for dressing.

The bonesetters use different substances such as shea butter mixed with powdered herbs, cow dung or tobacco, and clay or Earthworm castings. They apply these substances topically after massaging and manipulation to align the broken bones or fix back in position a dislocated joint. They believe that these substances have medicinal properties that contribute to bone healing. A 51-year-old TBS provided an illustrative explanation when he was speaking on the use of clay or Earthworm castings in the treatment of fractures and dislocations. He said:

Human beings came from the Earth (dust). When we apply clay or Earthworm castings on the human body it can find its way into the body and contribute to the healing of the injury (Oral interview: 09/06/2023).

The TBS frequently cited splinting of fractures as the next technique during the active treatment phase. They reserved the technique for fractures on the long bones of the limbs. They use splinting to immobilise the limb as movement causes shifting of the broken bone ends that interrupt the healing process. Observations documented that the materials the TBS used for splinting (fracture immobilisation) included broken sticks woven in mat form according to the size of the affected area, bark of a tree (examples mahogany, *Ebenaceae diospyros*), crepe bandage, and animal skin.

Of the five TBS who reported managing their clients' pain as part of the treatment process, observations documented three TBS using non-narcotic analgesics. These were over-the-counter painkillers such as Paracetamol, Ibuprofen, and Diclofenac tablets. The TBS asked children to take the syrup form of these medications to reduce pain. On one occasion during field observation, I witnessed a retired nurse anaesthetist administer anaesthesia to a female client who could afford the services of this specialist. The client sustained a close fracture of the right thigh bone (femur) in a motorised accident and was brought in by her husband for treatment at the TBS's compound. According to the anaesthetist, as a fresh case the fracture was marked by intense and excruciating pain and the anaesthesia was essential for both managing the pain and ensuring the TBS could provide treatment. Other bonesetters mentioned that they manage clients' pain by physical restraint through the help of relatives and friends who came with the clients. They emphasized that massaging was also employed to reduce pain since it reduces swelling arising from the body's reaction to the injury. Their clients were, however, permitted to take pain-reducing medicines, especially during the night to sleep well.

Observations and interviews reveal that bonesetters advise clients to use supportive devices during the recovery stage. These include crutches (one or two) for cases involving the lower limbs and slings for the upper limbs. They recounted that the use of crutches to walk and exercise in cases of lower limb fractures starts after about five weeks of uninterrupted treatment regimen. The sling also immobilizes the arm and the client can move without moving the affected arm to disturb the healing of the fractured bone(s).

The attribution of health problems (disease) causation to supernatural forces necessitates involving spiritual aspects in the management of fractures and other musculoskeletal injuries by TBS and sometimes, their clients. In the interviews, all the bonesetters recalled instances of divination to uncover the cause of their clients' fractures. They had to deal with the spiritual cause of the injury for them to heal their clients.

Regarding the duration and efficacy of treatment by TBS, all the TBS said it depends on the age of the client and the nature of the injury clients sustain. They cited the duration of fracture healing as 3-5 weeks in children and young people, and 6-10 weeks among adults and the aged. Simple injuries (fractures) heal faster and show far fewer complications than complicated fractures.

In response to the question "How do clients pay for your service?" eight of the bonesetters answered animals and some items like flour, tobacco and *pito* (locally brewed sorghum beer). Observations revealed 5 of the TBS accepting animals as payment for their services. Only two of the TBS listed money as a form of payment which they use to procure materials for providing treatment.

Face-to-face interviews provide a deeper insight into the folk explanations people provide for utilization of TBS for the management of fractures in Frafraland. Interviewees

included individuals who had in the past been clients of the same selected bonesetters whose practices participant observation documented (Table 4.5 ref. page 89). In response to questions about the actions people take in response to bone fractures, 13 respondents (65%) said ‘Go to doctor’s house (hospital/clinic)’ and 7 respondents (35%) said ‘Go to TBS’.

In response to questions in the interview schedule, respondents gave their views toward TBS/traditional healers and the factors that influenced the decisions people make to use TBS for the treatment of fractures and other MSK injuries. There were 20 respondents in the sample for the second source of data collection in this thesis study. The analysis of these items in this thesis is based entirely on the *responses* of individuals. This is because each individual provided views on and factors that influence the decisions people make to use TBS for treatment of fractures and other MSK injuries.

In this regard, the interviews generated 58 responses dealing with four common views about TBS/healers and 128 responses dealing with eight factors that influenced decisions people make to use TBS for the treatment of fractures (see Table 4.5). All the respondents (N=20) perceive TBS/healers as healers who use locally natural materials and ways of treating fractures. Fourteen (70%) of the respondents knew bonesetters as healers in their communities. Thirteen of the respondents (65%) claimed that TBS have served as healers since ancient times. Eleven of the respondents (55%) said that TBS were healers who relate well with their clients. On factors that influence decisions people make to use TBS for treatment of fractures, all 20 respondents mentioned that TBS provide both ‘prompt service’ and are ‘less costly with flexible payment for service’. Nineteen of the respondents (95%) said that TBS offer “effective approaches to diagnosis and treatment outcomes”. Ten respondents (50%) mentioned ‘fear of prolonged stay in the

hospital' as a reason for choosing TBS. Eleven respondents (55%) noted that people who choose TBS often 'believe also in supernatural causes of injury'.

4.3 SUMMARY

In this chapter, I have tried to present the results of the fieldwork component of my study. I developed themes from the field data and presented these themes with their corresponding items in tables (page 87). Potential users of TBS service knew the experience of clients who sought fracture treatment from TBS clinics. The chapter demonstrated that traditional bone-setting was a male-dominated practice which fathers pass on to sons within the lineage from one generation to another. It explained how clients end up at the TBS for fracture treatment - was mostly at the recommendation of friends and relatives who had previous experience with TBS.

The chapter presented findings on techniques and methods that TBS employed to diagnose and treat fractures and other MSK injuries. It emphasised some similarities and differences between TBS methods and those by hospital doctors in managing fractures. The chapter documents that TBS methods are efficacious. However, as with any other human institution, enactment of the methods is not free from error. In terms of payment for service, the chapter outlined that TBS did charge a price but did not profit from their service and offered their clients a flexible payment system.

Finally, this chapter analysed the actions people initially took when they broke a bone or sustained an MSK injury and their perception of TBS and traditional healers in the context of folk models. It further discussed the factors that inform decisions people make to go to TBS in times of fractures and other MSK injuries

In the next chapter, I will relate the findings from this study to the literature to which I referred in the background section of the thesis. The next chapter will discuss the findings and document those that agree with and those that differ from the findings within the existing literature.

CHAPTER 5.

DISCUSSION

5.1 INTRODUCTION

As part of meeting their healthcare needs, the Frafras rely on the traditional (ethnomedical) as well as the scientific (biomedical) medical systems. I investigated the practices of traditional bone-setting and factors that influence the decisions people make to use traditional bonesetters (TBS) for the treatment of fractures. Anthropologists including R. S. Rattray (1932) and M. Fortes (1945) have researched the Frafra Tribe(s) and culture. These researchers offered fundamental knowledge about the ethnomedical system(s) of the Frafra. Patrick. A. Twumasi (1975; 1979) provided a detailed description of Ghana's medical systems and the social history of the Ghanaian pluralistic medical system. His works indicate that most people patronize traditional medicine (TM) in rural Ghana, and that TM serves as the only healthcare delivery system in the absence of scientific medical care.

In this study, I found out that traditional bone-setting has a genealogical root from which male relatives pass it down to sons from one generation to another. This is done through informal training under apprenticeship. Traditional bonesetters (TBS) employ techniques similar to those biomedical bone specialists (orthopaedic surgeons) use in the treatment of fractures. These include massaging, pulling and manipulation (alignment) and immobilisation. However, traditional bonesetters do not have the technology to perform internal fixation in cases of complicated fractures. Their ways of open wound care as part of treatment for open fractures are a challenge as they do not adhere to biomedical aseptic techniques. Among other things, in times of making decisions to use traditional bonesetters for the management of fractures, people consider the affordable cost and flexible payment system, prompt attention that they get when they go to

bonesetters, effective approaches to diagnosis and treatment outcome (efficacious), and fear of amputation.

5.2 Socio-demographic Characteristics of Respondents

Two categories of respondents participated in this study (traditional bonesetters and potential users of bonesetters' service). My observation of the socio-demographic characteristics of traditional bonesetters (TBS) in this study showed that a greater number of bonesetters were between 41 and 60 years of age and married. All of the bonesetters were male and the majority were subsistence farmers.

Bonesetters need successors who preferably should be a blood relative and serve as an assistant to the bonesetter. Succession of bonesetters fits with the patrilineal descent and inheritance that anthropologists have noted among the Frafra (Rattray 1932: 232-233; Fortes 1945:6).

The majority of the people who volunteered as respondents for the second category of data source for this study fall within the age range of 18 – 40 years. This age range constitutes the reproductive and productive group of society. Many of them engage in small-scale business/trading. Taken together, these two findings point to the fact that this group of people use motorised transportation and are therefore more at risk of experiencing road traffic accidents. These Accidents cause musculoskeletal (MSK) injuries among which fractures are predominant thus positioning them as potential users of TBS services. This is congruent with Kudebong et al (2011) proposing that the use of motorised transportation leads to a high rate of accidents with accompanying musculoskeletal injuries (e.g., fractures).

5.3 Knowledge and Skills Acquisition in Traditional Bone-setting Among Bonesetters

The traditional bonesetters in this study had been practising bone-setting in their communities for 10 or more years. More years of practice improved TBS knowledge and skills in bone-setting since they encountered new cases with varying complexities over time. In this regard, longer years of practising traditional bone-setting makes bonesetters more experienced and knowledgeable.

As Evans-Anfom (1968a:26) documents, African traditional medicine is a collection of individually evolved practices that practitioners have developed in different families over generations and passed on to a limited number of people by apprenticeship. This study has a similar finding where traditional bonesetters (TBS) started learning bone-setting at a tender age under the instructions of their male relatives who were themselves TBS. The TBS worked as apprentices to their masters who were mostly their grandfathers, fathers or male blood relatives practising bone-setting. An experienced TBS would choose the person(s) to train and who would take over the trade in the family by consulting with the deity or supernatural agent who was the ultimate source of the capacity or ability to perform bone-setting. The shrine which houses this entity is the focal point of certain rituals that invoke not only the agent but also feature a 'call' to the ancestors of the TBS. The apprentice is both physically and spiritually attached to his TBS master from whom he learns the practice. The apprentice gains competence as he works with his master and ultimately takes over when the master becomes old or passes on.

I found out that during the apprenticeship the trainee initially trains with animals such as goats, sheep and cattle. He progresses to learn with humans by attending to simple cases like sprains and strains. He can also attend to old cases that were partially healed and require simple massage and immobilization. The trainee also helps his master by cleaning the setting for treatment

and organising tools and materials his master will use during treatment sessions for different cases. He hands over items to his master on request and assists in restraining clients during manipulation. This finding is in line with Alegbeleye (2019) who reported how trainees acquire knowledge and skills in bone-setting via apprenticeship.

Contrary to the finding that TBS learn their craft from extensive apprenticeship was the belief that traditional bone-setting, though, it is family-based, is a gift from God (*Na-yine*) that members of each generation hand down to the next. The TBS here then does not require any apprenticeship role to establish himself as a bonesetter for humans (Edusei et al 2015). Others also argue that formal educational training can increase TBS knowledge and skills (Konadu-Yeboah et al 2023; Onyemaechi et al 2020).

Another finding in my study is the association between bone-setting and ancestral inheritance, and that bone-setting has a genealogical background. Traditional bonesetters had previous relatives in successive generations of their lineage ply the trade. There were also living relatives of TBS in separate distant settlements that practised bone-setting. Studies demonstrating that practitioners acquired bone-setting skills in traditional medical practice from parents or grandparents supports my findings (Oyebola 1980; Green 1999; Eze 1999; 2012).

5.4 Treatment of Fractures by Traditional Bonesetters

The commencement of treatment for fractures and musculoskeletal injuries by traditional bonesetters is marked by how potential users of their services come to them. I observed that TBS service users make treatment choices based on the recommendation of relatives and friends. These relatives and friends have had previous treatment for fractures and MSK injuries from the TBS that they recommended to those needing bone-setting. The TBS also had people who came to them

from clinics and hospitals. Such patients get informal advice from some health workers (e.g., nurses) upon discharge of fracture patients from the hospital. The bonesetters that health workers recommend are known to have treated fractures well for several years in their communities. This finding is coherent with studies by Edusei et al (2015), Aderibigbe et al (2013), and Aries et al (2007) that documented the fact that people went to TBS through the advice of family members and friends as well as health workers in clinics and hospitals.

Diagnosis remains the Achilles heel of traditional medical practice. Traditional healers are handicapped in diagnosis due to their (illiteracy) lack of knowledge in human anatomy, physiology and pathology. In this thesis, I noticed the TBS employed a series of diagnostic techniques (all assessment and analysis tasks) in pursuit of the treatment/healing process for fractures and musculoskeletal injuries.

First, traditional bonesetters began by taking a history of the injury from the casualty or the person who accompanied the casualty (e.g., relative, or friend). Using interview questions, bonesetters identified the cause of fractures and ascertained their severity.

Second, TBS conducted a systematic observation of the individual with particular attention on the affected body part. They looked for swelling, the presence of open wounds and whether the patient had the ability to move the affected site (mostly limbs). They also touched the site to feel the extent of swelling and identify its source from either bleeding (blood) or body tissue mass (muscle).

Thirdly, the bonesetters measured the length of the broken limb. As a common technique, TBS compared the normal limb with the affected limb by bringing them together to see the length difference. The casualty was either in a sitting position or lying on an even surface. These postures

allowed the TBS to identify the marked shortness in length of the affected limb in cases of fractures of long bones. With dislocations, there was a slight increase in the length of the affected limb.

Next, the bonesetters then flexed and extended the limb at the joints according to the range of motion the joint permitted. Through this technique, bonesetters assessed the damage to the surrounding muscles and supporting tendons and ligaments of the joint. The technique also provided TBS insight into whether there was gap between the uniting bones because of the separation (dislocation). I observed this in cases of dislocations of the shoulder, elbow, and knee joints. The TBS performed this technique by placing his fingers in the armpit (axilla, shoulder joint), the front depression on the elbow (cubital fossa) and the back depression on the knee (popliteal fossa) while moving the limb using the range of motion technique.

Finally, bonesetters touched and felt for the presence of fractures on bones with their hands. They palpated the affected limbs to feel and locate the ends of a broken bone(s), and to identify the number of broken sites on a bone and bones broken in areas with more than one bone (e.g., leg and forearm). They also get to know the type of fracture (usually a complete break in bone continuity or a crack in the bone shaft) and damage the broken bones caused to surrounding structures.

These findings on diagnosis and diagnostic techniques traditional bonesetters employ are in line with Card et al (2020) and Edusei et al (2015) who found that TBS used verbal questioning, touching and feeling with the fingers to establish the type and severity of fractures. Hinojosa's (2002) description of how Guatemalan Maya bonesetters used their hands to achieve direct knowledge of the suffering body, enabling them to diagnose fractures also confirms this finding.

The medicalisation of traditional medicine (Alland Alexander 1970:23), involving the integration and use of biomedical language and technology by traditional medical practitioners, is

not an amazement in the postcolonial era of globalisation (Anderson 1996:111). Many clients of traditional medicine practitioners have come to expect this, and healers openly acknowledge the power and reach of biomedicine in their practices (Waldram 2000). I observed traditional bonesetters use radiological technology to assist them in arriving at diagnoses for fractures and MSK injuries.

Bonesetters utilised X-ray films taken at clinics and hospitals to help diagnose fractures. Patients brought these X-rays to the TBS in their search for fracture treatment. The individuals had first reported to the hospital as a place for immediate emergency care when accidents occur and were requested by doctors to have X-rays of the affected body parts. In some circumstances, the TBS can ask the individuals to go and take an X-ray of the affected part and bring it back to them. The TBS usually make these recommendations to individuals who can afford X-rays. Bringing X-rays facilitated a quick diagnosis of fractures because the images present clear evidence of broken bones. This finding is in agreement with earlier studies acknowledging that traditional bonesetters employed X-rays and radiography in diagnosing fractures and musculoskeletal ailments (Attewell 2016; Hinojosa 2004).

Like practitioners in the Western (scientific) medical system, after successful diagnosis traditional bonesetters proceed to implement specific interventions in the treatment of fractures and musculoskeletal injuries. Interventions are actions the TBS carry out to relieve suffering and promote healing and recovery in their clients. The bonesetters perform these acts based on their assessment and analysis of cases.

This study showed that the majority of TBS intervened first by pulling and manipulating the fractured limb. While the TBS performs the intervention, the client sits or lies on a flat surface (e.g., a bench, or mat on the ground) under the restraint of relatives. The TBS employs the

technique to align the broken bone(s) and bring back the affected limb to its original normal length. This finding agrees with Nwachukwu et al. (2011) where TBS manipulated a limb to reduce the fracture to its anatomical position once they had identified the fracture.

Following the limb alignment I described above, bonesetters massage the injured limb with warm herbal medicine water. In some instances, they apply shea butter (a local ointment) to lubricate the skin on the injured site before massaging. Massage reduces swelling and returns displaced surrounding structures such as muscles, tendons, and ligaments to their original (normal) positions. Massaging reduces the swelling and the pain the client experiences. My finding here contradicts that of Adamtey et al (2014) because traditional bonesetters did not give “medicine water” (boiled water with herbs) to their clients at any point in time before the treatment session.

I witnessed a single case in which the bonesetter managed open wound(s) as part of his interventions for the treatment of fractures. The bonesetter cleaned the wounds with cotton wool swags using a warm salt solution in a bowl as the lotion for dressing. He used disposable gloves and dressed the wound with his hands. Subsequently, the bonesetter applied a local ointment on the wound and then covered it with a gauze bandage. The client purchased these materials from the pharmacy store and brought them to the bonesetter. This finding is not fully consistent with those of Card et al (2020) and Nwachukwu et al (2011) since some bonesetters did not refer open fractures to local clinics or hospitals for wound care and closure. It is suggestive that in their studies, the bonesetters did that to avoid the complication of infection (sepsis) that can result when practitioners fail to follow proper aseptic techniques in wound care.

Another intervention that I found was that the TBS applied a substance on the skin of the fractured site. The substance differed from one TBS to another. Bonesetters believe these substances have medicinal potencies that promote the healing of fractures and musculoskeletal

injuries. They obtain the substances from local sources. Examples that I saw in the field included shea butter (a local ointment) mixed with ground herbs, cow dung, tobacco, clay and earthworm castings. Commenting on the medicinal properties of clay and earthworm castings, one TBS remarked that “Man was created from the dust of the ground (see Genesis 2:7 NKV). Thus, clay or earthworm casting can find its way into the human body and cause healing when topically applied”. Clay or earthworm castings also bring about immobilisation of the fracture as it hardens on the skin around the fractured limb.

The finding of the application of shea butter mixed with ground herbs here conforms to results from Aries et al (2015) and Nwachukwu et al (2011). These authors reported that TBS applied shea butter mixed with black powdered medicine and a local herbal cream (known as ‘*Ufie*’) to affected limbs in Cape Coast and Enugu State respectively. However, TBS usage of cow dung, tobacco, clay and earthworm castings to treat fractures is at variance with findings from Boakye et al (2019; 2021) where practitioners used body parts of certain animals for the treatment of human ailments believing that they provide clients protection from witchcraft.

Severe excruciating pain typically marks fractures and musculoskeletal injuries. Handling the injuries may worsen the pain sufferers experience. In treatment sessions, traditional bonesetters use specific methods to intervene and reduce the pain their clients experience from their injuries. Several researchers found that bonesetters treat pain with either orthodox medicines like tramadol or oral and topical traditional medicines. Other bonesetters address pain control with physical restraint or calling a medical doctor to administer local anaesthesia (Eshiet et al 2014; Card et al 2020). I found bonesetters apply similar pain management strategies in my study. The medicines they used were oral over-the-counter analgesics (e.g., Tablets paracetamol, ibuprofen, diclofenac) and they enlisted clients’ relatives to provide physical restraint.

One outstanding finding from my study involved a nurse anaesthetist who came to the TBS compound and administered a short-acting general anaesthetic agent to a client. This was a fresh case of fracture of the thigh bone (femur). It was the client's relatives who came with the anaesthetist to render this service which the TBS welcomed. The bonesetter performed his treatment interventions easily as the client was under the influence of anaesthesia. This suggests a collaboration between some trained scientific medical system professionals and traditional bonesetters can produce good pain control in the treatment of fractures by bonesetters.

The traditional bonesetters immobilised fractured limbs as part of their treatment methods. Immobilisation ensured that the ends of the fractured bone(s) remained in contact with each other as healing began (callus formation). Immobilisation secures the broken bones the TBS aligned and fractures heal within a short duration and without complications like malunion. I observed bonesetters use different kinds of materials for splinting (immobilisation). Splint materials included pieces of small sticks woven into a mat, the back of a tree (e.g., a mahogany tree) and animal (livestock) skin. Bonesetters applied one of these on the site of the fracture and secured it by tying a rope or crepe bandage around the affected limb.

These findings are like those from other investigators reporting bonesetters' usage of animal hide, pieces of plywood, old mats and tree sap for splinting (immobilizing) fractures of the limbs (Agarwal and Agarwal 2010; Alegbeleye 2019; Yempabe et al 2020). The immobilisation traditional bonesetters employed is to some extent comparable to the application of Plaster of Paris (POP) in the scientific medical system.

I observed clients recovering from fractures use supportive devices to move the affected limbs in the form of exercise in the settings of the bonesetters. The bonesetters recommended that those with fractures of the lower limbs use crutches (one or two) or a walking stick to walk

gradually after six to seven weeks of continuous treatment. Clients with fractures of the limbs used slings to secure the affected part when swinging the arm and also handling a tennis ball or dry kapok fruit for exercising the hand by extension and flexion movements. This finding is in agreement with rehabilitation and return-to-function strategies that some TBS adopted for their clients after 51 days of complete limb immobilisation in a study by Yempube et al (2020).

Early theorists such as James Fraizer and Emile Durkheim argued that ritual, an essential ingredient in many subdivisions of traditional medicine, always achieved desired outcomes (Ahern 1979). This thesis found that traditional bonesetters engage in spiritual rituals as part of interventions to bring relief to the sufferers. The involvement of spiritual backing is based on the belief that either natural or supernatural forces depending on the social circumstances can cause fractures and musculoskeletal injuries. Bonesetters use divination to uncover supernatural forces (spirits, deities, witches) behind the occurrence of some fractures and MSK injuries. They use incantations during treatment sessions to drive away spiritual forces they believe to be preventing the healing rate they expect to see in the client. Traditional bonesetters offer animal sacrifice on behalf of fracture victims to beg for pardon for certain offences the client or relatives have committed against the gods. They also perform spiritual rituals to remove certain physical objects that vindictive agents (people using sorcery, malevolent spirits, angry ancestors) have placed in the victim's body to cause the injury. A bonesetter narrated to me a special case of a knee dislocation where he used a fowl egg to 'pull out' three fishing hooks from the young man's knee joint. The bonesetter said a soccer teammate had embedded the hooks into the victim's knee to eliminate him (the victim) from competing for a position on the team. TBS must use natural forces to cure injuries resulting from natural events and supernatural means of dealing with cases that result from the actions of supernatural forces. My findings, in this case, coincide with Adamtey et

al (2014) who documented bonesetters' use of herbal medicine from plants that have spiritual potency to drive away bad spirits responsible for causing fractures. They also reported that bonesetters ritually pacified the gods before treating clients and made sacrifices in honour of ancestors to facilitate healing as I have reported in this thesis.

One other finding I noticed regarding traditional bonesetters resorting to spiritual rituals in treatment was the symbolic breaking of the wing or leg of a fowl. The bonesetter normally requests from the client, a fowl on the first day of reporting. The fowl is a male for the male client and a female for the female client. When the client's fracture was on the upper limb (left or right) the TBS broke the corresponding wing of the fowl. When the client's fracture occurred on the lower limbs (left or right) the TBS broke the corresponding leg of the fowl. The bonesetter keeps the fowl alive and begins treatment of the fracture for the client. The bonesetter observes the fowl as he continues his interventions on the client at three day intervals. The bonesetter encourages the client to begin to move the fractured limb when he (the bonesetter) notices that the fowl's broken corresponding limb returns to normal function. The fowl's full recovery marks the complete union of the fractured bone of the client. Yempabe et al (2020) and Agyeyomah and Langdon (2009) made similar findings in their documentation of bonesetters' using sympathetic magic involving chickens to treat their clients.

5.5 Duration and Efficacy of Traditional Bonesetters Treatment

This study showed that traditional bonesetters provided treatment for fractures and musculoskeletal (MSK) injuries uninterruptedly for three to five weeks in cases of children and young people. They used six to ten weeks for cases of adults and elderly people. This suggests that the age of the individual will determine the duration of treatment by bonesetters and subsequent

healing of fractures and MSK injuries. However, the sex of the individual did not influence the treatment pattern since bonesetters performed treatment interventions every three days intervals. The clients' cooperation and adherence to the bonesetters' instructions during treatment also helped bonesetters achieve these goals. This finding is contrary to that of Edusei et al (2015) which indicated that traditional bonesetters would offer treatment four times, morning and evening, for four days for women, and only two days for men.

McGuire and Kantor (1988:189) note “[H]ealers have a sense that their healing systems ‘work’ when a sickness episode is consistent with their expectations”. Traditional bonesetters believe their methods are efficacious once the injury falls within the range of ailments their ‘medicines’ treat (heal/cure). However, in any medical system, the efficacy of an intervention depends on the type and nature (stage) of injury or sickness. In this regard, the data showed that traditional bonesetters’ methods produced good treatment outcomes for close and simple fractures and joint injuries. There can be delayed or prolonged healing in cases of multiple and complicated fractures with open wounds and hemorrhage. Clients can experience complications such as infection, gangrene and malunion. Trained medical personnel are also not immune from human errors, and traditional bonesetters’ methods may successfully treat clients that practitioners in clinics and hospitals have failed to treat. This finding is nonconflicting with that of Oyebola’s (1980) observation of Yoruba traditional bonesetters in Nigeria.

5.6 Payment for Traditional Bonesetters Services

One cannot conclude, on the basis of statements about money, that a culture actually opposes paying for healthcare (Van Der Geest 1992:672)

My study showed only 20 per cent of traditional bonesetters accepted payments in cash from people who patronized their service. Traditional bonesetters recognise that ancestors legitimate their services, whom they (TBS) feed fowls, flour water (*zoom koɔ 'm*) and *pito* (a locally brewed sorghum beer). Traditionally, healers do not accept money for their efforts. Traditional healers as part of preparing their medicines make use of things that ancestors and shrines 'eat' (i.e., flour water, *pito*, chicken, etc.). They accept money from their clients to fulfil their obligations to their ancestors. One bonesetter explained the reason(s) he accepted money from some people who access his services during the interview:

Some people come to me for the treatment of fractures and musculoskeletal injuries. I spell out the items that they are to provide as payment for my services. Then they opt out to pay money (cash) equivalent to the items. I will obtain the items on their behalf and use them for the treatment. These are people who profess Christianity and Islam as their religious faiths. They think of the rituals I perform to bring healing to people as paying homage to idols and forbid that. So, they pay money for me to get the ingredients on their behalf for treatment.

Traditional bonesetters (*Koɔŋ-tebiriba*) exist to serve their families, neighbours and the community with their knowledge and do not charge money for their service. I observed people who brought animals (fowls, guinea fowls etc.) and pots of *pito* as payment for TBS services after recovery. Bonesetters give their clients time to get these items. They also allow flexibility of payment such that their clients offer the items in instalments. These findings are in harmony with

those of Rattray (1932:190-191) who documented that traditional healers tell people to offer “whatever your heart tells you”, and Bierlich (1999) who documents an elder’s remark that “money spoils the medicine” because healers usually do not charge fees.

5.7 Action People Take First When They Break a Bone (*koɔbire*)

As Ghana’s healthcare delivery comprises the scientific and the traditional medical systems, people patronize both systems: they complement each other (Offiong 1991). But traditional healers remain the main source from which a larger proportion of the population receives their healthcare, especially since ‘healing’ is far more than curing disease or illness. In Ghana, only 61% of the total population, and 48% of the rural population have access to clinic or hospital-based health services (Korah, Nunbogu, and Ahmed 2023).

For respondents in this study, the initial action people will take whenever they sustain a broken bone is to go to the hospital. Their first choice often occurs because fractures and other MSK injuries mostly occur from road traffic accidents where bystanders call the ambulance service or look for means of transportation to take the casualty to the hospital. Moreover, people will first go to the hospital because they fear other parts of their bodies could be affected by the accidents which the doctor was in the best position to determine and handle. People will also go to the hospital since they know that scientific medical professionals can transfuse blood and administer infusion to ensure the casualty survives and who can seek other means of dealing with fractures.

Respondents think that fracture victims are usually first taken to the hospital because they are limited when accidents occur. People afterwards will resort to TBS when other medical problems are taken care of in the hospital. But if it were a simple fracture that occurred due to a fall, then the TBS in the community becomes the first place for people to go for help. These

findings find support in results from previous research showing that fracture clients left hospital treatment for traditional bone-setting and people making TBS their first point of call, in times of fractures and other MSK injuries (Edusei et al 2015; Ruhinda 2020).

5.8 People's Perceptions About Traditional Bonesetters

The people I interviewed perceived traditional bonesetters as healers who existed and practised since time immemorial before the introduction of scientific medicine in their communities. They recognized the fact that fathers usually pass on to their sons traditional bone-setting though others can learn it by apprenticeship training. People knew that bonesetters trace the source of their fracture healing powers to the medicine shrines they inherit from their ancestors. Respondents also viewed TBS as having better interactions with those who seek their services in the social and economic context (Brown 1998:108) than orthopaedic professionals in the scientific medical system. Traditional bonesetters were more readily available to the people.

The respondents also thought of traditional bonesetters as local practitioners who used natural substances in their communities to treat fractures. Bonesetters employed fracture treatment methods like manual manipulation and alignment of broken bones, regular massage and immobilization techniques of which local people were aware. Their methods of handling fractures did not involve introducing foreign devices such as nails, pins and plates (metals) into the body, unlike the scientific medical system of internal fixation techniques for fractures. Three studies from Nigeria demonstrate these findings (Oyebola 1980; Onuminya 2004; Eze 2012). C.B. Eze defined a bonesetter as a “practitioner of joint manipulation”. He also indicated that before chiropractors, osteopaths, and physical therapists, bonesetters were the primary providers of musculoskeletal injury treatment. Traditional bonesetters would also perform the reduction of joint

dislocations and re-set bone fractures; another aspect of the bone alignment procedure is spinal adjustment, which is a different procedure now referred to as spinal manipulation” (Eze 1991:23).

5.9 Factors That Influence People’s Decisions to Use TBS for Fracture Treatment

This component of my thesis sought to grasp the factors that influence the decisions people make to use traditional bonesetters in times of fractures and musculoskeletal injuries within the Upper East Region of Ghana. I found that people from different backgrounds in society including those with formal education, professionals, and Christian and Islamic faiths utilized TBS for the management of fractures and MSK injuries. I realized that people consider multiple factors when making decisions to use TBS services. Common among these factors are the experience of prompt service, belief and trust in TBS, TBS effective approaches to diagnosis and treatment outcomes (belief that TBS methods are efficacious), fear of amputation, and fear of long hospitalization.

Many studies have sought to understand the reasons people utilize TBS for the treatment of fractures and MSK ailments rather than scientific medical orthopaedic service (Omololu et al 2002; Dada et al 2009; 2011; Johnson 2020). I found two leading factors that respondents considered to influence people’s decisions to seek help from TBS for the management of fractures and MSK injuries. These were, the quick service TBS provides to people who go to them and the cheap cost with flexible payment for TBS service. The importance of timeliness of service provision and payment for service considerations believed to influence people’s decisions to use TBS are evident in other studies from Ghana and Sudan (Yempabe et al 2020; Idris et al 2010.)

A third leading factor that influenced people’s decisions regarding the choice of TBS was the belief that TBS diagnostic and treatment methods were more efficacious in terms of handling fractures than hospital treatment. People believe that TBS use of hands to touch and feel in

diagnosing and manipulating fractures was more effective and time efficient. They think that TBS application of manual reduction of fractures and massaging the affected part reduces pain and brings quick recovery. TBS also regularly remove splints to assess the progress of healing and reapply the splints after massaging with warm herbal water. In this way, TBS were able to detect and correct non-aligned bones early as compared to POP in hospital treatment where casts remain in place for one or two months. People also prefer TBS's use of natural materials such as earthworm castings, clay, and herbs mixed with shea butter and tobacco which they believe have therapeutic effects not seen with hospital medicines. Other researchers have documented these findings (Johnson 2020; Aderibigbe et al 2013; Thanni 2000). Similarly, Aries et al (2015) reported that people considered their familiarity with bonesetters' culture and hearing positive testimonies regarding the outcome of services the TBS rendered.

Other factors that the respondents reported influencing people's decisions for their choice of TBS service included fear of limb amputation and the application of Plaster of Paris (POP) and other devices like traction appliances should they go to the hospital. Respondents associated these activities with prolonged hospitalization with the possibility of developing nosocomial infection. Respondents reported that people were aware of this and would prefer TBS service for the management of fractures and musculoskeletal (MSK) injuries. These results were also found in other parts of West Africa and globally (Nwachukwu et al 2011; Dada et al 2011; Hinojosa 2004). In my interviews, respondents stressed that people also believe in supernatural causes associated with fractures and MSK injuries. People recognize TBS powers to handle the spiritual aspect along with the physical methods since there are supernatural forces and natural agents to disease causation (Warren 1974). Three studies reinforced these findings (Kunbiere et al 2015; Adamtey

et al 2014; Dada et al 2011). Thanni also pointed out that belief and trust in TBS influenced people's preference for TBS to hospital-based medicine in handling bone injuries.

5.10 SUMMARY

This chapter analyzed traditional bone-setting as it exists and operates in Frafraland. It asserts that traditional bone-setting is genealogically rooted in ancestral medicine shines from which male relatives pass it down to sons within successive generations. The chapter showed how TBS acquired their bone healing powers and the knowledge and skills of bone-setting. I have tried to show how TBS methods for treating MSK injuries (e.g., fractures) are similar to and different from those of biomedical orthopaedic specialists. The duration and efficacy of treatment and mode of payment for access as with any medical system were described. How people act when they sustain an MSK injury and their perceptions about TBS were described in terms of place and treatment process. Finally, the factors that influence people's decisions to use TBS were discussed. Economic, sociocultural, and spiritual factors affect people's decisions to use TBS. The healthcare utilization theory in the era of medical system pluralism emphasizes the significant roles that cost and accessibility of service play in people's healthcare-seeking behaviour. The affordable (cheap) cost with payment by instalments for TBS service and ready availability in their communities to provide prompt service for their clients ultimately makes people patronize TBS rather than hospital-based medicine in managing bone injuries. Chapter six brings this thesis to a close. It epitomizes the key findings from this study and the conclusions drawn from them. Since a single study cannot exhaust the entire scope of a particular topic of interest, this chapter also suggests some areas for future inquiries by researchers to help provide an in-depth understanding of traditional bone-setting in the Frafra ethnomedical context. I will conclude my thesis in this chapter

by calling for a possible combining of systems – a formal integration of TBS with biomedical system specialists through biomedical training of TBS and vice versa – as people have already combined both systems.

CHAPTER 6.

CONCLUSIONS

6.1 INTRODUCTION

In the anthropologic archives of Frafra society traditional medical practitioners are everywhere and influence almost every domain of life. The ethnomedical system of Chapter Two presented how ethnomedicine turns on practical experience and observations that each generation hands down to the next. Frafra ethnomedical practitioners comprise traditional birth attendants (TBAs- midwives), diviners/soothsayers, herbalists, and traditional healers (among which are bonesetters). The Frafra recognise traditional healers as adept healthcare providers. Traditional healers employ techniques akin to the embodied knowledge of ethnomedicine. Thus, they serve as the first line of healthcare in times of diseases/illnesses and accidents in their communities.

Chapter Four documented the practice of traditional bone-setting in managing fractures and musculoskeletal (MSK) injuries. The chapter studied Frafra traditional bonesetters (TBS) with a focus on their knowledge and skills (powers to heal fractures) acquisition and methods for setting bones. TBS's healing method is based on shrines (*baa'gre*) that they inherited from their ancestors and traditional knowledge that they gain through apprenticeship training. Bonesetters use medicines they make from plants and animals for their treatment. TBS handle injuries to muscles, joints, and bones. They treat people with sprains, strains, dislocations, and fractures.

The inception of scientific medicine in Frafra society for decades may be a good reason to doubt whether people still patronize traditional bonesetters as the medical anthropological literature described. Chapter Two showed that although orthopaedic services form a significant part of healthcare delivery from hospital-based medicine, in anthropological contexts traditional bonesetters are more visible in managing fractures and MSK injuries than biomedicine. People in

Frafra society consider several socio-cultural and economic factors in making their decisions of whether to go to TBS or hospital in times of fractures and MSK injuries.

6.2 SUMMARY OF FINDINGS

I intuitively assumed significant differences to exist between the five ethnomedical practices of traditional bone-setting for the five sub-groups of the Frafra major ethnic group of the Upper East Region (UER) according to their unique cultural practices. However, the situation appears uncomplicated and requires a finer synchronisation between traditional bonesetters from the five Frafra Tribal groupings. In particular for TBS in the sample the inhabitants are more culturally and linguistically homogenous (Rattray 1932:59).

Firstly, I examined the sources of knowledge and skills acquisition for traditional bone-setting as a component of Frafra ethnomedicine. In terms of becoming a bonesetter, the result showed a genealogical linkage where bonesetters inherited bone-setting from their parents or grandparents whose ancestors were bonesetters. Practitioners pass on bone-setting shrines: they receive them from their bonesetter predecessors through the patriline. Bonesetters normally choose the individual (son/grandson) to take over by way of a special ‘calling’ by the deceased fathers of his (father’s) previous generations (ancestors). ‘Special calling’ is evident by a revelation in ‘divination’ and a demonstration of keen interest in the trade by the son or grandson. The father trains the ‘chosen’ son via an apprenticeship model where the son works as an aide to his father or grandfather. Alternatively, youth outside the TBS’s patrilineage can opt to learn the trade and receive training from the TBS would be accepted for apprenticeship training. The historic professions of Medicine, Law, and Clergy (Priesthood) trained their students under apprenticeship.

The apprentice is prepared to be able to *act*, to *perform*, and to *practice* (Shulman 2005). This is like traditional bone-setting apprenticeship training. Bone-setting apprenticeship takes some years and depends on the commitment of the apprentice during training. A qualified human bonesetter can work under his master if the master is capable of performing bone-setting regardless of his (master's) age. My thesis identified two ways of knowledge and skills acquisition for traditional bone-setting: inheritance as ancestral heritage and informal apprenticeship training.

Secondly, I observed traditional bonesetters to obtain first-hand information on their approaches to diagnosing and treating fractures and musculoskeletal injuries. All medical systems have well-defined disease-specific diagnostic criteria with corresponding treatment interventions. This implies that accurate diagnosis results in a better prognosis. I have tried to emphasise TBS's approaches to diagnosing and managing fractures and MSK injuries that are similar to and different from those of doctors in the scientific medical system. On the one hand, TBS and medical doctors share an initial step of taking a history of the incident (cause of fracture/injury) from the casualty or his/her relative, manual manipulation to achieve anatomical alignment and immobilisation by using splints. On the other hand, TBS use hands to touch and feel fractures, massage with warm herbal water or local ointment, topically apply tobacco, earthworm castings and clay, remove splints to treat the fracture, and re-apply splints by tying them with ropes or bandages. Doctors do not perform these actions in the hospital after the application of Plaster of Paris (POP).

The incorporation of scientific medical technology by ethnomedical practitioners is increasing with globalisation. People who use traditional medical services tend to like scientific technology and traditional healers accept the strength and influence of scientific medicines in their practice. I found it interesting and welcoming when TBS recommended the use of over-the-counter analgesics (pain killers) for pain control in people they were treating. In addition, TBS allowed for

the services of scientific medical specialists like anaesthetists and nurses in pain management and wound care as part of their treatment interventions. Traditional bonesetters also used X-rays from hospitals to help them diagnose fractures and MSK injuries. One conclusion we can draw from these findings is that an established partnership and referral system between TBS and hospitals can yield good prognoses for TBS treatment and reduce the reported complications from their work that end in the hospital.

What about the “spiritual body?” Many ethnomedical systems contain aetiological explanations that situate disease causation within the spiritual realm, in relations among people, animals, animated objects, and the cosmos. Such systems tend to differentiate disease into two separate treatable domains, aetiologic and symptomatologic. Understandings of aetiologic factors often require treatment that extends beyond the individual and into the “spiritual body”. I am obliged to conclude in my thesis that traditional bonesetters are better situated than medical doctors to explore the supernatural causes of fractures and MSK injuries. They can handle spiritual forces (spirits, witches, deities) that Frafra patients believe have a ‘hand’ in the occurrence and healing of certain fractures and MSK injuries as part of their interventions to bring relief to sufferers.

Traditional bonesetters consider their healing powers to come from their ancestors and shrines. The medicines they make are not for their own gain and profit making. They are there to serve their families, relatives, and the community. They do not charge fees for treatment and ask people to offer animals which the healers used to appease and thank the ancestors and shrines for their role in bringing healing to the afflicted. Monies that TBS accept from people are still meant for the purpose stated above. Thus, I conclude from this observation that Frafra's traditional bone-setting is an age-long non-profit-making trade in which practitioners follow a calling to serve society.

Thirdly, I sought to understand how people perceive traditional bonesetters (healers) through their (people) explanatory models in a cultural and economic context. As I explained earlier, this was necessary because in contemporary Ghana two medical systems – traditional and scientific – operate side-by-side and people move between the two in terms of healthcare seeking. Given that, I inquired to know the action people take first in Frafra society when they sustain a fracture or musculoskeletal injury.

The result showed that people go to the hospital first. This is because fracture and MSK injury victims are immediately transported to the hospital by the ambulance service or bystanders at the scenes of accidents that bring about fractures. The victims later leave the hospital upon their request for discharge to TBS for fracture treatment. I conclude from the preceding that people still prefer TBS for fractures and MSK injuries treatment to that by doctors in hospitals. Fracture victims will go to the hospital first because they have no choice at the time of the accident. They also go to the hospital because they know doctors can handle other medical problems in the accidents. For example, the administration of intravenous fluids and transfusion of blood for accident victims. After receiving these services in the hospital, people go to TBS to treat fractures and MSK injuries.

Some other interesting results emerge from my study especially people's explanations or perceptions about traditional bonesetters and healers in general. People view bonesetters as part of the local community, culture, and tradition who continue to have social recognition in the area of bone problems. One can find bonesetters in most societies and these practitioners considerably impact local health practices. Traditional bonesetters remain the very manifestation of the conscience of their communities in times of bone-related health problems. People also perceive TBS as indigenous healers who demonstrate cordial social interaction with those who access their

service. Through social relationships, bonesetters are aware that successful treatment of fracture victims starts by first appreciating the people's traditional beliefs and worldviews which are at the centre of psychological functioning and provide the basis of healing. The conclusion I draw from these results is that people think of traditional bonesetters as local communities' healers who build long-lasting social relationships through healing rather than the mere focus of curing fractures and musculoskeletal injuries. Hospital health professionals establish no such relationships after curing.

Finally, I looked at the factors that people consider when they make decisions to use traditional bonesetters for the management of fractures and musculoskeletal injuries in Frafra society. People emphasize the fact that TBS provide prompt service, cheap cost with flexible payment for service, and are more effective in managing fractures than hospitals (the belief that TBS methods are efficacious). Again, people widely consider the supernatural causes aside the natural causes of fractures and MSK injuries, fear of cast, limb amputation and operations that leave scars, and prolonged hospitalisation that may attract nosocomial (hospital-based) infection as the criteria of choice in the use of TBS for treatment of fractures.

As Mbiti observes (1990:166) traditional healers "symbolise" the hopes of their respective communities – hope of good health, protection, and security from malign forces, prosperity and good fortune, and ritual cleansing when harm or some other impurities have brought about disequilibrium. Traditional healers are essential in the healthcare delivery system in rural and urban areas. People patronize them because a therapist cannot heal a person without first taking care of his beliefs, family, work, and even his environment (Lambo 1989/1999:156 cf; Offiong 1999). These results lead me to conclude that apart from the widely pronounced cheap cost and prompt treatment provision by TBS, people also consider several socio-cultural factors when making decisions to go for TBS treatment for fractures and MSK injuries in the Frafra society.

6.3 FUTURE INQUIRIES

This study provides answers to several questions concerning Frafra traditional bone-setting practices. But a diversity of questions remains unanswered. Areas requiring attention include the role of women in traditional bone-setting, medicine, spirituality (ritual), and possible refining of some aspects of TBS practice for integration into (formal) national healthcare delivery system (regularisation).

There are many unanswered questions about the role of women in Frafra traditional bone-setting practice. What role do women (wives and daughters) of senior traditional bonesetters play in contributing to the treatment of fractures and continuity of bone-setting in the lineage? We know that traditional bone-setting is a male-dominant trade where sons inherit bone-setting shrines from fathers or grandfathers. But Frafra also recognize women to be at the centre of caring for the sick within the traditional Frafra compound. Women bathe and feed the sick in the compound. They prepare items for the pouring of libation and sacrifices. Residents call upon older women in times of pregnancy, labour, and childbirth. Further research into women's participation in traditional bone-setting will help offer a deeper understanding of the Frafra ethnomedical system and how bone-setting practice continues in a lineage where the existing bonesetter has only daughters.

Traditional bonesetters are traditional healers who use plants and other substances as medicines in their practice. Bonesetters use tobacco, cow dung, shea butter (or mixed with powdered herbs), clay and earthworm castings which have healing powers for topical application as part of treatment for fractures and musculoskeletal injuries. Sometimes TBS prepare herbal medicinal water for their clients to drink and use it for massaging. Plants like *Milicia excelsa*,

Chromolaema odorata, *Aspilia Africana*, and *Manihot esculenta* are used for fast healing of wounds. These plants contain therapeutic compounds such as vitamin C (ascorbic acid) and some amino acids which promote fast wound healing (Abd El-Ghani 2016). We also know that tobacco found use in South American societies as medicine in the forms of tobacco enemas, remedy for snake bites, and fumigation of crops (Gately 2007:5-8). As Kirby observes (1996), plants that people use in traditional medicine are yet understudied. More research into the TBS use of plant and other medicinal substances for the treatment of fractures and MSK ailments could lead to the discovery of therapeutic compounds in these substances (TBS medicines) and their mechanisms of action on bone healing.

In Frafra society, people's beliefs in natural causation intersect with beliefs in supernatural causes of fractures and MSK ailments that include juju, witchcraft, evil spirits, or deities. People use natural procedures to treat natural agents, while supernatural forces require treatment by supernatural forces (Fosu 1981). As a result, causal explanations come in a magico-religious form. Religious values offer meaning and soundness to human life and they provide the healthiest pathway for many people. Religious and spiritual factors are inherent in (traditional) healing. People recognize that traditional bonesetters are well-situated to tackle supernatural forces involved in the occurrence of fractures and MSK ailments. They perform spiritual consultation via divination, incantation, sacrifices, and symbolic rituals that constitute the spiritual component of fractures and MSK ailments management. But the question that remains unanswered is: What is the nature of these spiritual rites and what are their effects on the client in the treatment process? This requires further research to provide a deeper grasp of spiritual involvement in traditional bone-setting.

Ghana like any other developing country, has both traditional and scientific medical systems and these exist side by side with people moving in between the two systems for their healthcare needs; both complementing each other (Warren et al 1982). In rural Ghana, traditional bonesetters are often the only source of healthcare for people who suffer fractures and MSK injuries. Yet there are reported cases of complications such as limb gangrene, sepsis, and malunion because of TBS treatment. The World Health Organisation's Primary Health Care (PHC) strategy (WHO 1978) calls for the promotion and development of traditional medicine. Warren and his coauthors note (1982:1874), that some local communities present traditional healers as community health workers (volunteers) and suggest further exploring the possibilities of engaging them in PHC and training them accordingly. There have been cases where traditional methods worked best when scientifically trained orthopaedic doctors failed and vice versa. In Africa, Tanzania has been able to create a unit for Traditional Medicine at the University of Dar es Salaam and Ghana has an Institute for Herbal and Plant Medicine (Offiong 1999). The Chinese and Indian governments have regularised traditional medicine and made it part of their nations' healthcare delivery systems. There is, therefore, the quest for more research into ways to adopt lessons from these preceding documented examples and apply them to the area of traditional bone-setting in Ghana and other developing countries. Further studies will also provide healthcare planners with culturally friendly ways of engaging with traditional bonesetters in discourse for streamlining and integrating TBS service in the national healthcare delivery system.

6.4 CONCLUSIONS

In conclusion, this study has revealed that traditional bonesetters are well accepted by the people of the Upper East Region (UER). Traditional bone-setting has been a long-standing traditional medical practice that exists in certain lineages as ancestral heritage with an apprenticeship training for succession. What sets them apart from hospital doctors is their methods of regularly removing splits for fracture immobilization, massaging the affected limb and re-applying the splits. People patronize them because they provide prompt service and charge less for service. Bonesetters also enjoy high patronage because they take care of supernatural (spiritual) forces since disease is a religious affair and religion is an important factor in the healing process. They establish strong social ties with people who use the service even after healing. It is suggested that health authorities identify areas where traditional bonesetters and biomedical health professionals can best complement each other and create a working relationship in such areas. This can go a long way to reduce complications from TBS treatment and physical disabilities resulting from fractures and musculoskeletal injuries in the UER of Ghana.

Tables

Table 4.1: Sociodemographic Characteristics of Traditional Bonesetters (TBS)
(*n = 10*)

Characteristic		N	%
Age	18 – 40	3	30
	41 – 60	6	60
	>60	1	10
Sex	Male	10	100
	Female		
Marital Status	Married	9	90
	Single	1	10
	Widow/Widower		
	Divorced		
	Separated		
Education	None	6	60
	Basic	1	10
	Secondary	1	10
	Tertiary	2	20
Occupation (other)	None	1	10
	Farmer	6	60
	Services/Skilled labourer	1	10
	Small business/Trader		
	Professional	2	20

Table 4.2: Sociodemographic Characteristics of Traditional Bonesetters (TBS) Prospective Clients

(*n* = 20)

Characteristic		N	%
Age	18 – 40	16	80
	41 – 50	3	15
	51 - 60	1	5
	>60		
Sex	Male	11	55
	Female	9	45
Marital Status	Married	10	50
	Single	9	45
	Widow/Widower		
	Divorced	1	5
	Separated		
Education	None	4	20
	Basic	9	45
	Secondary	6	30
	Tertiary	1	5
Occupation (other)	None	4	20
	Farmer	3	15
	Services/Skilled labourer	3	15
	Small business/Trader	9	45
	Professional	1	5

Table 4.3: Acquisition of Knowledge and Skills in Bone-setting Among TBS
(*n = 10*)

Theme	Responses	N	
		Interview	Observation
Years of Practice in Bone-setting	1 – 10	3	
	11-20	2	
	>20	5	
Training to become a Bonesetter	As an apprentice to my grandfather, and first trained with animals	2	
	Inherited bone-setting shrine from father/uncle and trained with humans	6	
	Observing grandmother and training with humans	1	
	He was treated by a bonesetter and trained under him with humans	1	
Genealogical element of Bone-setting	Practice by several generations of our ancestors	6	
	Practice by lineage members settled in a distant community	3	
	Practice by Bonesetter's mother's brother (bonesetter's maternal uncle)	1	
Succession plan for continuity of bone-setting (in TBS lineage)	Training a son or grandson	7	7
	Training interested healed client/friend	3	1

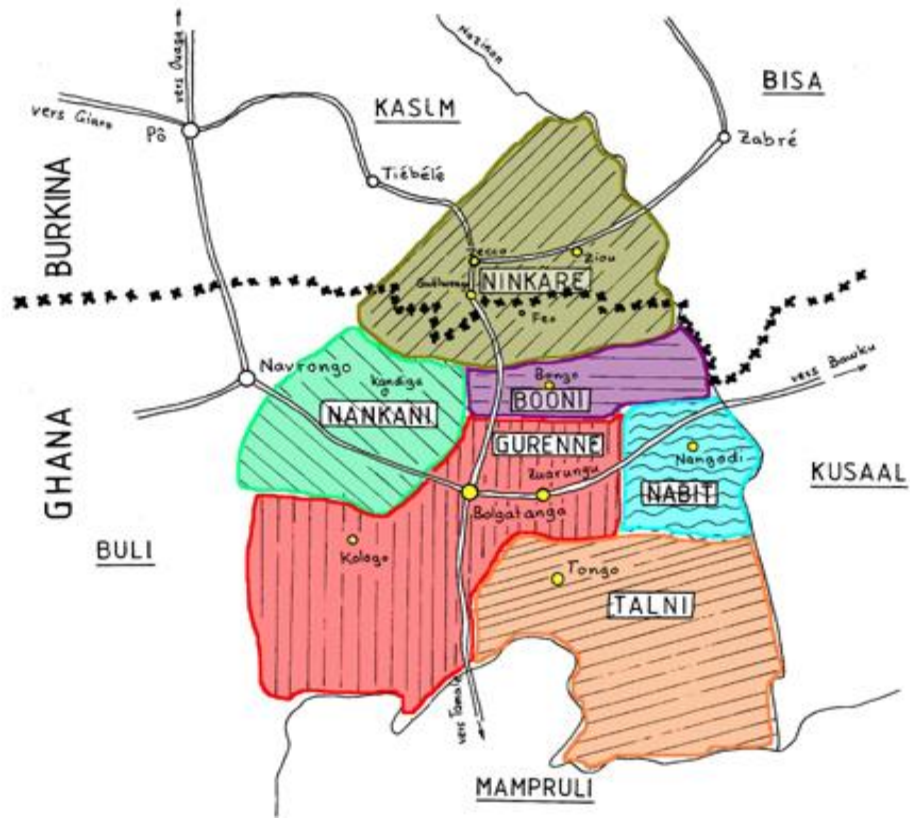
Table 4.4: Overall Fractures/MSK Injuries Treatment Process by TBS
(*n = 10*)

Phase	Response	N	
		Interview	Observation
How Clients access TBS	Referrals from friends and relatives who had previously used TBS services and sometimes informally by some health workers in the hospital	10	
Diagnosing fractures/MSK injuries	Take the history of the injury from the client or relative	10	10
	Observe the site of injury (swelling, open wound)	10	10
	Measure the limb when it is the part injured with the opposite healthy one	10	10
	Flex and extend part when the injury involves meeting place of bones (lit. movable joint)	10	10
	Touch and feel the fracture/injury with the hands	10	10
	Use of x-ray	3	3
Treatment approaches	Pulling and manipulating the affected part (alignment), usually limb	10	10
	Massaging with warm herbal medicine water	6	6
	Open wound care if present	1	1
	Application of shea butter mixed with powdered herbs, cow dung, tobacco, and clay/earthworm castings	10	10
	Application of split (immobilization)	10	10
	Pain management	5	3
	Use of supportive devices to exercise limb	10	10
	Involvement of spiritual backing	10	
Duration and efficacy of treatment	3 – 5 weeks (young people)	10	
	6 – 10 weeks (grownups)	10	
	Very minimal complications with simple fractures	10	
	Delay healing with multiple fractures and fractures with open wounds	10	
Payment for service	Money for the things involve	2	
	Animals/assorted items	8	5

Table 4.5: Folk Models and Utilization of TBS for Fracture Treatment
(*n* = 20)

Theme	Explanation/Response	N	%
Action people take first when they get a fracture/MSK injury	Go to the doctor's house (hospital/clinic)	13	65
	Go to TBS	7	35
Perception about Traditional Bonesetters/Healers	They have been with our ancestors, a long time ago and are still with us before hospital doctors	13	65
	They interact well with their clients	11	55
	They are healers in our communities	14	70
	They use local natural materials and ways of treating fractures	20	100
What influences people's choice of TBS	Prompt service	20	100
	Believe and trust in TBS	17	85
	Effective approaches to diagnosis and treatment outcomes (efficacious)	19	95
	Less costly with flexible payment for service	20	100
	Believe also in supernatural causes of injury	11	55
	Fear of casts and other devices	13	65
	Fear of amputation	18	90
Fear of prolonged stay in hospital	10	50	

La région occupée par les différents 'dialectes frafra'



Map. Upper East: Areas Occupied by the Different “Frafra Dialects”

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Appendix: A Glossary of Frafra Terms

Frafra/Gurene	English
<i>koḥ-tebiriba</i>	bonesetters/bone doctor
<i>koḥbire (pl. koḥba)</i>	bone(s)
<i>fara-fara</i>	well done
<i>bure (pl. bural)</i>	clan/lineage
<i>na (naa-ba)</i>	chief
<i>ten'dana</i>	earth priest
<i>teḥa</i>	settlement/land
<i>baagkolgo daana</i>	diviner/soothsayer
<i>yeyga daana</i>	herbalist
<i>tiiba</i>	traditional healer
<i>nye-etiya</i>	I said (Frafra ethnic group)
<i>koḥba-tiibigo ba'gre</i>	bone medicine shrine
<i>baaga</i>	shrines